45th SICOT ORTHOPAEDIC WORLD CONGRESS

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SHORT FREE PAPERS

Wednesday, 3 September

Foot & Ankle 1
08:36 - 08:39

627 From Disability To Mobility: A Surgical Approach To Severe Foot Deformity Following Childhood Clubfoot

Filipa De Carvalho Cordeiro, João Nelas, Bianca Barros, Francisco Xará Leite, Luis Costa

Unidade Local de Saúde de Santo António, Porto, Portugal

Abstract
Clubfoot, when inadequately treated or left to progress, can lead to severe structural deformities in adulthood, significantly impairing function and quality of life.
We present the case of a 52-year-old male with a complex foot deformity as a long-term sequela of childhood clubfoot.
The patient exhibited a supinated and adducted foot, bearing weight on the lateral rays while the first ray remained non-weight-bearing, leading to instability, gait impairment, and chronic pain.
Preoperative planning was crucial, involving 3D reconstruction models based on CT scan to fully assess the structural abnormalities and guide the surgical strategy. Correction was achieved through a percutaneous varus osteotomy of the calcaneus, navicular resection, percutaneous cuboid osteotomy, talocuneal arthrodesis with plate, and wedge osteotomy of the proximal phalanx of the toes. This comprehensive reconstructive approach successfully realigned the foot, achieving near-normal anatomical positioning. Remarkably, at just six weeks postoperatively, the patient was able to walk with full support of the foot using crutches, demonstrating rapid functional recovery and pain relief.
This case underscores the potential of tailored surgical reconstruction to restore mobility and significantly improve quality of life, even in long-standing severe foot deformities. Early clinical outcomes suggest that, with careful planning and execution, functional restoration can be achieved in a short timeframe, offering renewed mobility to patients suffering from similar conditions.

09:02 - 09:05

749 Individualized Treatment In Complex Fracture Management In A Case Of Tibial Pilon Injury In A Polycomorbid Patient

Francisco Rodrigues, João Marques, Fernando Oliveira, Erica Marto, Nuno Maia, Rui Gameiro, José Mousinho

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Abstract
Individualized treatment is important since theoretical recommendations will differ from patient to patient. We present the case of a patient who suffered a fall from a roof and developed an explosive open fracture of the tibial pilon (AO/ASIF 43C3) and external malleolus (DW B). The patient had a complex past medical history of depression, HIV, Hepatitis C, and disseminated tuberculosis, making treatment choices difficult.
The fracture was initially fixed with external fixators due to contamination (GAIIIa). Open reduction and internal fixation of the tibial plafond, lateral malleolus, and posterior malleolus were performed after 3 weeks, and autologous graft was used in the management of extensive bone loss.
Three months after surgery, the patient was free of pain with excellent ankle motion, although radiological examination revealed minimal bone union. Six months after surgery, pseudarthrosis was diagnosed, and tibiotalocalcaneal arthrodesis was successfully carried out.
Despite limited mobility and mild ankle pain, the patient reported overall improvement in quality of life. Follow-ups were routine with minimal increases in inflammatory markers, which were managed with watchful waiting.
This case brings out the difficulties of dealing with complex injuries in polycomorbid patients where the treatment has to be tailored to the individual characteristics of the patient. It questions other options, the complications that may arise, and the balancing of medical background and treatment options. Through this case, we can see more clearly how individualized care is important in obtaining optimal outcomes when results are suboptimal.

08:49 - 08:52

882 Rotational Talar Instability In The Development Of Assymetric Ankle Arthritis.

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Abstract
Asymmetric arthritis of the ankle joint develops as a result of damage to the lateral ligament complex of the ankle, characterized by varus arthritis, or as the final stage of a PCFD, involving damage to the deltoid ligament and the formation of valgus arthritis. In addition to the tilt of the talus, which is easily detected on radiographs, the rotation of the talus is of significant importance, yet it has received insufficient attention.

A prospective study was conducted on 26 patients between 2021 and 2024 with varus arthritis of the ankle joint classified as Takakura-Tanaka stage 3A. All patients underwent medial open-wedge supramalleolar osteotomy of the tibia with reconstruction of the lateral ligament complex. All patients followed a standardized rehabilitation protocol, which included restricted weight-bearing on the affected limb for 8 weeks. Radiographic parameters were assessed, and clinical outcomes were evaluated using standardized AOFAS questionnaires at 3, 6, and 12 months. Good to excellent treatment results were achieved in 88.5% of cases (n = 23) based on the questionnaire results. However, complete radiographic correction was achieved in only 58% of the osteotomy cases, with residual talar rotation remaining in most cases.

The results demonstrate that clinical outcomes do not always correlate with radiographic parameters. Furthermore, the rotational position of the talus is only partially corrected by supramalleolar osteotomy and reconstruction of the lateral ligament complex of the ankle joint.

09:05 - 09:08

1459 Description Of The Surgical Technique For ATFL And CFL Insert Reconstruction With Evaluation Of Clinical Effects

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Abstract
In Poland, there are approximately 350000 ankle sprains each year, but there is a lack of accurate data specifying what percentage of this number are first-time injuries and what structures are damaged as a result. OBJECTIVE. The aim of this study is to describe and attempt to assess the effectiveness of reconstruction of the ligaments of the anterolateral ankle complex using the Insert method. MATERIAL and METHOD. In the years 2019–2024, 80 ligament repairs were performed at the Orthos Hospital, including 56 reconstructions using the Insert technique and 16 Bromstrom procedures, 8 reinsertions. Among the patients, 20% were patients with a first injury, of which 80% had additional damage to anatomical structures, including damage to the peroneal tendons, cartilage-bone damage, one case of tibia fracture, and one case of simultaneous damage to the ATFL, CFL and ACL. Initial diagnostics was based on MRI and dynamic USG, which allowed for a precise assessment of the extent of damage. Clinical assessment of patients after surgery was based on the EFAS, AOFAS, IdFAI scales. Each patient underwent a dynamic USG examination, a clinical examination, and in 20 patients a control MRI examination was performed.RESULTS: We achieved promising results in 95% of the procedures performed, with a significant rate of return to sports and professional activity. We observed complications consisting of graft damage after reconstruction, 1 case of secondary instability, 1case of arthrofibrosis. CONCLUSIONS. Anterolateral ligament reconstruction with the ankle insert technique is an effective treatment for chronic and acute instability.

09:08 - 09:11

1521 Quality Of Life After Osteosynthesis Of Tibial Pilon Fractures: A Study Of Thirty Patients

Anis Chaabouni, Mohamed Ali Khlif, Mehdi Ben Ayed, Maher Barsaoui, Khaled Zitouna

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Abstract

Introduction:
Tibial pilon fractures are complex injuries affecting both bone and soft tissues, with significant functional consequences. Surgical management aims to restore alignment and the articular surface of the ankle. However, post-surgical quality of life remains underexplored.

Objective:
To assess the quality of life of patients following osteosynthesis of tibial pilon fractures.

Materials and Methods:
We conducted a retrospective study on 30 patients who underwent surgery for tibial pilon fractures between January 2016 and November 2023. Patients treated secondarily after external fixation were excluded. Functional and quality-of-life assessments were performed using the SF-36 score and the Olerud Molander Ankle Score (OMAS). Complications were recorded throughout the follow-up period.

Results and Discussion:
The mean patient age was 54 years. Domestic accidents were the leading cause (67%). Articular fractures were present in 80% of cases, with associated fibular involvement in 83%. Open reduction and internal fixation (ORIF) was performed in 87% of cases. The mean SF-36 score was 55, and the OMAS score was 80.2. No clinical, epidemiological, or fracture-related factors were significantly associated with functional outcomes ($p > 0.05$). Complications included six infections, two cases of skin necrosis, three malunions, and 13 cases of tibiotalar osteoarthritis.

Conclusion:
Tibial pilon fractures significantly impair quality of life, regardless of the type of management or complications encountered.

Keywords: Tibial pilon fractures, osteosynthesis, quality of life, SF-36 score

09:44 - 09:47

1750 Computer Assisted Technique To Design Polyfoliate Perforator Flappedicled On The Descending Branch Of The Circumflex Femoral Lateral Flap To Construct The Defects Of The Heel

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Abstract
To investigate the feasibility and clinical effect of the computer assisted technique to design polyfoliate perforator flappedicled on the descending branch of the circumflex femoral lateral flap to construct the defects of the heel. Methods From October, 2014 to November, 2016, digital assisted technology was used to simulate the process of designing, isolating, and harvesting Quadriceps artery perforating flaps. This method was used to guide clinical design and to obtain quadriceps artery perforating flaps. There were 5 cases of soft tissue defects (one patient was combined with polyfoliate perforator flap pedicled on the descending branch of the circumflex femoral lateral flap and DIEPF). Results The 3D visualization model of the vessels in the body area of quadriceps artery was successfully established in all the 5 cases, and the design and removal of the perforating flap were successfully guided. All the 10 patients' flaps survived successfully in 5 patients, and 1 patient had a back flow disorder at the distal end of the inferior epigastric artery perforator flap, with partial necrosis and II grafting. After 6 to 12 months of follow-up ,the flap had good color and texture, heelappearance was satisfactory, and the donor site was linearly scarred. Conclusion Digital technology can effectively assist the design of the polyfoliate perforator flappedicled on the descending branch of the circumflex femoral lateral flap, using this technique to repair large area skin and soft tissue defect of heel can reconstruct the function of heel and restore the function of heel to the maximum extent.

08:52 - 08:55

1532 Soft Tissue Giant Cell Tumor: The Foot – A Very Rare Localization Case Report

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1. EHS SALIM ZEMIRLI ALGER, Alger, Algérie
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Abstract

Objectives

To highlight the potential complications of this lesion despite its benign nature and to emphasize the importance of considering this diagnosis in atypical locations.

Materials and Methods

We report the case of a 32-year-old female presenting with a painless mass on the plantar and dorsal aspects of the third toe of the left foot. The lesion was progressive, with a sudden increase in size. A biopsy confirmed the diagnosis of a soft tissue giant cell tumor (GCT). The patient underwent en bloc marginal resection, including the biopsy scar.

Results

Histopathological examination confirmed the diagnosis of a GCT of the tendon sheaths. After 12 months of follow-up, no recurrence was observed.

Discussion

This condition presents in two clinical forms:

Localized form (nodular tenosynovitis): Appears as an adherent, non-painful, slow-growing nodule attached to a tendon.Diffuse form: Corresponds to the extra-articular equivalent of pigmented villonodular synovitis.

Conclusion

Although this tumor may appear to invade surrounding structures, it remains benign and never metastasizes. However, in cases where vascular structures are involved, it may necessitate amputation. Early diagnosis is therefore crucial.

09:24 - 09:27

2124 Nail Fixator Vs. Winograd Technique: A Comparative Study On Ingrown Toenail Treatment

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Abstract

Introduction

Various surgical options are available for complicated ingrown toenails. The use of less invasive treatment alternatives, such as external fixation devices, has risen along with reported favorable outcomes. This study compared the nail fixator and the Winograd technique in terms of efficacy and recovery period.

Methods

We retrospectively reviewed the hospital database of patients operated for ingrown toenails between May 2022 and January 2025. The demographic data of patients, Heifetz classification, surgical details, time to return to work, patient satisfaction, and complications were documented.

Results

After the review, 150 patients were included and divided into nail fixator (n=64) and Winograd technique (n=86) groups. Both groups were similar regarding patient demographics (age, sex, body mass index-BMI) and Heifetz classification. The mean operation time was shorter in the nail fixator group (11.5 minutes) but was not statistically significant ($p > .05$). In the nail fixator group, the mean time to return to work (3.1 ± 0.9 days) was significantly shorter than the Winograd technique group (9.8 ± 2.5 days; $p < .001$). No significant statistical differences were found in patient satisfaction, recurrence, and infection rates between the groups ($p=0.597$, $p=0.654$, and $p=0.412$, respectively).

Conclusion

The nail fixator method presents a less invasive option, allowing for quicker recovery and an earlier return to work while having similar complication rates to the Winograd technique in treating ingrown toenails.

09:27 - 09:30

2146 Transforming Outcomes: The Ilizarov Technique As An Effective Salvage Strategy For Neglected Ankle Fractures

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Abstract
Background: Managing infections around the ankle joint following fracture fixation, or addressing septic arthritis with active discharge, poses significant challenges for conventional arthrodesis techniques. The Ilizarov method offers a promising alternative for salvaging these complex cases.

Methods: This retrospective study involved twenty patients who underwent tibiotalar arthrodesis using the Ilizarov technique. The primary indications included infected ankle fractures following internal fixation, posttraumatic infected ankle arthritis, and osteomyelitis. Patient outcomes were assessed based on the Association for the Study and Application of the Method of Ilizarov (ASAMI) criteria. The surgical goal was to attain a stable, plantigrade, and pain-free foot free from infection.

Results: A total of 20 patients were operated on and subsequently reviewed at our institution. The cohort included 15 males and 5 females, with a mean age of 43.9 years (range: 33–55 years). Successful bony union was achieved in all cases. The mean duration of external fixation was 22.9 weeks (range: 18–34 weeks). Complications occurred in 4 patients, including pin tract infections, and one instance of wire breakage in the forefoot ring. According to ASAMI criteria, 17 patients demonstrated excellent bone healing scores, and 18 patients reported good functional scores. There was a mean limb length discrepancy of 1.92 cm (range: 1–2.5 cm).

Conclusions: The Ilizarov fixator for ankle arthrodesis presents an effective solution for facilitating solid bone fusion, eliminating infection, allowing early weight-bearing, and providing the advantage of compression at the arthrodesis site during postoperative recovery.

09:30 - 09:33

2187 Comparing Patient Functional Outcomes After Haglund's Surgery, With Or Without Concomitant Gastrocnemius Procedure

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Abstract

Introduction

Haglund's disease describes disabling posterior heel pain that can occur in individuals with prominence of the posterosuperior calcaneal tuberosity. Surgical options typically involving excision of the Haglund's deformity, retrocalcaneal bursectomy with or without debridement of the Achilles tendon and reattachment. Adjunct procedures that may be considered include gastrocnemius recession and V-Y plasty of the Achilles tendon.

Aims & Objectives

Comparison of functional outcomes of patients undergoing Haglund's surgery, with or without gastrocnemius recession and V-Y plasty of the Achilles tendon.

Methods

Retrospective study of all patients who underwent Haglund's surgery in 2007-2021. Patients with concomitant gastrocnemius recession or V-Y plasty of the Achilles tendon were matched to patients without concomitant surgical procedure, based on age, BMI and pre-operative American Orthopaedic Foot and Ankle Society (AOFAS) ankle-hindfoot score. Functional scores were assessed pre-operatively, and at 3 months, 6 months and 1 year post-operatively.

Results

31 patients with concomitant procedure, were matched to 31 patients without. There was no difference in pre-operative functional scores between the two groups. At 3 months post-operatively, patients with concomitant procedure had better AOFAS Ankle-Hindfoot scores ($p=0.049$), but with no difference at 1 year. At 1 year, SF36 General Health score was better for patients with adjunct procedure ($p=0.027$). There was no difference in numerical pain rating scale and other aspects of SF36 up to 1 year post-operatively.

Conclusion

Gastrocnemius recession and V-Y plasty of the Achilles tendon during Haglund's surgery may not confer significant improvement in patient functional outcomes. Surgical decisions should be tailored to each patient's unique needs.

09:38 - 09:41

2337 Subchondral Bone Cysts Remodel After Correction Of Varus Deformity In Ankle Arthritis

Mingzhu Zhang

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Abstract
Background: Subchondral bone cysts (SBCs) of the talus are frequently observed in ankle osteoarthritis (OA). It is unclear whether the cysts need direct treatment after correction of the varus deformity in ankle OA. The purpose of this study is to investigate the incidence of SBCs and the change after supramalleolar osteotomy (SMOT).
Methods: Thirty-one patients treated by SMOT were retrospectively reviewed, and 11 ankles had cysts preoperatively. After SMOT without management of the cysts, the evolution of cysts was evaluated on weightbearing computerized tomography (WBCT).
Results: At baseline, the average cyst volume was 65.86±60.53 mm3. The number and volume of cysts were reduced dramatically (P<.05), and the cysts vanished in 6 ankles after the SMOT.
Conclusions: The SMOT alone without direct treatment of the SBCs led to a decrease in the number and volume of SBCs in varus ankle OA.

09:41 - 09:44

2557 The Neutrophil-Lymphocyte Ratio (NLR) In Patients With Surgical-Site-Infections (SSI) After Open-Reduction-Internal-Fixation (ORIF) For Closed Ankle Fractures: A Prospective Cohort Study

Jose Joaquin Herrera Arroyo, Edsel Fernandez Arandia

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Abstract
Introduction: The ability of the NLR as a parameter to predict the risk for surgical-site infections may improve the postoperative management after open reduction internal fixation (ORIF) of ankle fractures.

Aims and Objectives: This study aims to determine the association and predictive capacity of the NLR with SSIs in patients undergoing ORIF for ankle fractures.

Study Design and Methods: A single center, prospective, cohort, observational study was conducted. Consecutive charts of patients who underwent ORIF for closed ankle fractures, specifically measuring white blood cell counts and differential leukocyte count were reviewed. Calculations for NLR were done by dividing the absolute neutrophil count by the absolute lymphocyte count. SSIs were classified per U.S. Centers for Disease Control and Prevention guidelines. Statistical analyses included descriptive and analytical statistics, repeated measures ANOVA, and Receiver Operating Curves (ROCs) to establish optimal cut-off values for SSI risk.

Results: A total of 41 patients were analyzed, predominantly males (56.1%) aged 26-35 years. The majority were impact injuries (80.5%), with trimallleolar fractures (70.7%) being prevalent. No demographic factors significantly correlated with SSIs ($P > 0.05$). The overall infection rate was 12.2%. While individual perioperative laboratory parameters showed no significant association with SSI, the perioperative changes proved to be moderately predictive (AUCs ranged from 0.573 to 0.850).

Conclusion: Our findings indicate that the perioperative differences rather than individual laboratory parameters may serve as moderate predictors of SSI following ORIF for ankle fractures.

Keywords: neutrophil-lymphocyte ratio (NLR), closed ankle fractures, open-reduction-internal fixation (ORIF), surgical-site infection (SSI)

08:33 - 08:36

2915 Bridle Procedure As A Unified Soft Tissue Balancing Procedure In Neurogenic Cavo-Varus Foot Deformities. A Prospective Cohort Study.

Abdullah Khaled, Mahmoud Soliman, Mahmoud El-Rosasy

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Abstract
Introduction: balancing a neurogenic cavo-varus foot after deformity correction is crucial to prevent recurrence. There are several soft tissue balancing procedures discussed in the literature. The bridle procedure is described as a balancing procedure in the treatment of the foot drop.it includes transfer of the tibialis posterior to the dorsum of the foot with concomitant anastomosis to tibialis anterior and peroneus longus.the aim of our study to evaluate the efficacy of the bridle procedure as a unified soft tissue balancing procedure in neurogenic cavo-varus foot deformities. Patient and methods: a prospective cohort study includes 14 patients with a neurogenic cavo-varus foot deformity. The bridle procedure was done after soft tissue release, osteotomies or fusion as a unified soft tissue balancing procedure for all cases. A further modification of the bridle procedure was done in our series in cases including toes drop. This modification including (EDL and EHL) tenodesis at the dorsum of the leg with the 3 limbs. (5 limb anastomosis). Results: 14 patients (20 feet) with mean age 16.2 ±2.1 were included in this study. The etiology was CMT, Spina bifida, Cerebral Palsy, spinal cord tumor and CPN injury in 6,4,4,2,and 4 feet respectively.12 patients (17 feet) were able to active dorsiflex their feet in a balanced manner.2 patient (3 feet) the ankle and foot was stiff in neutral position (no need for permanent brace).the mean follow 24 months. Conclusion: bridle procedure can be used as a unified soft tissue balancing procedure in neurogenic cavo-varus foot deformities.

08:30 - 08:33

3042 Tibiotalocalcaneal Nailing For Unstable Ankle Fractures In Elderly Patients. Individualized Management To Optimize Outcomes.

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Abstract

Introduction:
Ankle fractures in elderly patients carry a high associated comorbidity, which may be worsened by prolonged immobilization. In them, anatomical joint reduction loses importance; as our priority is the achievement of stable alignment, with early rehabilitation and pain control.
This study aims to compare the outcomes of conventional osteosynthesis and tibiotalocalcaneal (TTC) nailing in elderly patients.

Material and Methods:
We conducted a single-center, retrospective cohort study, including patients over 65 years old with unstable ankle fractures who received surgical treatment between 2019 and 2021. 29 patients were included in the osteosynthesis cohort, and 9 in the TTC nailing cohort. Functional outcomes were assessed at 4 weeks, 3-6 months, and 1 year post-surgery.

Results:
The nailing group was, on average, 10 years older. The nailing group had significantly more cognitive deterioration (6/9 vs 0/29; $p<0.001$) and dependency for activities of daily living (8/9 vs 9/29; $p=0.002$).
However, the TTC group had shorter immobilization times (2 ± 2.8 days vs 56.7 ± 13 days; $p<0.001$) and better functional outcomes at 1 month (AOFAS: 72.56 ± 9.88 vs 54.52 ± 11.93; $p=0.01$), but no significant differences at 3-6 months or 1 year. The complication and reintervention rates were also lower in the TTC cohort, although not statistically significant.

Conclusions:
Our study suggests that TTC nailing may be a viable option for elderly patients with unstable ankle fractures, particularly those with cognitive decline and functional limitations, due to quicker rehabilitation, early weight-bearing, and fewer complications.

08:55 - 08:58

3061 Ankle Arthrodesis Following Osteosynthesis Complicated By Infection

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Abstract
Ankle fractures are the third most common lower limb fractures in the elderly. Open reduction and internal fixation (ORIF) is the preferred treatment for displaced fractures; however, infection is a serious complication, with reported rates ranging from 6% to 40%. Management is complex and may require antibiotic therapy, debridement, hardware removal and advanced reconstructive techniques.
We present a 66-year-old female who sustained a closed bimalleolar fracture of the right ankle and underwent ORIF. Postoperatively, she developed an acute infection requiring irrigation, debridement and antibiotic therapy. Due to persistent symptoms, hardware removal and temporary tibiotalocalcaneal fixation with Kirschner wires were performed. Six months later, she presented with pain, an antalgic gait and radiographic evidence of nonunion and joint destruction. MRI confirmed osteomyelitis of the distal tibia. A two-stage Masquelet technique was performed, involving extensive debridement, tibial bone resection, antibiotic-loaded cement placement and external fixation. In the second stage, ankle arthrodesis was achieved with a tibiocalcaneal intramedullary nail and bone grafting. At six months, she was asymptomatic and fully weightbearing.
Post-osteosynthesis infection requires a tailored, staged approach. The Masquelet technique is a viable option for infected nonunions and bone defects, optimizing conditions for definitive treatment. Ankle arthrodesis remains an effective salvage procedure, ensuring pain relief and functional recovery in cases of severe joint destruction. This case highlights the importance of a multidisciplinary strategy for managing complex post-traumatic infections.

09:50 - 09:53

2827 A Case Series Of Peri-Talar Fracture Dislocations.

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Abstract
Background:
Peri-talar dislocations are rare, accounting for approximately 1% of all dislocations. They predominantly occur in young male patients following high energy trauma. Clinical outcomes in these high energy injuries are often unsatisfactory and do poorly if there is an associated fracture. Due to the paucity of studies there is no accepted method of managing these injuries. The purpose of this case series is to describe the initial and definitive management (staged or otherwise), and radiological and clinical outcomes of peri-talar fracture dislocations.

Methods:
Demographics, mechanism, time to presentation, management (and time to procedures), post-reduction CT, duration of immobilisation and complications were documented. Radiological outcomes were assessed (presence of avascular necrosis and subtalar osteoarthritis). Clinical outcomes will be assessed with a validated ankle-hindfoot scale.

Results:
750 coded records from 01/01/2015 to 13/12/2024 from Cairns Hospital were screened and fourteen patients were included with an average follow up of fourteen months. Thirteen were male and the average age was 45. Eight fell from a height, twelve had closed fracture dislocations, seven had closed initial reductions and twelve had a post-reduction CT. Five had staged fixation. Five had no reported radiological complications on follow up, nine had subtalar osteoarthritis, and one developed talar avascular necrosis.

Conclusion:
Peri-talar dislocations were a reasonably uncommon injury, with no standardised management. In our experience, early initial management and planned definitive management with post-reduction CT provides a more anatomical restoration of the foot and acceptable outcomes.

08:46 - 08:49

369 Ankle Fusion Using The Ilizarov Method

Mofakhkharul Bari

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Abstract
Introduction: Ankle fusion is a common surgical procedure for end-stage ankle arthritis, failed arthroplasty, or severe deformities. The Ilizarov method offers a unique approach to ankle fusion, providing stable fixation, deformity correction, and the potential for bony union.

Keywords: Ankle fusion, Bony union, Deformity correction, Stable fixation

Materials & Methods: Since 1990 to 2023, 56 patients were treated (35 males, 21 females) with Ilizarov apparatus in Ankle fusion. The mean age of patients was 36 (range 15-65 yrs.). Patient charts and radiographs at three different time points
were reviewed. Data on patient demographics, surgical techniques, outcomes, and complications were extracted and analyzed. Meta-analysis was performed where applicable to assess fusion rates and functional outcomes.

Results: The Ilizarov method demonstrated favorable fusion rates ranging from 80% to 100%, with mean time to fusion ranging from 3 to 6 months.
Discussion: The Ilizarov method for ankle fusion presents a holistic solution for end-stage ankle arthritis or deformities. With its ability to provide stable fixation, deformity correction, and high fusion rates, this technique represents a valuable treatment option for patients who have failed conservative management or are not suitable candidates for arthroplasty.
Conclusion: Ankle fusion using the Ilizarov method is a viable option for patients with end-stage ankle arthritis or deformities. The technique offers stable fixation, deformity correction, and high fusion rates, with satisfactory functional outcomes reported in the literature.

09:21 - 09:24

2083 Ankle Replacement Outcome: Standard Vs Preoperative Navigation System

May Labidi, Jija Thomas, Mohamed Alsonbaty

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Abstract
Intro: total ankle replacement procedures are increasing as the demand and expertise is increasing; the custom-made cutting jigs in pre-operative navigation system have also increased to simplify the procedure and reduce the risks.
Aims and objectives: to assess if there is a difference in outcome of patient satisfaction post operatively in the two cases. Study design and methods: 12 cases in total (6 Infinity Wright Medical and 6 Prophecy Wright Medical) were analysed using a combination of AOFAS and MOXFQ questionnaire, patients were at least 6 months post operative. Results: there was no significant difference found between the two groups, both had a good understanding about what type of surgery they had, with the preoperative navigation system ones having full understanding about the customised jigs. Conclusion: all factors should be considered when deciding on the two ankle replacements; there is no evidence so far in this study nor in the literature about a significant outcome difference in the two groups. The surgeon needs to have a solid background of standard total ankle replacements in order to perform comfortably the navigation system one. Cost and duration of preplanning needs to be considered.

09:11 - 09:14

1551 Post-Traumatic Osteoarthritis Of The Ankle: Conservative Vs Surgical Updated Rationale

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Abstract
Approximately 80% of ankle OA is post-traumatic (PTOA), more specifically following initial ankle sprain trauma, involving active and working patients with mean age around 50 years. Initial conservative treatment is effective and including weight-bearing restrictions, cast immobilization and intra-articular injectables. Recently orthobiologics have become of interest.
After the failure of conservative-medical treatment, two large groups of surgical treatment have been described: joint-preserving and joint-sacrificing procedures, depending on degree of disease and association to malalignment.
Up to date global treatment algorithm helpful in the decision-making process has nowadays to be based on newer imaging modalities and take in consideration evolving positive reports of orthobiologics use to ensure the most appropriate personalized treatment.

09:18 - 09:21

1497 DOES DELAYED PRESENTATION EFFECTS THE FUNCTIONAL OUTCOMES OF INTRA ARTICULAR CALCANEUM FRACTURE?

RUFINA Ali, FAHEEM Ahmed Abbasi, **Syed Akmal Sultan**

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Abstract
Introduction:
The objective of this study is to assess the outcomes of open reduction and internal fixation (ORIF) using a lateral extensile surgical approach for displaced intra-articular calcaneal fractures treated more than 25 days after injury.
Method:
This retrospective case series includes all closed calcaneal fractures with delayed presentation from January 2019 to December 2023. Functional and clinical outcomes were assessed using the EFAS score, functional pain score, and ankle range of motion.
Results:
Ten patients were included in the study with a mean age of 31.8 ± 10.83 years. The majority of patients were male (80%, 8) and 20% (2) were female. The mechanisms of injury included falls (80%, 8) followed by road traffic accidents (RTA). Six fractures were left-sided, three were right-sided, and one was bilateral. The majority of patients were smokers (70%, 7). Fifty percent (5) of patients had good functional scores according to the EFAS, followed by 30% with excellent scores, and 20% with fair and poor scores. Seventy percent of patients had level 1 functional pain scores, followed by levels 2 and 3. The mean ankle range of motion included 19.0 ± 21.8 degrees of dorsiflexion and 33.0 ± 4.21 degrees of plantar flexion. Two patients experienced ankle stiffness, and one patient had a surgical site infection treated by implant removal.
Conclusion:
Delaying surgery beyond 25 days has been associated with higher risks of wound complications and infection. However, anatomical reduction and meticulous skin closure can improve patient outcomes with fewer complications.

08:39 - 08:42

2326 The Non-Anatomical Aspect Of Scarf Metatarsal Osteotomy In Hallux Valgus Allows Physiological Functional Recovery Of Footwear And Walking In 174 Cases;

Rabah Atia

Université Badji Mokhtar - Faculté de Médecine de Annaba - Algérie. CHU Annaba - Service d'Orthopédie - Hôpital Ibn Rochd - Annaba - Algérie., Annaba, Algérie

Abstract
Introduction
Hallux valgus (HV) is defined by excessive angulation of the first ray,
Methods
162 Patients, 174 Scarf, 122 women, Age 49.50 years, Acquired HV, 69%, Metatarsalgia 52.7%, Shoe wear 56.2%. Cosmetic disturbance 50% Square forefoot, Average hallux pronation 16.89°; Reducible deformity in 27%, claw toes 40.54%, Average MTP1 global mobility 79.52°, 26.7% flat feet; 18.9% hindfoot valgus Radiology, Average preoperative HVA angle 33.92°, IMA angle 17.91°, Average paddle spread 31.92°, DMAA 9.31° Average interphalangeal valgus 3.91°; 59.50% Agrawal sesamoids 2 MTP1 incongruent 59.5%; joint space narrowing 40.6%; index minus 51.4%; 56.80% moderate HV according to Coughlin Barouk recommendations; Maestro criteria; exploratory arthrotomy. Exostosectomy, M1 osteotomy, correction fixation 2 screws +/- wire, capsulorrhaphy, Weil on request, walking allowed A.O.F.A.S score
Results
Follow-up 34.43 months; 44.6% no pain, Daily Activities 50%. 58.10% fashion shoes; 54.10% mobility greater than 75°, 68.90% of halluxes were well aligned
AOFAS from the 6th month, from 52.58 points preoperatively to 81.12 points at the 6th month postoperatively. Scarf alone better than the Scarf/Wei group score of 14.06 points. Radiology significant improvement of 24.62° of the HVA angle. Reduction of paddle spread by 10.22° and of the DMAA by 4.93°, 62.20% of sesamoids well in place. 17.56% at least one complication specific to HV surgery or Scarf osteotomy; Hypocorrection 20.27%
Discussion
This surgery, primarily functional, takes into account the aesthetic aspect and the psychological repercussions, especially for young women.
Conclusion
It is a reproducible technique
Envoyer des commentaires

09:47 - 09:50

2738 Minimally Invasive Hallux Arthrodesis (MIS) Versus Open Cheilectomy: A Systematic Review

Rohid Zamani[1], Ibrahim Haq[1], Berenice Aguirrezabala Armbruster[2], James Miller[1]

1. University Hospital of Coventry and Warwickshire, Coventry, United Kingdom
2. Oxford University Hospitals, Oxford, United Kingdom

Abstract
Introduction:
Hallux rigidus is the most common arthritic condition of the foot and the second most prevalent great toe pathology after hallux valgus. Typically affecting adults over 50, it can result in pain, reduced mobility, and impaired quality of life. When conservative measures fail, surgical options like cheilectomy, arthrodesis, and arthroplasty are considered. Cheilectomy, performed via open or minimally invasive (MIS) techniques, is widely used, though comparative data are limited.
Methods:
A systematic review was conducted comparing outcomes of open versus MIS cheilectomy for hallux rigidus, following COSMIN and PRISMA guidelines. The review was registered with PROSPERO. MEDLINE, EMBASE, CINAHL, and CENTRAL were searched through July 2024. Studies with Level I–III evidence reporting clinical, radiological, anatomical, or patient-reported outcomes were included. Data on demographics, study design, follow-up, outcomes, complications, and reoperations were extracted.
Results:
Improvement in range of motion (ROM) did not differ significantly between MIS and open techniques, with mean changes of 28.2° and 25.05°, respectively ($t = 0.276$; $p = 0.828$). A higher proportion of patients reported pain relief following MIS (66.7%) compared to open cheilectomy (33.3%). Complication rates were low and comparable between groups (1.71% for MIS, 1.75% for open).
Conclusion:
Open and MIS cheilectomy provide effective symptom relief with comparable ROM gains and low complication rates. MIS may offer better postoperative pain outcomes and could be preferable in select patients. Surgical choice should be guided by patient needs and surgeon expertise. Further prospective studies are warranted to strengthen evidence and guide practice.

Wednesday, 3 September

Hand&Wrist 1
08:46 - 08:49

467 Pillar Pain And Work Stoppage In The Follow-Up To Carpal Tunnel Surgery, Comparison Of Endoscopic Vs Open Surgery.

Omar Bensitel, Yousra Nabili, Taha Hrar, Mohammed Bouhouch, Abdessamad Rajaalah, Abdeljebbar Messoudi, Mohamed Rahmi, Mohamed Rafai

IBN Rochd Hospital, Casablanca , Morocco, Morocco

Abstract
Introduction:
A complication of carpal tunnel surgery, pillar pain is described as deep pain in the heel of the hand.
Material and methods:
We conducted a retrospective study of 53 patients: 26 operated on endoscopically and 27 operated on openly via a minimally invasive approach . The aim was to compare the incidence of Pillar Pain and the duration of time off work in the two groups.
Results :
In the endoscopic surgery group, The average length of time off work was 2.03 months, and 12 patients had pain in the heel of the hand on weight-bearing, 8 had pain on pressure in the thenar compartment, and 7 had pain on pressure in the hypothenar compartment.
In the minimally invasive open surgery group, The average length of time off work was 2.3 months, and 19 of the patients had pain in the heel of the hand on weight-bearing, 11 had pressure pain in the thenar compartment, 7 in the hypothenar compartment and 5 in the surgical scar.
Discussion:
According to Osterman, the cause of pillar pain remains elusive Theories on pillar pain etiologies can be classified into 4 categories:
● Ligamentous or muscular :
● Alteration of carpal arch structure
● Neurogenic
● Edema
Conclusion :
Given the current state of knowledge, pillar pain appears to be an unavoidable complication, whatever the type of surgery.

08:33 - 08:36

1130 Application Of Free Flaps In Reconstruction Of Upper Limb & Hand Tissue Defects With Bone Exposure

Feridun Arat[1,2], Kaan Gürbüz[3,4]

1. Kayseri City Education & Research Hospital, Kayseri, Turkey
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3. University of Health Sciences, Kayseri Medical Faculty, Education & Research Hospital, Department of Orthopedics & Traumatology, Kayseri, Türkiye
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Abstract
Introduction: Reconstruction of large upper limb & hand tissue defects with bone exposure is both challenging and technically demanding. Objectives in those tissue defects with bone exposure reconstruction are consistent restoration of functionality while also improving appearance. Objectives: This study retrospectively analyzed the clinical outcomes of large upper limb & hand tissue defects with bone exposure using various types of free flaps over the past 7 years. Patients and methods: A retrospective analysis was conducted from June 2015 to July 2022 on 17 patients treated for upper limb & hand tissue large defects with bone exposure due to various causes. These included 7 cases of trauma from vehicle accidents, 1 burn case, 6 post-earthquake crush syndromes, and 3 occupational infections. Defect sizes ranged from 5×8 to 12×20 cm. Different free flaps were used for repair based on the defect, including 8 anterolateral thigh flaps, 4 forearm flaps, 3 latissimus dorsi flaps, and 2 dorsalis pedis flaps. Flaps were designed and harvested to match the defect size and transplanted via anastomosed vessels. Results: All flaps survived successfully. One patient required flap-thinning surgery postoperatively. 2 flaps had marginal necrosis, which was managed with serial debridement and splint skin grafting. All patients were followed up for over 9 months, showing good color and texture of the transplanted flaps, satisfactory healing, and significant aesthetic improvement. Donor sites showed significant scarring without functional impairment.Conclusion: Free flap repair for upper limb & hand tissue large defects with bone exposure is feasible and yields good results

09:27 - 09:31

1169 Case Report: Proximal Scaphoid Fracture With Pseudoarthrosis - A Regenerative Augmentation Approach To Osteosynthesis

Tomás De Sá Nunes, Francisco Baptista Fernandes, João Neves

ULS - Arrábida, Setúbal, Portugal

Abstract
This case report describes the successful treatment of a 27-year-old male with proximal scaphoid fracture pseudoarthrosis. The patient's initial conservative management with cast immobilization failed, leading to surgical intervention. The surgical technique involved using an autologous bone graft from Lister's tubercle, osteosynthesis with two cannulated compression screws, and augmentation with platelet-rich plasma (PRP).

The procedure included debridement of fibrous tissue and sclerotic bone, preparation of the nonunion site, and packing of the autologous corticocancellous bone graft into the defect. PRP was applied to the bone graft, and a PRP membrane was interposed within the scaphoid before closure. Postoperatively, the wrist was immobilized for six weeks, followed by progressive mobilization.

Radiographic evidence showed complete union at four months, with the patient reporting significant pain relief and restored wrist function. Full return to daily activities was achieved at six months. This case highlights the effectiveness of combining autologous bone grafting with PRP augmentation in treating scaphoid nonunion, particularly in cases with limited vascularity of the proximal pole.

The authors emphasize the importance of early recognition of scaphoid nonunion and the potential benefits of using PRP as an adjunct in orthopedic surgery to enhance osteogenesis and soft tissue healing.

08:52 - 08:55

1170 Case Report: Surgical Management Of A Failed Conservative Treatment For Mallet Finger (Zone I) Using Dermatotenodesis And Nano Corkscrew Extensor Tendon Repair

Francisco Baptista Fernandes, Tomás De Sá Nunes, João Neves

ULS - Arrábida, Setúbal, Portugal

Abstract
This case report describes the successful surgical management of a failed conservative treatment for a Zone I mallet finger injury in a 44-year-old male. The patient initially underwent 3.5 months of continuous extension stack splinting for a sports-related traumatic injury to his right ring finger, which resulted in a persistent 30° extensor lag at the distal interphalangeal (DIP) joint.

The surgical intervention involved three key components:

Nano Corkscrew® Extensor Tendon Repair: A bioabsorbable anchor was inserted into the dorsal aspect of the distal phalanx to provide strong fixation for the extensor tendon.

Dermatotenodesis: The extensor tendon stump was reinforced using a suture technique that incorporated the overlying skin to improve tendon approximation.

Provisional K-Wire Fixation: A 0.9-mm K-wire was inserted across the DIP joint in full extension to maintain proper positioning during healing.

The postoperative course was uneventful, with the K-wire removed at 6 weeks. Following a structured hand therapy program, the patient regained full active DIP extension with no residual extensor lag at 12 weeks postoperatively.

This case highlights the effectiveness of surgical intervention for mallet finger injuries that fail conservative treatment. The combination of dermatotenodesis, nano corkscrew extensor tendon repair, and provisional K-wire fixation provided excellent functional outcomes without complications, offering a viable option for patients with persistent extensor lag despite adequate splinting.

09:18 - 09:21

760 Snapping Extensor Pollicis Longus Tendon Secondary To Ganglion Cyst Formation After Trapeziectomy For First Carpometacarpal Arthritis

Wai Kiu Thomas Liu[1], Marvin Man Ting Chung[2]

1. Department of Orthopaedics and Traumatology, Queen Mary Hospital, Hong Kong, Hong Kong SAR
2. Department of Orthopaedics and Traumatology, University of Hong Kong, Hong Kong, Hong Kong SAR

Abstract

Introduction:
Trapeziectomy with or without ligament reconstruction and tendon interposition (LRTI) is commonly performed for first carpometacarpal (CMC) arthritis, offering good pain relief but carrying risks such as infection, neuroma, subsidence, and untreated peritrapezial arthritis. This report presents a rare case of extensor pollicis longus (EPL) tendon snapping due to ganglion cyst formation three months post-surgery, successfully treated with cyst excision.

Case Presentation:
A 74-year-old male with end-stage first CMC arthritis underwent trapeziectomy, LRTI using a flexor carpi radialis tendon graft, and suture button suspensionplasty. Post-operative recovery was uneventful, and the patient experienced no pain with satisfactory function at three months. However, he developed a painless snapping sensation of the EPL tendon over the first metacarpal base. Radiographs showed mild subsidence but no loose bodies. A firm nodule was palpated at the snapping site, and secondary exploration surgery confirmed a 3 mm ganglion cyst with a loose osteophyte fragment. Excision under local anesthesia resolved symptoms, with no recurrence at 16-month follow-up.

Discussion:
Trapeziectomy with LRTI carries complications, but ganglion cyst formation causing EPL snapping has not been previously reported. The cyst likely arose from a residual osteophyte or a loose body undetected on radiographs. Unlike EPL snapping from instability, this case involved a mechanical obstruction, effectively treated with simple excision. Unlike EPL rupture linked to suture button implants, no implant-related issues were found.

Conclusion:
Ganglion cysts can cause EPL snapping post-trapeziectomy. Thorough clearance of osteophytes and loose bodies is essential to prevent this complication.

09:35 - 09:38

1335 Morphological Predictors Of Conservative Treatment Failure In Distal Radioulnar Joint Injuries: Insights From A CT Imaging Study

Joe-Zhi Yen[1], Yu-Cheng Lee[2]

1. Department of Orthopaedic Surgery, National Taiwan University Hospital, Taipei City, Taiwan
2. Department of Orthopaedic Surgery, National Taiwan University Hospital Hsin-Chu Branch, Hsin-Chu City, Taiwan

Abstract

Introduction:
Triangular fibrocartilage complex (TFCC) injuries can lead to significant wrist pain and dysfunction, often necessitating surgical intervention. Recent studies suggest that distal radioulnar joint (DRUJ) notch morphology—in particular, shapes such as "flat" and "ski-slope"—may predispose patients to more severe TFCC lesions. However, evidence regarding which specific morphology correlates with failure of conservative treatment is still evolving.

Methods:
We retrospectively analyzed 94 patients with clinically and radiologically confirmed TFCC pathology from a single center. DRUJ notch morphology was categorized into four types (flat, c, ski, and S). Patient age, gender, and whether they underwent surgical repair were recorded. Univariate analyses (t-tests, Fisher's exact) were conducted to explore relationships between these variables and surgical intervention. A multiple logistic regression model controlled for age and gender to assess the independent effect of notch morphology on surgical outcome. Additionally, we compared "concave" (c + S) versus "non-concave" (flat + ski) shapes. Post-hoc power analysis was performed to gauge robustness of findings.

Results:
Overall, 16 of 94 patients (17%) ultimately received surgical TFCC repair. Morphologically, the "flat" and "ski" subgroups displayed the highest surgery rates (~26–29%), exceeding those in the "c" and "S" subgroups (~6–12%). In logistic regression, "flat" and "ski" shapes had increased odds ratios (2.7–3.2) for requiring surgery relative to "c". Grouping by concavity showed a 27% surgical rate in the non-concave group versus ~10.5% in the concave group (OR ~3.15, p ~0.04).

Conclusion:
In this 94-patient series, "non-concave" DRUJ morphologies, particularly "flat" and "ski," were associated with significantly elevated rates of eventual surgical TFCC intervention.

08:36 - 08:39

1730 Arthroscopic TFCC Repair Using Knotless Suture Anchors: A Retrospective Analysis Of Clinical Outcomes

Rohit R Sommani, Prashant Kamble

Seth GS Medical College & KEM hospital, Mumbai, India

Abstract

Introduction:
Triangular fibrocartilage complex (TFCC) injuries are a common cause of ulnar-sided wrist pain. Arthroscopic repair with knotless suture anchors may reduce soft tissue irritation and enhance biomechanical strength. This study evaluates clinical outcomes and complications following arthroscopic TFCC repair using this technique.

Methods:
A retrospective review of 20 patients with post-traumatic TFCC tears who underwent arthroscopic inside-out repair using knotless suture anchors was conducted. All had failed conservative management. Repair stability was confirmed intraoperatively via probing and ballotment. Clinical outcomes, including Visual Analog Scale (VAS) for pain, Disabilities of the Arm, Shoulder, and Hand (DASH) score, Patient-Rated Wrist Evaluation (PRWE), grip strength, and wrist range of motion (ROM), were assessed at a minimum follow-up of one year.

Results:
At final follow-up, 95% (19/20) reported pain reduction, with mean VAS scores improving from 7.2 ± 1.1 to 1.8 ± 0.9. DASH scores improved from 48.5 ± 6.3 to 12.7 ± 4.1, and PRWE scores showed a 78% improvement. Grip strength and ROM recovery were observed in 90% (18/20). One patient (5%) developed postoperative stiffness, resolving with rehabilitation. No re-tears or major complications were noted.

Conclusion:
Arthroscopic TFCC repair using knotless suture anchors is a safe and effective technique, providing excellent pain relief and functional recovery. The absence of bulky knots may reduce irritation and enhance ROM. Further studies comparing this technique with traditional repairs are warranted

08:55 - 08:58

1778 Anatomy And Biomechanics Of Extensor Carpi Ulnaris Tendon

Shohei Omokawa, Hiroshi Ono

Nara Medical University, Kashihara Nara, Japan

Abstract
Subluxation and stenosis of the extensor carpi ulnaris (ECU) tendon is a relatively common cause of the ulnar wrist pain and disability. However, the exact location and pathomechanics of these problems are not fully understood. This presentation aims to help understand the anatomy and kinematics of the ECU tendon and its stabilizers at the ulnar wrist. Fifty specimens were used for gross observation and morphology measurements. We observed the supporting structures in 3 regions: the ulnar groove (zone I), the ulnar styloid process (zone II), and the triquetrum (zone III). Eight cadavers were used for kinematic measurements of the ECU tendon using ultrasonographic probe. Groove depth and the ECU subluxation distance were measured and was compared between intact and the tendon stabilizers sectioned wrists.The fibro-osseous tunnel comprising the ulnar groove and the overlying subsheath (zone I) stabilized the ECU tendon. We consistently found the distal extension of ECU subsheath (zone II), which connected the ulnar styloid process and the dorsal radioulnar ligament. In zone III, the overlying extensor retinaculum and septa supported the tendon by attaching to the triquetrum on both sides of the ECU tendon. In the kinematic analyses, the ECU tendon moved in the ulnar direction during forearm supination, wrist flexion, and ulnar deviation. The degree of ECU subluxation was significantly correlated with the depth of the ulnar groove during forearm supination and wrist flexion. Sectionings of the ECU subsheath and its distal extension significantly increased the subluxation distance in forearm pronation.

09:21 - 09:24

1969 FAILURE OF PROXIMAL INTERPHALANGEAL (PIP) PROSTHESIS:
Poor Indication, Manage The Complication.

Javier De La Hera Fernández, Marcos Ortiz Gutierrez, Adrian Fernandez Gonzalez, Ainhoa Ramos Luque, Carlos Fernandez Alvarez, Ciro Santos Ledo, Eduardo José Diez Perez

Hospital Sierrallana, Torrelavega, Spain

Abstract
Although implant rupture is a known complication of silicone prostheses (30% at 7 years), we present a case of metal-metal failure in the PIP joint.
Case-Report
A 30-year-old deaf-mute patient suffered a traumatic PIP joint dislocation in the fourth finger. Due to persistent instability after closed reduction, palmar plate and collateral ligament reinsertion was performed using anchors. During follow-up, fixation failure led to persistent subluxation and functional limitation (PIP flexion 30º). As a salvage procedure, a semi-constrained IPP2 prosthesis (metal-metal) was implanted via a dorsal approach. After rehabilitation and two years of follow-up, the patient was discharged with a 0º-80º flexion range.
Unfortunately, the patient fell causing prosthesis rupture and dislocation at the hinge. A CT scan was performed, and the implant was removed. Sarcophagus bone grafts were placed in P1 and P2, followed by K-wire fixation and cancellous bone grafting.
After four months and confirmed bone healing, arthrodesis was performed using an AptusHand plate. However, one year later, the patient developed asymptomatic nonunion and refused further surgery despite being informed of complications.
Conclusions
Mechanical complications of PIP prostheses include squeaking or dislocation (pyrocarbon), limited mobility or swan neck deformity (adhesions from dorsal approaches), and loosening. However, implant rupture is primarily associated with silicone prostheses and is rarely reported for other types. The need for revision surgery and implant removal is <5% for any PIP prosthesis.
When rupture or dislocation occurs, salvage treatment requires arthrodesis. In our case, hinge failure necessitated aggressive implant removal to delay arthrodesis, ultimately leading to nonunion.

09:38 - 09:41

1980 Perilunate Dislocations, A Very Rare Condition Yet Significant Relevant Injury Of The Wrist; A Retrospective Study On Functional Outcomes

Ana Patricia Dias, Catarina Corte-Real, Paulo Costa, Rita Cavaca

Unidade Local de Saude de Coimbra, Coimbra, Portugal

Abstract
A retrospective review was conducted of all patients diagnosed with perilunate dislocations and treated at our institution between 2020-2024. Data included patient demographics, mechanism of injury, surgical details, and postoperative outcomes measured by the QuickDASH score. Statistical analysis included calculating mean age, sex distribution, mechanism of injury, median time to surgery, and descriptive statistics for QuickDASH results. Correlations between functional recovery and the Mayfield classification were also evaluated.

Six patients (mean age 28, range 18–37) were included, with a predominance of males. High-energy trauma, primarily motor vehicle accidents (66.7%), was the most common cause, followed by falls (33.3%). The median time to surgery was 12 days (range 1–25). Surgical interventions consisted of open reduction and internal fixation using Kirschner wires, screws, and anchors.

Functional outcomes varied significantly (mean QuickDASH 28.4, range 2.3–68.2). Patients with Mayfield stage 4 injuries had notably poorer outcomes indicating greater functional limitations and worst outcome (QuickDASH 68,2), reflecting severe residual disability. Conversely, patients with Mayfield stages 1 and 3 displayed better recovery (mean QuickDASH 12.2), with some patients achieving near-complete functional restoration (QuickDASH 2.3).

This study reinforces the importante of injury severity, as classified by the Mayfield classification, on long-term functional outcomes. Timely surgical intervention remains critical for optimizing recovery, although was not significant relevant in our population. The QuickDASH score proved valuable for objectively assessing postoperative functionality. A multidisciplinary approach, integrating prompt diagnosis, precise surgical techniques, and individualized rehabilitation, is essential for improving outcomes in these complex injuries.

09:05 - 09:08

2043 Flexor Tendinopathy In Relation With Volar Locking Plate Fixation In Distal Radius Fractures

Gorka Pastoriza Azpilicueta, María Garralda Del Villar, Amaia Ongay López, Leire Otxoa Alberdi, Alba Pérez Cintas

Hospital Universitario de Navarra, Pamplona, Spain

Abstract
The purpose of this study is to determine the relationship between volar locking plate fixation in distal radius fractures and flexor tendon pathology, as well as the accuracy of the Soong classification in predicting flexor tendon issues and the need for implant removal.

METHODS:
We performed a retrospective single-centre study at the Hospital Universitario de Navarra (Spain) including 667 patients, between 2013 and 2023. This study investigates the association between implant prominence, as measured by the Soong classification, and the onset of flexor tendon issues as primary outcome, with the secondary outcome being the need for hardware removal.

RESULTS:
Implant removal was performed in 74 patients (11.04%), and 19 patients (2.83%) developed flexor tendinopathy.We found statistically significant association between implant prominence according to the Soong classification and the onset of flexor tendinopathy with an OR of 10.48 (IC 95% 1.99-54.91, p=0.005) in Soong grade 2 and non-significant relation in Soong grade 1, with an OR of 2.69 (IC 95% 0.76-9.56, p=0.124). In addition, association between the Soong classification grade and the later plate removal was found, with an OR of 1.95 (CI 95% 1.10-3.46, p=0.022) in Soong grade 1, and an OR 4.01 (CI 95% 1.42-11.29, p=0.009) in Soong grade 2.

CONCLUSIONS:
A higher grade in the Soong classification is associated with an increased risk of developing flexor tendinopathy and the need for hardware removal, especially in Soong grade 2.
Given the low frequency of flexor tendon ruptures (0.59%), we do not recommend routine plate removal in Soong 2 patients.

09:53 - 09:56

2210 Flexion Deformity Of The Fingers Secondary To Muscle Lesion Of The Forearm: Xiangya Experiences

Jianwei Wei, Zhonggen Dong, Lihong Liu, Peng Tang, Ao Shen, Shibin Tao

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Abstract
Introduction: The article is to report flexion deformity of the ulnar digits caused by pseudo-Volkmann contracture and lesion of the forearm flexor muscles, and to discuss the characteristics, differential diagnosis, and treatment of these two symptoms and Volkmann's contracture. Methods: We retrospectively reviewed 17 patients with flexion deformity of the fingers. There were eight males and nine females, with an average age of 18.4 years. The median duration from the onset of symptoms to the operation was 13 years (ranging from 1.5 months to 30 years). The patients were divided into three groups: flexion deformity of the ulnar digits, pseudo-Volkmann contracture, and Volkmann ischemic contracture, according to their medical history, physical examination, radiographs, and intraoperative findings. The operative effects of the three groups were evaluated. The mean follow-up period was 1.5 years (ranging from 1 year to 10 years). Results: Eight patients with flexion deformity of the ulnar digits and three with pseudo-Volkmann contracture achieved excellent hand function. The functional outcomes of 4 patients with Volkmann contracture were excellent/good, and one with moderate Volkmann contracture and severe neuropathy and one with severe Volkmann contracture were poor. Conclusions: The flexion deformity of fingers caused by different etiology can be differentiated by analyzing the history, physical examination, radiographs, and intraoperative findings. After different surgical treatments, most patients have a good outcome and high satisfaction.

Key words: Flexion Deformity; Pseudo-Volkmann Contracture; Volkmann Ischemic Contracture; forearm; Finger.

09:47 - 09:50

2504 Responsiveness, Sensitivity And MCID Of The PEM, QuickDASH, PROMIS-UE And EQ-5D-5L In Hand Trauma

Rowa Taha[1], Alan Montgomery[2], Tim Davis[3], Alexia Karantana[1], FACTS Study Group[1]

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2. Nottingham Clinical Trials Unit, Nottingham, United Kingdom
3. Queen's Medical Centre, Nottingham, United Kingdom

Abstract

Aims

1. Calculate the minimal clinically important difference (MCID) for the Patient Evaluation Measure (PEM), shortened disability of the arm shoulder hand score (QuickDASH), Patient-Reported Outcomes Measurement Information System Upper Extremity (PROMIS-UE), and EQ-5D-5L
2. Evaluate the responsiveness and sensitivity of these outcome measures in hand trauma

Methods

Adults with metacarpal shaft fractures (MSF) were prospectively recruited from five UK sites. Outcomes were assessed at baseline, 6weeks, 3 and 6months. MCID was calculated on participants reporting ±2point change on the Global Rating of Change Scale at 3months. Anchor, distribution and receiver operating characteristic (ROC) curves were used to calculate MCID, minimum detectable change (MDC), and examine the responsiveness and sensitivity of the outcome measures.

Results

MCID was 2-35 for the PEM; 4-21 for the QuickDASH; 2-21 for the PROMIS-UE; 0.04-0.4 EQ-5D-5L index and 3.4-29.8 VAS. Estimations using distribution methods were below the MDC for all PROMs. The PEM, QuickDASH and PROMIS-UE were able to discriminate between minimally changed and unchanged participants (AUC≥0.7). The PEM had the greatest sensitivity to change, while the QuickDASH demonstrated good sensitivity and specificity overall.

Conclusion

There was variability in both the magnitude and precision of the MCID estimates, with most being below the measurement error of the instruments. The PEM, QuickDASH, and PROMIS-UE were the most responsive and demonstrated good sensitivity and specificity in assessing MSF. All MCID estimations for the EQ-5D-5L did not meet the MDC threshold and thus cannot reliably predict change beyond the measurement error of these instruments.

09:08 - 09:11

2628 Scaphoid Fracture Outcomes In The Elderly: A Comparative Study.

Yousef Al-Khatib, Fahma Ali Mohamed, Yueyang Li

Stoke Mandeville Hospital, Aylesbury, United Kingdom

Abstract
Aims:

Comparing functional and radiological outcomes of conservatively treated scaphoid fractures and operatively managed scaphoid fractures in patients aged over 60.

Methods:

A multicentre retrospective cross sectional observational study was carried out over the period of 10 years. Inclusion criteria: Patients with scaphoid fractures, patients aged over 60 years.

Factors investigated: presence and time to radiological healing, presence and time to return to function, handedness, side and site of the fracture, date of injury, age, gender, severity and duration to resolution of pain, duration of immobilisation, immobilisation device used and adjacent pathology.

Results:

Twenty eight patients aged over 60 in total were identified as having scaphoid fractures. Of the 28 patients, 18 (64.3%) were treated conservatively while 10 (35.7%) underwent surgery.

Time to radiological union was 14.4 weeks for the operative group compared to 10.1 weeks for conservatively treated patients. all patients achieved return to function with average duration being 14.1 weeks for surgically managed patients compared to 11.2 weeks for conservatively managed patients. The operative group were immobilised for 6 weeks on average compared to 7 weeks for conservatively managed patients. Average time to pain resolution was 15 weeks for surgically treated patients while it was 9.3 weeks for those conservatively treated.

All surgically treated patients achieved radiological union while one patient did not in the conservatively managed group.

Conclusion:

This study demonstrates that time to radiological healing is not significantly different with operative management compared to conservative treatment. All patients achieved return to function and pain resolution in a similar duration regardless of treatment method.

08:30 - 08:33

2988 Wrist Arthrodesis With Modern Anatomically Shaped Plates: A Timeless Technique With Enhanced Outcomes

Joana Miranda, Catarina Pereira, Adriana Neves, João Valadas Silva

Hospital Prof. Doutor Fernando Fonseca, Lisbon, Portugal

Abstract
Introduction:
Wrist arthrodesis is a surgical procedure designed to reduce pain, provide stability, and improve hand function in severe wrist pathology, such as end-stage arthritis or trauma. While sacrificing mobility, it significantly enhances quality of life by alleviating chronic pain.

Methods:
Five male patients (mean age 58) underwent wrist arthrodesis with plating at a Lisbon tertiary center between 2021 and 2024, all operated on by the same surgeon. Diagnoses included three cases of scaphoid nonunion advanced collapse (SNAC), one of psoriatic arthritis, and one of Kienböck's disease. Pain relief and functional improvement were assessed using Visual Analog Scale (VAS) and Disabilities of the Arm, Shoulder, and Hand (DASH) scores.

Results:
All patients experienced significant pain reduction and functional improvement, reflected in improved VAS and DASH scores. Notably, they were able to return to their previous jobs, demonstrating high satisfaction despite reduced wrist mobility.

Discussion:
Consistent with literature, our findings confirm wrist arthrodesis as a reliable pain-relief procedure with high patient satisfaction. Advances in anatomically shaped plates—with wrist extension—have optimized functional outcomes, facilitating daily activities like typing and driving. Despite being a longstanding technique, wrist arthrodesis remains a definitive solution for long-term stability and pain relief, particularly for patients with irreversible wrist pathology.

Conclusion:
This case series highlights wrist arthrodesis with plating as an effective treatment for severe wrist conditions, offering durable pain relief and functional gains, especially with modern plate designs accommodating contemporary hand use.

09:50 - 09:53

2831 Analysis Of Functional Outcomes Following The Use Of Arthroscopic Bone Grafting And Internal Fixation For Non-Union Of The Scaphoid

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1. University Hospitals Birmingham NHS Foundation Trust, Birmingham, United Kingdom
2. Seth GS Medical College & KEM Hospital, Mumbai, India

Abstract

Introduction:
Scaphoid fractures are extremely prone to non-union as a result of the pattern of blood supply to the bone. Management of scaphoid non-unions is challenging and necessitates a meticulous approach. With the advent of wrist arthroscopy, these cases can be managed with arthroscopic bone grafting.

Aims & Objectives:
This study aims to determine the functional outcome following the use of arthroscopic bone grafting and internal fixation for scaphoid non-union.

Study design & Methods:
The study design was prospective. We included 24 patients with scaphoid non-union who were operated on with arthroscopic bone grafting supplemented by either K-wire fixation or screw. Visual Analog Scale (VAS) scores, QuickDASH (Disabilities of the Arm, Shoulder, and Hand) scores, range of motion, and handgrip strength were calculated at successive intervals.

Results:
The mean QuickDASH score preoperatively was 50.53 and improved to 11.97 at the latest follow-up of one year ($p<0.05$). The mean VAS score preoperatively was 6.62 and improved to 2.75 at the latest follow-up of one year ($p<0.05$). The mean preoperative wrist flexion, extension, radial deviation, and ulnar deviation were 55°, 56°, 3°, and 16° respectively, and they improved to 63°, 63°, 12°, and 24° at the latest follow-up of one year ($p<0.05$). The mean preoperative handgrip strength was 25 kg force, and it improved to 61.37 kg force at the latest follow-up of one year ($p<0.005$).

Conclusion:
Arthroscopic non-vascularized bone grafting is an excellent procedure for the management of scaphoid non-unions.

Keywords:
Scaphoid, non-union, non-vascularized, wrist arthroscopy, bone-grafting

09:41 - 09:44

2127 Comparative Analysis Of Surgical Techniques For Extra-Articular Fractures In Phalanges And Metacarpals

Athar Muniruddin Siddiqui, Arham Azizi

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Abstract

Extra-articular fractures of the phalanges and metacarpals are common hand injuries that often require surgical intervention to restore proper alignment and promote healing. The goal of surgery is to facilitate early rehabilitation, minimize complications, and optimize hand function. Surgical techniques such as open reduction and internal fixation (ORIF), percutaneous pinning, and external fixation each have unique advantages and challenges, impacting outcomes such as pain relief, functional recovery, and radiographic healing. This study compare the clinical and functional outcomes of these techniques in treating extra-articular fractures, focusing on postoperative pain, functional recovery, and healing.
The primary objective is to evaluate postoperative stability, functional outcomes, and complication rates associated with ORIF, percutaneous pinning, and external fixation. The research assess which technique yields the best outcomes, potentially reducing re operation rates and improving stability and patient satisfaction. Based on previous evidence, ORIF is expected to provide superior results in terms of lower re operation rates, enhanced stability, and greater patient satisfaction due to its ability to provide immediate structural support and promote optimal healing.
The study involve 100 patients with extra-articular fractures of the phalanges and metacarpals, with 50 patients receiving ORIF and 50 treated with percutaneous pinning. Inclusion criteria include patients aged 18-50 with single-level extra-articular fractures and more than 50% displacement. Exclusion criteria include polytrauma, infections, metabolic bone diseases, or prior hand surgeries. Data will be collected through preoperative assessments, surgical records, and follow-up visits, measuring pain (VAS), functional recovery (DASH score), and radiographic healing.

09:11 - 09:14

2860 Subcutaneous Auto Transposition Of Median Nerve As Unique Complication Following Volar Plating Of Distal Radius Fracture.

Abdelaziz Ahmed Ibrahim

Hotat Sudair General Hospital, Hotat Sudair, Saudi Arabia

Abstract
Distal radius fractures are one of the most common orthopaedic injury, there is a better functional result with volar plating that reported in several clinical studies. Median nerves are frequently injured than radial and ulnar nerves as acute carpal tunnel syndromes, late neuropathy and nerve impingement. We reported one patient underwent volar plating of Left distal radius fracture with a unique complication of subcutaneous auto transposition of median nerve. There were postoperative adhesions of the Flexor Pollicis Longus tendon noticed at three weeks from surgery that limiting thumb movements and there is specific complaint of the patient that feels electric currents radiating to the palm of the hand with light percussions or just touching skin of the volar side of distal forearm while there were no symptoms or signs of nerve compression. The decision was taken for surgical exploration and release the adhesion of the tendon which done with local anesthesia and careful dissection, it was a surprise to us that the median nerve was located in subcutaneous level just under skin that give explanation to the condition, all adhesions of FPL tenon released as the thumb returned to full range of motion, the nerve was left in the new subcutaneous position to avoid nerve compression or damage as it maybe encircled with the fibrosis and adhesions. Advised the patient to wear hard volar wrist splint, while the condition improved gradually with time and completely disappeared 10 months postoperatively and became completely normal confirmed by nerve conduction study.

09:24 - 09:27

625 The Impact Of Ulnar Styloid Fractures In Unstable Distal Radius Fractures

Gonçalo Vieira Da Silva, Filipa Cordeiro, Francisco Serra, Pedro Neto, Mario Rui Silva, Alexandra Dos Santos, Filipa Adan E Silva, Predro Teixeira Da Mota

Centro Hospitalar Universitário de Santo António, Porto, Portugal

Abstract
Background: The ulnar styloid plays a crucial role in stabilizing the distal radioulnar joint, yet the clinical significance of concomitant ulnar styloid fractures in distal radius fractures remains unclear. This study investigates whether ulnar styloid fractures influence outcomes in patients with unstable distal radius fractures.
Methods: A total of 102 patients with unstable distal radius fractures treated with open reduction and internal fixation (ORIF) were included. Fractures were classified according to the AO system: 2R 3C (n = 63), 2R 3B (n = 12), 2R 3A (n = 26), and 2R 2 (n = 2). Associated ulnar styloid fractures were managed conservatively. The median immobilization period was 23.5 days, with a median follow-up of 219 days. Patients were divided into two cohorts: those with ulnar styloid fractures (n = 57) and those without (n = 45). Outcomes assessed included complication rates (infection, osteosynthesis disassembly, hardware removal, wound healing complications, neurological injury, complex regional pain syndrome) and functional outcomes (wrist pain, joint stiffness, strength loss).
Results: Ulnar styloid fractures were not associated with increased complication rates or functional outcomes such as wrist pain, joint stiffness, or strength loss. No correlation was found between ulnar styloid fractures and the severity of distal radius fractures. No significant difference in outcomes was noted based on whether the surgery was performed by a hand surgeon.
Conclusions: Ulnar styloid fractures do not predict worse functional outcomes in distal radius fractures and should not alter treatment strategies.
Keywords: Ulnar Styloid Fracture; Distal Radius Fracture; Complications; Functional Outcomes

08:49 - 08:52

859 Effective Non-Operative Management Of Lacertus Syndrome: Two Case Reports And A Review Of Literature.

Omar Ahmed Bokhary[1], Bayan A Ghalimah[2], **Abdulrahman F Bukhari**[3]

1. King Abdulaziz University Hospital, Jeddah, Saudi Arabia
2. King Abdulaziz University, Jeddah, Saudi Arabia
3. Al Habib Medical Group, Jeddah, Saudi Arabia

Abstract
Lacertus syndrome (LS) is a condition characterized by median nerve entrapment at the Lacertus Fibrosus (LF), a fibrous band distal to the elbow joint presenting with pain, numbness, and weakness in the forearm and hand. Given its rarity and potential misdiagnoses clinicians may overlook lacertus syndrome in the differential diagnosis of these symptoms. Management of such a case varies, with surgical vs non-surgical approach; depending on physician or patient preference, clinical severity and persistence of symptoms despite conservative approach. Most studies published on this syndrome showed symptom relief only after a surgical intervention. We present two case reports describing a successful non-surgical management of lacertus syndrome, in two males in the dental field presenting with bilateral and unilateral forearm pain, numbness, and weakness. Treatment involved a combination of myofascial release, nerve gliding exercises, and strengthening protocols, resulting in significant improvement in symptoms and functional capacity. To the best of our knowledge, these are the first two cases in the literature managed successfully without surgical intervention. The successful management of lacertus syndrome in both patients illustrates the importance of a multi-faceted, non-surgical approach. This report supports the notion that tailored conservative treatments can lead to significant improvements in function and quality of life.

08:39 - 08:42

72 BIOMECHANICAL AND THERAPEUTIC BENEFIT OF DIGITAL CANAL PULLEYS REPAIR IN ACUTE FLEXOR INJURY

Hicham Arfaoui, Mehdi Hanbli, Othmane Baba

Aile 4 orthopedics department university hospital ibn rochd, Casablanca, Morocco

Abstract
Our study concerns 33 patients, injured in ZONE II of the hand and treated in the majority of cases in emergency, at the Department of Trauma-Orthopedics AILE 4 of the CHU Ibn Rochd University Hospital in Casablanca, from January 1st, 2021 to May 31st, 2022.
Young adult males, between 20 and 40 years old, represented 77% of the cases.
The two most frequent etiologies were aggression (63.64%) and domestic accidents (27.27%).
The 3rd, 4th and 5th fingers were the most affected, with frequencies that varied between 20 and 28%.
Associated lesions were present in 18% of cases. Associated fractures and extensor lesions had a poor prognosis.
The treatment adopted in 51% of the cases was the modified MASSON KESSLER frame point, and classic KESSLER in the remaining cases, followed by rehabilitation with passive flexion and active extension under cover of a plaster cast.
In the 4 cases where the A2 and A4 pulleys were affected, the surgical attitude varied between repair with fine Vicryl to the impossibility of repair due to the loss of substance.
The importance of the pulleys, in particular A2 and A4, and their biomechanical role is not questioned; they must be preserved as much as possible, as long as they don’t hinder tendon gliding.
The assessment of the results according to the criteria of WHITE and BOYES, gave 69.7% of excellent and good results, and only 9.09% of poor results.

Wednesday, 3 September

Emerging Technology 1
11:11 - 11:14

6 Objective Measurement Of Traditional Ear Protection And Noise Cancelling Headphones In An Orthopaedic Theatre Setting

Daire-Sean Gibbons[1], Francis Morgan Boland[2], Conor Hurson[1]

1. St. Vincent's University Hosptial, Dublin, Ireland
2. Trinity College, Dublin, Ireland

Abstract

Introduction:
Noise-induced hearing loss is a recognized hazard for orthopaedic surgeons. Although guidelines recommend providing ear protection in workplaces where noise exceeds threshold levels, actual compliance is inconsistent. We aimed to measure the noise reduction capabilities of both traditional ear protection and consumer in-ear Noise Cancelling Headphones (NCH) during total knee arthroplasty.

Methods:
Noise-generating aspects of total knee arthroplasty were simulated in an acoustic laboratory using saw bones, a Triathlon Total Knee Arthroplasty System, and a System 8 Sagittal Saw (Stryker). Sound intensity measurements were taken at a 50 cm distance with a GRAS 45BC-10 KEMAR system. Analyses focused on peak intensities generated by a power-tool source (sagittal saw) and an impact source (mallet and impactor), both unprotected and with: (1) ear-defenders, (2) foam ear plugs, and (3) Apple AirPods Pro2 NCH using noise-cancelling and loud-sound-reduction settings.

Results:
With the sagittal saw, unprotected peak noise was 107 dB, compared with 67 dB (ear-defenders), 75 dB (ear plugs), and 91–94 dB (NCH). With the mallet, unprotected peak noise was 105 dB, compared with 76 dB (ear-defenders), 85 dB (ear plugs), and 89–91 dB (NCH).

Conclusion:
This is the first objective evaluation of noise protection efficacy in an orthopaedic operative setting. NCH substantially reduce exposure to harmful noise in a manner comparable to traditional protection, potentially preventing noise-induced hearing loss. They are widely accessible, adjustable, and may help balance hearing protection with safe communication in the operating theatre.

11:02 - 11:05

366 Is ChatGPT More Humane Than Humans? – Accuracy, Relevance And Humanness Of The Answers Provided By ChatGPT For Patient Education For Total Knee Replacement

Amit Kumar Yadav[1], Vaibhav Bagaria[2], **Ishmita Paul**[1]

1. wrightington hospital, Wigan, United Kingdom
2. Sir H.N Reliance Hospital, Mumbai, India

Abstract
Aim: This study aimed to assess the reliability of orthopaedic information provided by ChatGPT in response to common patient inquiries and concerns related to Total Joint Replacement surgery, focusing on preventing the dissemination of potentially harmful medical advice.

Method: This qualitative exploratory case study was conducted at a tertiary care centre hospital. Ten common questions patients pose to orthopaedic surgeons when considering knee arthroplasty were formulated and presented independently to an Orthopaedic Consultant, Associate Consultant, a Fellow in Joint Replacement surgery, and ChatGPT. For review, the answers were submitted to a panel of three orthopaedic surgeons specializing in arthroplasty. They were scored based on accuracy, relevance, and usefulness, with a maximum possible score of 100.0 points, allowing for 0.5-point increments. They were also asked to identify which answers were from chat GPT, not humans.

Results: ChatGPT exhibited the highest total aggregate score of 232.0 points out of a maximum of 300.0 points, surpassing the scores of the human participants (Participant 1: 197.0 points; Participant 2: 227.5 points; Participant 3: 220.5 points). Furthermore, two out of three-panel specialists rated ChatGPT the highest. When comparing the average scores for ChatGPT and the human participants for each question, ChatGPT outperformed the human participants in 8 out of 10 questions. Out of the 120 encounter instances, the evaluator could only point correctly that the response was from ChatGPT response 14 times (11.66%).

Conclusion: This study highlights the utility and limitations of ChatGPT in the medical field – ChatGPT exhibits great potential in assisting doctors and surgeons

11:53 - 11:56

548 Can ChatGPT Provide Personalized Responses For Frequently Asked Questions Regarding Anterior Cruciate Ligament Reconstruction?

Siyuan Zhang, Isaac Jeremiah Chua, Zhen Chang Liang, Khang Chiang Pang

National University Health System, Singapore, Singapore

Abstract

Chat Generative Pretrained Transformer (ChatGPT) has the potential to enhance healthcare delivery by providing accessible, high quality medical information. However, no prior studies have evaluated its ability to provide personalized and patient-specific information. Our study aims to evaluate ChatGPT's ability to provide personalized responses to frequently asked questions (FAQs) regarding anterior cruciate ligament (ACL) reconstruction.

Methods
We curated a list of 13 clinically relevant FAQs regarding ACL reconstruction and created 4 distinct patient profiles with varying demographics, comorbidities and activity demands. Each patient profile was entered separately as prompts into the latest version of ChatGPT (GPT-4o). ChatGPT's responses to the FAQs were recorded and assessed independently by 2 orthopaedic consultants who graded the responses on a scale of 0 – 2 (0, 1, 2) based on their accuracy and degree that it was personalized to each patient profile.

Results
ChatGPT performed well in providing accurate and personalized responses, achieving a mean overall accuracy score of 1.85 and mean overall personalization score of 1.90. It was able to provide personalized and patient-specific responses for FAQs by customizing its recommendations to cater to the situation of each distinct patient – achieving mean personalization scores of 1.96, 1.88, 1.92 and 1.81 for the 4 respective patient profiles.

Conclusion
ChatGPT demonstrated its ability to adapt to distinct patient profiles and provide highly personalized responses regarding ACL reconstruction. The ability of AI chatbots to deliver patient-specific information and individualized counselling regarding surgery has the potential to transform personalized medicine and shared decision-making in the field of Orthopaedics.

10:52 - 10:55

840 Computer-Assisted Navigation System In Anterior Cruciate Ligament Reconstruction: A Scoping Review

Mario Rui Silva, Rodrigo Nuno Lopes, Filipa Cordeiro, João Sousa Seixas, Bianca Sousa Barros, Antonio Gonçalo Silva, Filipa Adan Silva, Alexandra Santos, Adelio Vilaça

ULSSA, Porto, Portugal

Abstract
The integration of computer-assisted navigation systems (CANS) into anterior cruciate ligament (ACL) reconstruction represents a significant technological advancement, offering enhanced precision and potential improvements in clinical outcomes. This scoping review synthesizes current evidence on CANS in ACL reconstruction, identifies knowledge gaps, and evaluates the scope of existing literature. A comprehensive search of PUBMED and SCOPUS databases in December 2023 identified 54 studies meeting inclusion criteria, including 37 experimental studies, 9 systematic reviews, and 8 studies reporting clinical outcomes. Among 926 patients undergoing CANS, OrthoPilot® (36.2%) and Praxim Medivision® (35.7%) were the most frequently used systems. Passive systems, particularly image-free ones like OrthoPilot®, dominated from 2004-2013, while active systems, such as TiRobot®, have gained recent traction. Tunnel placement accuracy was the primary focus, with 83% of studies reporting precise placement, evaluated via X-ray (41%), CT (22%), and MRI (8%). Clinical outcomes were assessed in 10 studies, with 8 comparing CANS to conventional surgery, alongside explorations of laxity, economic impacts, and learning curves. While CANS demonstrate promise in improving precision, further clinical trials are needed to validate their effectiveness and address limitations. Continued advancements and rigorous research are essential for optimizing outcomes in ACL reconstruction.

Keywords: Anterior Cruciate Ligament; Reconstruction; Computer-Assisted Surgery; Robotics; Computer Simulation.

10:46 - 10:49

1155 Adaptive Patient Clustering Via Machine Learning For Personalized Orthopedic Rehabilitation: Analyzing Kinetic Data For Improved Outcomes

Mikail Aktas[1], Nicholas Johnston Santoni[2], Clement Twumasi[3]

1. AI Rehab LLC, Jacksonville, United States
2. The University of North Carolina at Greensboro, Greensboro, United States
3. The University of Oxford, Oxford, United Kingdom

Abstract
Introduction:
Orthopaedic rehabilitation increasingly demands personalized strategies that integrate precise biomechanical assessments of patients. Traditional approaches reliant on subjective clinical assessments fail to leverage detailed biomechanical insights, limiting the precision of patient-specific interventions. The present study investigates how state-of-the-art machine learning clustering models can adaptively classify patients into clinically meaningful groups based on remotely home-based captured kinetic data.
Aims & Objectives:
Our primary aim was to validate whether unsupervised clustering methods applied to home-based kinetic and motion data from knee exercises could inform personalized rehabilitation strategies, and identify patient-specific recovery trajectories.
Study Design & Methods:
High-dimensional temporal force and spatial movement (bi-lateral knee) data were prospectively collected from 32 patients using the Slider® home rehabilitation device during knee flexion-extension exercises. Four unsupervised clustering algorithms (K-means, hierarchical clustering, PAM, and CLARA) were applied to this data. Cluster validation employed silhouette analysis, and demographic predictors of cluster membership were evaluated via logistic regression with analysis of covariance adjustment.
Results:
The study successfully identified three distinct, clinically relevant kinetic clusters for each knee. Hierarchical clustering showed optimal performance (average silhouette score 0.637) for the right knee, while CLARA performed best (score 0.598) for the left knee. Significant demographic predictors ($p < 0.01$) of cluster membership included BMI, gender, and age, enabling personalized patient stratification.
Conclusion:
Adaptive clustering using machine learning significantly enhances identification of rehabilitation patterns, offering clinicians a powerful tool for personalized, data-driven rehabilitation programs, potentially improving orthopaedic outcomes and patient-specific decisions.
Keywords:
Machine learning, Orthopaedics, Kinetic analysis, Clustering, Rehabilitation, Knee, Telemedicine

10:49 - 10:52

1194 Can Orthopaedic Surgeons Spot (Artificial) Intelligence?

Sarah Barkley

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Abstract
Introduction: Artificial intelligence (AI) tools are freely available to perform literature searches and provide a summary of evidence available. They can also be used to generate scientific manuscripts by analysing data and producing coherent text. This study aimed to assess whether orthopaedic surgeons can differentiate AI generated scientific abstracts from their manmade equivalents. Methods: We selected six orthopaedic systematic review abstracts and generated AI equivalents using ChatGPT. We then presented these to orthopaedic surgeons (of all grades) to determine which abstracts was real vs AI generated. Results: 22 observers completed the survey, and correctly identified the AI abstract in 52% of cases. Senior surgeons were more successful than junior colleagues. There was very poor inter-observer agreement, with an overall Kappa score of 0.05. Themes that emerged included the writing style, amount of detail, length, and complexity of content. Respondents were concerned about the use of AI in medical writing and how prevalent it potentially is already. Conclusion: Orthopaedic surgeons were unable to differentiate AI generated scientific content. Most are unfamiliar with AI, there is a range of expertise regarding reviewing literature, and AI is better at synthesising review articles and abstracts than de novo research. There are concerns regarding plagiarism, errors, and fairness to human authors. However, if utilised responsibly and in collaboration with human expertise, the scientific community could use AI as another tool to maximise efficiency.

10:39 - 10:42

1094 Artificial Intelligence In Predicting Prolonged Opioid Use Following Orthopaedic Surgery: A Systematic Review

Armaan Abbas[1], Damoon Farzi[1], Kapil Sugand[2,1]

1. Imperial College, London, United Kingdom
2. Royal National Orthopaedic Hospital, Stanmore, United Kingdom

Abstract
Introduction: Prolonged opioid use after Orthopaedic surgery is associated with dependence, poorer recovery, and increased healthcare costs.

Aims: A systematic review evaluating Artificial Intelligence (AI) models' performances in predicting prolonged opioid use following Orthopaedic operations, focusing on predictors like area under the curve (AUC, measuring discrimination closer to 1), and Brier scores (measuring prediction accuracy closer to 0).

Methods: A PubMed/MedLine search was conducted (June 1993 - February 2025), adhering to PRISMA guidelines. Studies were stratified into Spine, Hip and Knee operations. Mean (+/-SD; 95% CI) were calculated.

Results: The search yielded 69 papers; 15 studies were included and defined prolonged opioid use at a minimum of 90 days post-operatively. Pooled mean AUC was 0.79 (+/-SD 0.07; 95% CI: 0.75-0.83), and mean Brier score was 0.07 (+/-SD 0.05; 95% CI: 0.04-0.10). Spine surgery had a mean AUC 0.79 (+/-SD 0.06; 95% CI: 0.74-0.83) and mean Brier score 0.05 (+/-SD 0.02; 95% CI: 0.03-0.07). Hip studies had a mean AUC 0.81 (+/-SD 0.10; 95% CI: 0.65-0.97) and mean Brier score 0.13 (+/-SD 0.11; 95% CI: -0.87-1.13). Knee studies had a mean AUC 0.81 (+/-SD 0.09; 95% CI: 0.71-0.92) and mean Brier score 0.07 (+/-SD 0.05; 95% CI: 0-0.14). Younger age, preoperative opioid duration and antidepressant usage were key predictors for poorer prognosis.

Conclusion: AI models demonstrated high discrimination and prediction accuracy for prolonged opioid use, particularly in knee surgeries. All but 3 studies (20%) lacked external validation, indicating the need for more validated models to accurately represent differing patient populations.

11:21 - 11:24

1503 Use Of A Scattered Light Integrating Collector (SLIC) For Point Of Care Testing To Detect Bacteria In Fluid Samples From Prosthetic Joint Infections Of The Hip

Isabelle Lydia Cochrane[1], Adeel Akhtar[2], Phillip Walmsley[1,2], Robert Hammond[1], Frank Schildberg[3], Dieter Wirtz[3]

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2. NHS Fife, Kirkcaldy, United Kingdom
3. University of Bonn, Bonn, Germany

Abstract
Introduction

Infection complicates 0.5-1% of total hip replacements (THR), conferring considerable morbidity and mortality.

Early targeted antibiotic therapy represents good antimicrobial stewardship, and improves patient outcomes, but our ability to deliver this is limited by current methods for confirming infection and antimicrobial sensitivities.

Aims & Objectives

We propose a novel diagnostic technology, the Scattered Light Integrating Collector (SLIC), a simple, low-cost, label-free method for detecting bacteria in real time, with a sensitivity 1000 times greater than conventional methods.

Methods

The limit of detection of SLIC was defined through serial dilutions of bacterial cultures. A stable/rising signal which was significantly above baseline (control) indicated a positive result.

Bacterial cultures were then exposed to panels of antibiotics at varying concentrations. Antimicrobial sensitivities were defined as a static/declining test signal, significantly different to the positive control.

In a case study, intraoperative samples from a patient with a known Propionibacterium infection of their THR were tested through SLIC.

Results

SLIC detected bacteria at a maximal sensitivity of 100 CFU/ml, in as rapidly as 15 minutes, with a comparably rapid, dose dependent detection of antimicrobial sensitivities.

In the clinical case study, the presence of bacterial infection was detected in under 30 minutes using SLIC, with sensitivity to antibiotics also detected over the same period.

Conclusion

We have shown that SLIC is considerably more rapid and sensitive than current culture and spectrometry methods. Our case study suggests that SLIC can be used to

11:43 - 11:46

1548 Management Of Complex Post-Traumatic Wounds: Contribution Of Negative Pressure Wound Therapy (NPWT)

Nadia Nadia Menasri[1], Zohir Zohir Saidi[2], Atika Atika Mazari[1], Kamel Kamel Achour[1], Nacer Nacer Rouagh[1], Abdelhamid Abdelhamid Oueld Rouiss[1], Leila Leila Nebchi[1], Youssria Youssria Akloul[1], Redda Redda Harrar[1]

1. EHS SALIM ZEMIRLI ALGER, Alger, Algérie
2. chu douera, Alger, Algérie

Abstract
Introduction:
Post-traumatic skin substance losses, particularly in the limbs, pose a major medical challenge by exposing bones and vital tissues, thereby increasing the risk of infection and delaying healing.
Negative pressure therapy (NPT) optimizes the management of these complex wounds by reducing edema, improving perfusion, stimulating granulation tissue formation, and protecting the wound from contamination. It reduces infectious complications and facilitates surgical coverage of exposed areas.
Materials and Methods:
We present three clinical cases of patients involved in high-velocity accidents, resulting in extensive wounds exposing vital structures (bones, tendons, or muscles). All patients underwent initial management, including debridement, excision of necrotic tissue, and bacteriological sampling, followed by vacuum therapy for one month.
Results:
Vacuum therapy led to a rapid reduction in wound size and optimal preparation for reconstructive surgery. Skin grafts were performed, followed by vacuum therapy to stabilize the grafts. The wounds showed favorable evolution, with the formation of clean, well-vascularized granulation tissue free from infection.
Discussion and Conclusion :
Vacuum therapy, through its mechanical mechanism and effective drainage, promotes rapid healing, reduces infection risks, and prepares wounds for reconstruction. It is an essential and cost-effective method in managing complex wounds, improving both functional and aesthetic outcomes while limiting complications.

11:27 - 11:30

1818 Innovative 3D Bioprinting Of Functional Bioinks: Pioneering Osteochondral Tissue Regeneration From Lab To Clinic

Sunil Sheshrao Sheshrao Nikose, Ramesh Thalava, **Abhineet Verma**, Narayana Prasad, Pregash Ellapparadja

Tameside and Glossop Integrated NHS foundation Trust, Manchester, United Kingdom

Abstract
Osteochondral tissue regeneration presents a major challenge in regenerative medicine, particularly in managing osteoarthritis and osteochondral defects, which impact millions globally. Conventional treatments are often constrained by donor site morbidity, limited graft availability, and potential immune rejection. This study aims to overcome these limitations by developing hydrogel-based bioinks optimized for 3D bioprinting, with a strong emphasis on pre-clinical validation and translational applications.

Utilizing advanced 3D bioprinting protocols, we engineered multiphasic hybrid scaffolds with gradient microarchitectures. These constructs incorporate double-network hydrogels composed of gelatin methacryloyl (GelMA) and carboxymethyl cellulose (CMC), reinforced with calcium and magnesium phosphate-based nanoparticles to enhance biomolecule functionality. The mechanical and biophysical properties of nano-filler-infused, cell-laden bioinks were systematically optimized for improved extrudability and printability. The bioinks, populated with human mesenchymal stem cells (hMSCs), MC3T3 pre-osteoblasts, and chondrocytes, were evaluated for cytocompatibility, osteochondral marker expression, and cell-material interactions.

Pre-clinical studies in animal models were conducted using histological and radiological techniques to assess osteochondral tissue regeneration. Ethical approval from the Indian Council of Medical Research (ICMR) facilitated the transition to a pilot clinical study involving patients with osteochondral knee defects. Pre-validated 3D-bioprinted multiphasic cylindrical and anatomically shaped scaffolds were implanted, with tissue integration and healing monitored via pre- and post-operative CT and MRI imaging.

This study advances bioink formulation, scaffold optimization, and clinical translation, offering a promising pathway toward patient-specific regenerative solutions and redefining osteochondral tissue engineering.

10:55 - 10:58

1825 Early Clinical Outcomes Of AI-Enabled Robotic Total Knee Replacement: Insights From A Novel AI-Developed Algorithm

Sunil Sheshrao Nikose, Brinda Somanchi, Ramesh Thalava, Yeshwanth Nandimandalam, Pregash Ellapparadja, **Abhineet Verma**, Narayana Prasad

Tameside and Glossop Integrated NHS foundation Trust, Manchester, United Kingdom

Abstract
Artificial intelligence (AI) is transforming orthopedic surgery, particularly in robotic-assisted total knee replacement (TKR). This study evaluates early clinical outcomes of a novel AI-driven algorithm designed to optimize robotic TKR by providing patient-specific surgical recommendations. By analyzing preoperative imaging and intraoperative data, the AI system enhances implant positioning, soft tissue balancing, and overall surgical precision.

The integration of this AI algorithm with robotic systems demonstrated significant improvements in mechanical alignment, operative efficiency, and postoperative recovery. A retrospective analysis was conducted on a cohort of patients who underwent AI-assisted robotic TKR, with clinical outcomes assessed using the Knee Society Score (KSS) and radiological evaluations of implant integration. Results revealed superior postoperative function, reduced pain, and enhanced patient satisfaction compared to conventional techniques.

This study highlights the transformative potential of AI in orthopedic surgery, bridging the gap between technological advancements and clinical practice. The AI-driven approach enables a higher degree of precision, leading to improved long-term outcomes for patients undergoing TKR. Future large-scale, multicentric studies are planned to validate these findings and further refine AI applications in knee arthroplasty.

By leveraging AI for surgical optimization, this research establishes a foundation for patient-specific treatment strategies, setting new standards for precision and efficiency in orthopedic surgery.

11:05 - 11:08

1830 Smart Knee Sensor: Redefining Joint Replacement With Precision Technology

Sunil Sheshrao Nikose[1], **Pregash Ellapparadja**[1], Brinda Somanchi[1], Mohammed Abdul Bari[1], Ramesh Thalava[2], Narayana Prasad[2], Yeshwanth Nandimandalam[2], Abhineet Verma[2]

1. Tameside and Glossop Integrated NHS foundation Trust, Manchester, United Kingdom
2. Tameside and Glossop Integrated NHS foundation Trust, Ashton-Under-Lyne, United Kingdom

Abstract
Smart implant technology is revolutionizing joint replacement surgery by providing real-time insights into post-operative recovery, enhancing both patient outcomes and surgical precision. This study presents an innovative knee implant sensor (Patent Pending) that marks a major advancement in orthopaedic innovation. Designed to continuously monitor joint function, alignment, and healing progression, this cutting-edge sensor enables surgeons to track recovery with unparalleled accuracy.

Integrating advanced biomechanical algorithms, the smart knee sensor measures critical parameters such as range of motion, pressure distribution, and micro-instabilities in the joint. By detecting even the slightest irregularities during the post-operative phase, the sensor facilitates early intervention, allowing for timely, evidence-based modifications to rehabilitation plans without the need for invasive procedures. Additionally, it provides personalized recovery insights, empowering patients to take an active role in their rehabilitation, leading to enhanced compliance and faster recovery.

Preliminary clinical trials demonstrate significant benefits, including improved implant alignment, reduced recovery times, and higher patient satisfaction rates. This technology not only enhances surgical precision but also establishes a new benchmark in post-operative monitoring, positioning surgical practices at the forefront of orthopaedic innovation.

By seamlessly integrating smart sensor technology into joint replacement surgery, this advancement paves the way for a paradigm shift in precision orthopaedics.
To further validate its impact, a large-scale multicentric study is underway, solidifying its role in redefining the future of knee arthroplasty and personalized patient care.

11:37 - 11:40

1866 Revolutionizing Orthopaedic Surgery: Pioneering Autonomous Robotics For Unmatched Precision And Efficiency

Sunil Sheshrao Nikose[1], Brinda Somanchi[1], **Abhineet Verma**[1], Narayana Prasad[1], Ramesh Thalava[2], Pregash Ellapparadja[2], Mohammad Abdul Bari[2], Yeshwanth Nandimandalam[2]

1. Tameside and Glossop Integrated NHS foundation Trust, Manchester, United Kingdom
2. Tameside and Glossop Integrated NHS foundation Trust, Ashton-Under-Lyne, United Kingdom

Abstract
The evolution of autonomous robotic systems is redefining the future of orthopaedic surgery, enabling complex procedures to be performed with unprecedented accuracy and minimal human intervention.

Our cutting-edge research, funded by an Unrestricted Grant from the NIH Central Resource for Research Grants and Funding, focuses on the development of next-generation autonomous robotic technology powered by imitation learning—an advanced artificial intelligence (AI) technique designed to enhance surgical precision, efficiency, and patient outcomes.
Our research is actively engaged in designing and engineering autonomous robotic systems that can learn, replicate, and refine surgical techniques by analyzing expert-led procedures. This technology ensures consistent surgical precision, significantly reducing variability, minimizing human error, and alleviating surgeon fatigue—all critical factors in improving long-term surgical success.
The study assesses the real-world application of these autonomous robotic platforms across a variety of orthopaedic procedures, evaluating their ability to reduce operative times, optimize implant alignment, and accelerate recovery rates. Early preclinical trials demonstrate that these systems can match or even surpass human surgeons in highly intricate surgeries, proving their potential to revolutionize orthopaedic interventions. Additionally, by eliminating geographical barriers to specialized care, autonomous robotic surgery offers scalable, high-precision solutions for healthcare systems worldwide.
By merging artificial intelligence, robotics, and orthopaedics, this research marks a transformative step in surgical automation, paving the way for self-directed robotic systems to set new benchmarks in precision medicine and patient-centric care.

11:34 - 11:37

2040 Arch Check Tool: A Method For Classifying Foot Types Through Measuring Medial Longitudinal Arch Height

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Abstract
Introduction: Foot health is vital for overall well-being, as abnormalities in the medial longitudinal arch (MLA) can cause pain and long-term issues. Classifying foot types by arch height is key for diagnosing conditions like flat feet and high arches. However, current diagnostic tools are often costly and inaccessible. Thus the triangular tool was designed to measure the MLA height of the foot and classify foot types.
Aims & Objectives: To design a tool for measuring arch height and categorizing foot types into normal, flat, and high arches.
Study Design & Method: This cross-sectional study assessed the MLA of 30 individuals (60 feet) using static footprints and the new measurement tool. Footprints were classified based on Chippaux Smirak Index (CSI) and Staheli's Arch Index (SAI).
Results: The study found that normal feet had an MLA range of 14–20 mm (sitting) and 12–18 mm (standing), flat feet ranged from 12–14 mm (sitting) and 8–12 mm (standing), and high arches were between 22–24 mm (sitting) and 18–22 mm (standing). These results aligned with CSI and SAI classifications.
Conclusion: The Arch Check Tool is an effective method for measuring MLA height and differentiating between normal, flat, and high arched feet, offering a user-friendly and accessible alternative to traditional diagnostic techniques. This tool can further be integrated with Artificial Intelligence.
Key words:
Arch Height; Arch Measurement Tool; Chippaux Smirak Index (CSI); Staheli's Arch Index (SAI); Medial Longitudinal Arch (MLA); Foot Classification.

11:50 - 11:53

2012 Cementless TKA Is Associated With Better Outcomes Than Cemented TKA

John Slevin[1,2], Anthony Seddio[1], Philip Ratnasamy[1], Michael Kaplan[2], Jonathan Grauer[1], **Lee Rubin**[1]

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Abstract
Background: Total knee arthroplasty (TKA) is a common treatment for osteoarthritis of the knee. However, the literature remains conflicted on whether cemented or cementless TKA provides better patient outcomes.

Methods: Patients undergoing cemented and cementless TKA were identified from the PearlDiver M170-Ortho database and independently matched 4:1 by age, sex, and Elixhauser Comorbidity Index. The odds of 90-day adverse events (AEs), emergency department visits, readmissions, and 5- and 10-year implant-related AEs were compared using multivariable logistic regression.

Results: The cemented and cementless TKA cohorts included 143,742 and 35,950 patients, respectively. Compared to cemented TKA, cementless TKA was associated with lower odds of any 90-day AE (odds ratio [OR] 0.93, $p<0.001$), serious AEs (OR 0.94, $p=0.018$), minor AEs (OR 0.95, $p=0.029$), venous thromboembolism (OR 0.89, $p=0.002$), and hospital readmission (OR 0.95, $p=0.024$). Additionally, cementless TKA demonstrated lower 5-year rates of prosthetic joint infection (PJI) (OR 0.92, $p=0.010$), aseptic loosening (OR 0.82, $p<0.001$), stiffness (OR 0.94, $p<0.001$), and revision (OR 0.90, $p=0.90$). At 10 years, cementless TKA was associated with lower rates of PJI (OR 0.91, $p=0.005$), periprosthetic fracture (OR 0.84, $p=0.020$), aseptic loosening (OR 0.79, $p<0.001$), stiffness (OR 0.93, $p<0.001$), and revision (OR 0.87, $p<0.001$).

Conclusions: In the largest study comparing the outcomes of cemented and cementless TKA, cemented TKA was associated with inferior short- and long-term outcomes. These findings suggest that surgeons should consider cementless models for TKA.

11:53 - 11:56

2313 Chondrofiller And Treatment Of Cartilage Defects In The Knee

Rayeesa Faheem Syed

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Abstract
Background: Focal chondral defects of the knee are common. Several surgical techniques have been proposed for the management of chondral defects. In this study, early functional outcomes with use of ChondroFiller liquid in the knee articular cartilage defects were evaluated.

Methods: A retrospective study of 11 patients who underwent knee arthroscopy and ChondroFiller liquid application for ICRS Grade IV defects were followed up from 6 months to 18 months. Functional outcomes of the patients were evaluated from IKDC subjective evaluation forms.

Results:
• Mean age of patients was 46.6 years.
• Isolated chondral lesions were associated with better outcomes (Mean IKDC score 66.25).
• Chondral lesions are seen in association with other injuries in 63.64% of cases.
• Chondral lesions over medial femoral condyle are more common (81.8%) and are associated with better outcomes when compared with lateral tibial plateau lesions.
• Female patients and high BMI were associated with poorer outcomes.

Conclusion: ChondroFiller liquid could serve as a good treatment option for Grade IV chondral defects in select patients.
Advantages of use: Ease of availability, single procedure, reduced morbidity, avoidance of microfracture.
Future studies on bigger cohort could help in developing an algorithm for patient selection for use of ChondroFiller.

10:33 - 10:36

3020 The Use Of Artificial Intelligence In The Diagnosis Of Paediatric Elbow Fractures

Dean Malik, Aysha Abu Hassan, Khaled Sarraf

Imperial College Healthcare NHS Trust, London, United Kingdom

Abstract

Introduction

The integration of artificial intelligence (AI) into clinical practice has been proposed to revolutionise healthcare. However, implementation and deployment has far exceeded the rate of our investigation in to its actual efficacy. One area of particular interest is it's use in diagnosing difficult conditions, such as paediatric elbow injuries, which can be challenging for even the most experienced specialist.

Method

A systematic review of the literature was undertaken with a search of PubMed, Embase, Medline and Cochrane databases from their inception until March 2024. Studies evaluating the use of AI in assessing elbow injuries in children (age <18 years) was included. Data was extracted and analysed with risk of bias being assessed.

Results

Seven articles were deemed eligible for inclusion with injuries including elbow effusions, elbow fractures and supracondylar fractures. The results analysed showed high rates of accuracy (>90%) with minimal false positives or false negatives across studies.

Conclusion

The use of artificial intelligence in assessing elbow injuries in paediatric patients shows promising applicability to help tackle a challenging area of diagnosis, particularly for inexperienced clinicians. That being said, the heterogeneity across the evidence provided shows the need for more research to evaluate these tools and ensure validation for real world practice.

11:40 - 11:43

1116 Difficult Deformities Treated By Ilizarov Technique

Mofakhkharul Bari

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Abstract

Introduction: Deformities, whether congenital, acquired, or traumatic, present significant challenges in orthopaedic management. The Ilizarov technique has become a powerful method for treating a wide variety of bone deformities. Based on biological principles and technological philosophy, it provides precise correction and offers advantages over traditional methods by allowing gradual, controlled correction with fewer complications.

Keywords: Deformities, Ilizarov technique, Limb deformities, Distraction osteogenesis, Bone correction, Traditional methods

Materials & Methods: From 1990 to 2023, 268 patients aged 3 to 55 years with congenital, acquired, and post-traumatic deformities were treated using the Ilizarov technique. The deformities included bone length discrepancies, angular malalignments, and rotational deformities. The treatment involved osteotomies, gradual correction through distraction osteogenesis, and regular monitoring.

Results: The Ilizarov technique successfully corrected deformities in all 268 cases, resulting in significant improvements in limb alignment, length, and function. Compared to traditional methods, the Ilizarov technique demonstrated superior precision and flexibility, allowing for controlled, gradual correction of complex deformities with minimal complications and avoiding the need for extensive soft tissue dissection or bone grafting.

Conclusion: The Ilizarov technique is highly effective for treating a variety of bone deformities, offering precise, controlled correction and fewer complications compared to traditional methods. Its ability to manage complex deformities makes it a superior choice in orthopaedic practice, providing reliable and durable outcomes.

11:56 - 11:59

1471 Distributed Orthopaedic Trauma Simulation For Intramedullary Femoral Nailing: DOTS Study

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Imperial College, London, United Kingdom

Abstract
Objective: To pilot the first national intraoperative intramedullary nailing scenario using multidisciplinary members in a high pressured situation.

Methods: 20 orthopaedic trainees were voluntarily recruited and attended a lecture showing the procedural steps. The scenario consisted of a trainee being called into theatre to complete a trochanteric intramedullary nail with the help of a scrub nurse, runner and anaesthetist. Stressors were also introduced and consisted of breakdown of equipment and commencing cardiopulmonary resuscitation. Metrics were assessed for each participant by senior trainees using a novel 16-point global rating score (GRS; range 1-5) for which the Cronbach alpha for inter-rater validity was calculated. Participants answered 10-point pre and post-test perception questionnaires using a 7-point Likert scale (-3=strongly disagree to 3=strongly agree) for which the median and Kruskal-Wallis for significance (set at $p<0.05$) were calculated. Cronbach alpha was calculated for internal consistency.

Results: A total of 65 candidates participated in the study. The median level of PG training was year 5 with 91% being both male and right-handed. The pre-and post-questionnaire were both significant. GRS score also increased with cumulative clinical experience and procedures performed as seen in the more senior trainees. There was a plateau reached at 75% median score (PG years 5 and 7) from a starting 65% median score (PG year 2) with increasing seniority. Both GRS score, face and content validity as well as the pre-task competency questionnaire had an excellent Cronbach alpha result.

Conclusion: The simulation scenario had significant acceptability and a realistic global rating scale.

10:30 - 10:33

162 Utilising Generative AI For Medical Literature Reviews: A Practical Guide For Orthopaedic Surgeons

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Abstract
Generative artificial intelligence (AI) has the potential in transforming the way medical literature reviews are conducted, offering orthopaedic surgeons an efficient approach to analysing research. This paper provides a practical guide on using AI to streamline the literature review process and includes a case study on knee osteoarthritis (OA) to demonstrate its real-world application.

A structured methodology was applied, using generative AI to assist in screening, summarising, and organising research findings. The process was overseen by human reviewers to ensure accuracy and clinical relevance. In the case study, AI was used to review studies on knee OA diagnosis and prediction, highlighting the growing role of AI in clinical practice. Recent research shows that machine learning and deep learning models, such as convolutional neural networks (CNNs), can improve OA diagnosis from medical images and predict disease progression with high accuracy. These AI tools offer promising advancements but also pose challenges, including data bias and the need for clinical validation.

This guide equips orthopaedic surgeons and researchers with a structured approach to using AI for literature reviews while also providing insights into how AI is being applied in OA diagnosis and prediction. Ethical considerations and practical challenges are discussed to ensure AI is used responsibly in both research and clinical settings.

11:18 - 11:21

938 Comparative Analysis Of Accuracy Implant Positioning In Electromechanical And Optical Navigation Systems In Robotic Total Knee Arthroplasty

Andrey Gritsyuk, Alexey Lychagin, Mikhail elizarov

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Abstract
Background: The study and comparison of various orthopedic robotic systems in the clinical practice of total knee arthroplasty is of increasing interest to modern orthopedic surgeons. In our practice, we compared two robotic systems, one of which uses an infrared optical navigation system (INS), the other an electromechanical system (EMN).
Methods: A single-center comparative cohort study was conducted on the accuracy of implant positioning in robotic total knee arthroplasty. In the first group of 150 patients, we performed TKA using an autonomous robot «CUVIS» with INS, in the second group of 148 patients using the «TSolution One» system with EMN. The operations were performed sequentially, by one group of three surgeons in equal parts, using the same endoprostheses with preservation of the posterior cruciate ligament and a cement fixation system. The angle of the HKA in the coronal projection was compared before and after surgery; it was planned in both groups with mechanical alignment of the limb axis to have an HKA angle of 180°.
Results: Evaluated 6 weeks after surgery using vertical CT under body weight load. The obtained HKA in the ICN group before surgery was 170.9°±1.9°, after surgery 179.7°±0.6°, in the EMN group before surgery HKA =172.2°±3.8°, after surgery 179.6°±0.6° (p=0.495).
Conclusions: Various navigation systems of autonomous robots showed high accuracy of implant positioning in the coronary plane and the absence of statistically significant differences when compared with each other.

11:08 - 11:11

2188 Towards Personalised Surgery Using Digital Twins

Yosra Mekki[1], Gijs Luijten[2], Elisabet Hagert[3], Sirajeddin Belkhair[4], Chris varghese[5], Junaid Qadir[6], Barry Solaiman[7], Muhammad Bilal[8], Jaghtar Dhanda[9], Jan Egger[10], Jun Deng[11], Vikas Khanduja[12], Alejandro Frangi[13], Susu Zughaier[14], Mitchell Stotland[15]

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Abstract
This paper discusses the use of digital twins in surgery, a concept originally developed in aerospace engineering. A digital twin is a detailed virtual model that continuously updates based on real-time data, making it useful for planning, decision-making, and predicting outcomes in complex systems, like the human body. In surgery, a digital twin mirrors a patient's anatomy or physiology, helping doctors with training and precise interventions. We explain the different types of digital twins, from static models that represent anatomy to advanced models that adapt in real-time. It highlights the potential of digital twins for enhancing surgical training, patient education, preoperative planning, and postoperative care. Though still mostly experimental, digital twins are showing promise for improving surgical outcomes by allowing personalized, adaptive, and data-driven care. Challenges remain, such as ensuring data security, overcoming technical limitations, and validating these models through clinical trials. We conclude with recommendations for building digital twins into practical tools for personalized surgery, emphasizing the need for rigorous testing, integration with healthcare systems, and training for healthcare workers.

10:36 - 10:39

2168 Digital Twins Pertinent To Femoroacetabular Impingement Syndrome: Applications And Case Study Of A Static Twin

Yosra Mekki[1], Kevsier Kose[2], Marcelo Bordalo[3], Jun Deng[4], Muhammad Bilal[5], Junaid Qadir[6], Paul Dijkstra[7], Vikas Khanduja[8]

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Abstract

Introduction:
Femoroacetabular impingement syndrome (FAI-S) is a motion-related hip disorder associated with early-onset osteoarthritis, characterized by clinical symptoms, imaging findings, and abnormal bone morphology. Digital twins offer high-fidelity, dynamic models that integrate real-time patient data to simulate physical characteristics, enhancing diagnosis, treatment, and surgical planning. Despite their potential, DTs have not yet been applied in FAIS management.

Aim and Method:
This study presents the segmentation of a static digital twin from a FAIS patient and its integration into extended reality (XR) for patient education and clinical decision-making. An anonymized MRI dataset was used to create the static twin through auto-segmentation, procedural texture mapping, and calibration for multi-user accessibility.

Results:
We explore three DT applications in the patient journey: (1) Static Twin—a visual aid for initial consultation and education; (2) Mirror Twin—a diagnostic tool with dynamic behavior simulation; (3) Shadow Twin—a real-time updating model for surgical planning and rehabilitation.

Conclusion:
This study represents the first implementation of a digital twin framework for FAI-S, aligning with the latest consortium definitions. By enabling personalized simulation, prediction, and modeling, DTs enhance patient education, multidisciplinary collaboration, and precision surgery, offering a novel approach to FAIS management.

Wednesday, 3 September

Knee 2
11:37 - 11:40

55 A Comparative Study Of The Accuracy Of Image-Less Versus Roentgenographic Image-Based Robotic Total Knee Arthroplasties

Hongzhi Zhu[1], Fang Nian Joanne Lim[2], Wu Chean Lee[1], Remesh Kunnasegaran[1]

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Abstract
The Robotic Surgical Assistant (ROSA®) system used in robotic total knee arthroplasties (rTKA) employs either image-based or image-less pathway for surgical planning. We evaluated radiographic outcomes of ROSA rTKAs with and without preoperative imaging to compare the accuracy of both pathways.
A retrospective study was conducted for patients who underwent ROSA rTKAs with and without preoperative imaging at a single tertiary center between January 1, 2023, and December 31, 2023. Two reviewers independently measured coronal alignments of femoral and tibial implant components in relation to the mechanical axis at three-months post-operation (POD-3m). These angles were compared to planned intraoperative femur and tibia cuts to assess for variations.
A total of 97 patients were included: 35 in the image-based and 62 in the image-less pathway. Mean intraoperative alignment of the femoral component was -1.5° ± 0.8 (image-based) and -1.3° ± 1.0° (image-less). Mean intraoperative alignment of the tibial component was -1.1° ± 0.9° (image-based) and -0.2° ± 0.6°(image-less). Mean POD-3m alignment of the femoral component was -1.6° ± 0.7° (image-based) and -1.5° ± 0.8° (image-less). Mean POD-3m alignment of the tibial component was -1.4° ± 1.0° (image-based) and -1.1° ± 0.6° (image-less). The image-less group showed greater variation in tibial component alignment compared to the image-based group (-0.8° ± 0.1° vs -0.3° ± 0.1°, P <0.001). No significant difference was found in femoral component alignment between the two groups (-0.1° ± 0.8° vs -0.2 ° ± 1.3°, P = 0.546).
Pre-operative imaging provides greater component alignment accuracy in ROSA rTKAs.

10:30 - 10:33

566 Comparison Of Two Fixation Methods For Tibial Tuberosity Transfer: A Retrospective Review

Mahmoud Faisal Adam, Raghavan Sivaram, Aakhil ravoof, Rafael Sales Fernandez

Wrightington, Wigan and Leigh Teaching Hospitals, Wigan, United Kingdom

Abstract
Background:
Tibial tuberosity transfer (TTT) is a reliable method in treatment of patella alta. However, the optimal fixation method remains debated due to associated complications, including fixation failure, fractures, non-union, and hardware irritation. This study compares two fixation methods for TTT to determine their effectiveness and complication rates.
Methods:
A retrospective review of 98 consecutive TTT procedures performed between 2017 and 2024 was conducted. Indications included patellar instability (83 cases), fat pad impingement (5 cases), inferior patellar wear (5 cases), and patellofemoral replacement (5 cases). Fixation was achieved using either two 4.5mm cortical screws (Cohort 1, n=36) or a 1/3rd tubular plate with 3.5mm cortical screws (Cohort 2, n=62). The mean follow-up was 60 months for Cohort 1 and 19 months for Cohort 2. Patient demographics, complication rates, and fixation outcomes were analyzed.
Results:
Both groups achieved 100% healing with no cases of non-union. However, tibial tuberosity migration (25%) and fractures (5.5%) were higher in the screw group, while plate fixation resulted in only two fractures (one post-traumatic). Metalwork removal was required in 19.4% of screw fixation cases and 12.9% of plate fixation cases.
Conclusion:
The findings suggest that 1/3rd tubular plate fixation should be considered the gold standard for TTT due to superior stability and lower complication rates. Screw fixation showed a higher risk of migration and fractures despite similar healing rates.

10:33 - 10:36

795 Outcomes Of Distal Femoral Osteotomy: A Retrospective Review Of Correction Accuracy And Complications

Mahmoud Faisal Adam, Raghavan Sivaram, Tirthankar Dasgupta, Stephen Ross-Thriepland, Rafael Sales Fernandez

Wrightington, Wigan and Leigh Teaching Hospitals, Wigan, United Kingdom

Abstract
Background:
Distal femoral osteotomy is a surgical technique used to correct valgus deformity. The success of DFO depends on the precise correction of limb alignment. This study aims to assess the accuracy of correction and report complications associated with DFO.
Methods:
A retrospective study reviewed DFOs performed by four experienced knee surgeons at a single center between 2018 and 2024. Forty patients were included. Indications were valgus alignment with patellar instability (8 cases), failing lateral compartment (17 cases), osteoarthritis (11 cases), and patellofemoral osteoarthritis (4 cases). Closed-wedge osteotomy was performed in 37 cases, while 3 underwent open-wedge osteotomy. The Spearman correlation test assessed the relationship between hinge fractures and correction accuracy.
Results:
The mean age at surgery was 38 years (range: 16–59), with an average follow-up of 43 months. Mikulicz line improved from 78.4 mm to 38.8 mm, indicating significant improvement in limb alignment. LDFA increased from 84.85° to 91.6°, while MPTA showed minimal change, from 89.65° preoperatively to 89.1° postoperatively. Adequate correction was achieved in 26 patients (65%), with 9 (22.5%) overcorrected and 5 (12.5%) undercorrected. Hinge fractures occurred in 23 patients, 21.7% of which were unstable. Spearman's correlation (-0.0385, $p = 0.8135$) showed no significant impact of hinge fractures on correction accuracy. Two non-unions required revision fixation, and one case had a delayed union.
Conclusion:
DFO effectively corrects valgus deformity. Hinge fractures were common but did not significantly affect correction accuracy. However, accuracy of correction remains a concern, with 35% of cases resulting in under- or overcorrection.

10:52 - 10:55

1723 Clinical Outcome Of Minimally Manipulated, Mechanically Isolated Autologous Adipose Tissue-Derived Stromal Vascular Fraction (Sahaj Therapy®) In Knee Osteoarthritis—Randomized Controlled Trial

Madhan Jeyaraman

ACS Medical College and Hospital, Dr MGR Educational and Research Institute, Chennai, India

Abstract
Introduction: Regenerative therapy has shown promising results in the treatment of osteoarthritis (OA) knee with KL) Grades I–III. We compared the safety, efficacy, functional, and clinical outcomes of intra-articular implantation of autologous adipose tissue-derived stromal vascular fraction (SVF) isolated using direct ultrasonic cavitation (Sahaj therapy–Cell Innovation Patented Technology) and saline injection in knee osteoarthritis. Methods: The present study was conducted over 3 years. We enrolled 120 patients in our study, where four patients got excluded as they did not meet the inclusion criteria. The remaining 116 patients were randomized into two groups, one with autologous adipose tissue-derived SVF and the other group with saline injection. A comparison of mean KOOS and VAS scores at different follow-ups was done using Paired 't' test. A p value of < 0.05 was considered significant. Results: The results show that the SVF group had significantly higher KOOS scores (78.49 ± 6.54 in the SVF group vs 59.19 ± 5.14 in the saline group), respectively ($p < 0.001$). Similarly, the SVF group had significantly lesser VAS scores (3.17 ± 0.94 in the SVF group vs 3.89 ± 1.04 in the saline group), respectively ($p < 0.001$). Conclusions: Autologous adipose tissue-derived SVF is a better choice for treating knee osteoarthritis. For individuals knee osteoarthritis, autologous SVF grafting in the same surgical procedure is an innovative and promising treatment modality. Even after 3 years of follow-up, the study participants with OA knee have shown a good clinical and functional outcome.

Keywords: Osteoarthritis; Adipose tissue; Stromal vascular fraction; Knee

11:02 - 11:05

2825 The Relationship Between Proximal Tibiofibular Joint Inclination Angle And Knee Osteoarthritis In The Indian Population: Does The Joint Even Matter?

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2. MGM Medical College & Hospital, Navi Mumbai, India

Abstract

Introduction

Knee osteoarthritis is a prevalent musculoskeletal disorder, particularly in the elderly. In India, a significant portion of the population suffers from this debilitating condition. While various risk factors for knee OA have been identified, the role of the proximal tibiofibular joint inclination angle (PTFJIA) remains underexplored in the Indian context.

Aims & Objectives

This study aims to evaluate the correlation between PTFJIA and knee OA severity. The objectives include:

1. Measuring PTFJIA in individuals with and without knee OA.
2. Analyzing its association with Kellgren-Lawrence (KL) grades of OA.
3. Identifying potential biomechanical implications of altered PTFJ morphology.

Methods

This cross-sectional study analyzed 2000 knees using scannograms and X-rays (AP and lateral views). PTFJIA was manually measured, and statistical analyses, including correlation tests, logistic regression, and ANOVA, were conducted using SPSS software.

Results

A strong negative correlation ($r = -0.61$) was found between PTFJIA and knee OA. Logistic regression confirmed that a decrease in PTFJIA significantly increased the likelihood of knee OA ($p < 0.001$). Arthritic knees exhibited significantly lower PTFJIA than healthy knees ($t = -34.63$, $p < 0.001$). However, no significant correlation was found between PTFJIA and KL grade severity ($r = 0.07$, $p = 0.128$).

Conclusion

This study establishes a significant relationship between lower PTFJIA and increased knee OA risk. However, PTFJIA does not strongly predict KL severity. These findings suggest that PTFJ morphology plays a crucial role in knee biomechanics and could aid in early intervention strategies for knee OA, particularly in the Indian population.

11:24 - 11:27

2928 Transforming CPAK Phenotypes: Uncovering CPAK Changes In Total Knee Arthroplasty

Parichay Sharma, Ashish Phadnis, Sagar Bansal, Neharika Tandon, Prathamesh Sangare, Meet Siroya, Praveen Vishwakarma, Shubham Tiwari, Manish Baviskar, Arzoo Sareen, Keertana Vaidyanathan, Shubham Jadhav

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Abstract

Introduction

Total knee replacement (TKR) is a common procedure for advanced knee osteoarthritis, yet up to 20% of patients report dissatisfaction. Accurate implant positioning and limb alignment significantly impact outcomes. Robot-assisted TKR aims to improve precision compared to conventional techniques. The Coronal Plane Alignment of the Knee (CPAK) classification provides a structured framework to assess constitutional limb alignment and joint line obliquity.

Aims and Objectives

This study evaluates the impact of robot-assisted TKR on CPAK phenotype, analyzing preoperative and postoperative alignment changes.

Methods

An observational prospective study was conducted over three years at a tertiary care hospital. All patients who underwent imageless, robot-assisted TKR were included. Preoperative and postoperative radiographs were analyzed using the CPAK classification. Statistical tests, including the Wilcoxon signed-rank test and regression analysis, assessed alignment changes.

Results

CPAK phenotype changed significantly postoperatively ($p \approx 0.000029$). While 34.2% of patients retained their CPAK classification, 47.5% shifted to a higher CPAK grade, and 18.3% decreased. Significant changes in joint line obliquity ($p \approx 6.65 \times 10\text{-}18$) and arithmetic hip-knee-ankle angle ($p \approx 2.58 \times 10\text{-}9$) were observed.

Conclusions

CPAK restoration occurred in only one-third of patients, with significant postoperative alterations. Preoperative alignment plays a crucial role in CPAK outcomes, highlighting the need for refined surgical planning and alignment strategies.

11:40 - 11:43

585 Where Is The Limit To Partial Knee Arthroplasty?

Oleg Pimanchev

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Abstract
Where is the limit to partial knee arthroplasty?
Among gonarthrosis patients the number of young, physically and socially active people with unilateral knee lesions is growing.A partial knee replacement is an efficient alternative to TKA in this patient group.
Purpose: To study applicability of partial knee arthroplasty in complex, non-standard cases. To assess the study results.
Materials and methods.
In our Medical Center 374 successful partial knee replacements were performed. In 10.4% of cases we had to deviate from the standard protocols.
In 38 patients with a unilateral joint damage and a missing ACL we performed its reconstruction simultaneously with a partial knee replacement.
In one patient who had a consolidated femur after a fracture and an intramedullar rod installed it was impossible to place a femoral guide – so external bone marks were used to position the femoral component.
Two patients received consecutive arthroplasty of the medial, and then lateral compartment of the knee joint due to progressing arthrosis.
Post-operative X-rays were assessed, as well as progressive results of later X-rays. Also, the joint function was assessed using Oxford Knee Score, Knee society score, and Performance based knee score, with observation period of 2 years.
Results: In all patients we received a satisfactory X-ray and clinical results both in the immediate post-operative period, and in 1-2 years after surgery.
Conclusion: Partial knee arthroplasty is an effective alternative to a total arthroplasty when one compartment of the knee joint is affected in active patients even in complex, non-standard cases.

11:11 - 11:14

587 Long-Term Results Of Simultaneous Partial Knee Arthroplasty And Anterior Cruciate Ligament Reconstruction

Oleg Pimanchev

Federal State Budgetary Institution "National Medical and Surgical Center named after N.I. Pirogov" of the Ministry of Health of the Russian Federation., Moscow, Russia

Abstract
These days, we see increasing numbers of patients with only one knee compartment affected by the pathological process. At the same time, those patients often also have an anterior cruciate ligament deficiency in the affected joint.
Purpose: to assess the efficacy and long-term results of partial knee replacement with simultaneous reconstruction of the anterior cruciate ligament.
Materials and methods. 56 patients were included in the study who, by their medical history, clinical examination, X-ray and MRI had a terminal medial gonarthrosis together with ACL deficiency. All patients included in the study had undergone a simultaneous partial knee replacement and ACL reconstruction. Post-operative observation period was 36 months, and during this period clinical and X-ray indicators of implant instability and the ACL graft deficiency were evaluated. The functional treatment results were evaluated using KOOS scale and questionnaires that were filled out before the surgery, as well as in 12, 24, and 36 months post-operatively.
Results. During the entire observation period there were no cases of instability of the implant components or deficiency of the ACL graft. Average KOOS score before the surgery was 59,43 ± 4,9. In 12 months post-operatively the score increased 1.4 times, reaching 85,51 ± 5,56, and continued to slightly increase until the end of the observation period: 86,37 ± 4,86 in 24 months and 86,94 ± 4,56 in 36 months.
Conclusion. A simultaneous partial knee arthroplasty and anterior cruciate ligament reconstruction is an effective method allowing to reach a substantial improvement of functional and clinical results.

11:18 - 11:21

724 EPIVASTUS APPROACH IN TKA – DOES IT IMPROVE THE RESULTS?

Evgeny Malyshev, Sergey Sokolovskiy

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Abstract
Introduction
Total knee arthroplasty (TKA) helps to correct deformity, eliminate pain syndrome and restore function. The use of minimally traumatic approaches is not routine (no more than 5% from all the TKA). The comparison of efficacy of traditional surgical techniques and minimally traumatic approaches is still controversial.
Objective
Evaluation of the efficacy of the new epivastus approach in TKA.
Methods
The study included 127 patients divided into 2 groups with TKA using the standard mediapatellar approach (SMPA) (n=62) and the minimally traumatic epivastus approach (n=65). The groups were comparable before surgery, the efficacy was evaluate at 3 day, 2, 6 and 12 month after surgery.
Results
The duration of surgery in the epivastus group was shorter ($p<0.001$) and blood loss was significantly less than in the SMPA group ($p=0.007$). On the 3rd day after surgery pain syndrome was less in the epivastus group ($p=0.006$). The knee flexion on the 3rd day after surgery was better in the epivastus group ($p<0.001$) and quadriceps muscle strength was higher ($p<0.0001$). 2D gait analysis after 2 months showed better gait speed, knee joint movement during walking in the epivastus group ($p < 0.05$); gait speed and knee joint motions at 6 months after surgery were better in the epivastus group ($p<0.05$); gait speed, swing phase, double step period, knee and ankle joint movement at 12 months were better in the epivastus group ($p<0.05$).
Conclusion
The minimally traumatic epivastus approach for TKA showed the advantages in comparison with SMPA without incorrect positioning of components, which contributes to the achievement of high functional results.

10:39 - 10:42

1083 Targeting Genicular Nerves For Chronic Knee Pain: A Comparative Analysis Of Native And Prosthetic Knees

Gaspary Fodjeu[1,2], Loic Fonkoué[1,2], Catherine Behets[1], Olivier Cornu[1]

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2. Université de Yaoundé 1, Yaounde, Cameroon

Abstract
Background: Osteoarthritis is among the prevalent causes of chronic knee pain, and it significantly impacts quality of life. Genicular nerve blocks and radiofrequency ablation (RFA) target specific nerves for pain relief. The intracapsular nerve ending distribution and associated vascularity, crucial in the knee pain pathway and management, are not well understood in native versus prosthetic knees.
Objective: The objective of this research was to compare the intracapsular distribution of free nerve endings (FNEs), mechanoreceptors (Ruffini, Pacini, Golgi), and vascular density in prosthetic and native knee capsules, focusing on five genicular nerves targets: SLGN, SMGN, IMGN, RFN, and IPBSN.
Methods: We contrasted nerve ending and vascular distribution in ten native and ten prosthetic knee tissues, quantifying FNEs, mechanoreceptors, and blood vessel density per capsular surface area. Statistical contrasts between groups were performed.
Results: Native knees contained much greater counts of FNEs ($p<0.001$) with greater nociceptive capacity. Prosthetic knees showed much greater vascularity ($p=0.001$), greater Pacini ($p=0.006$), Golgi ($p=0.01$), and unclassified nerve ending ($p=0.019$) counts. The two groups had similar distribution patterns across the five nerves, with the native knees contained more FNEs while prosthetic ones contained greater vascularity. A weak correlation between FNE and vascular density was observed in native knees ($r=0.41$), and an even weaker correlation in prosthetic knees ($r=0.09$).
Conclusion: This study reveals distinct neurovascular characteristics between native and prosthetic knees regarding intracapsular nerve ending distribution and vascularity, offering insights for targeted pain management strategies.

10:46 - 10:49

1230 Medial Opening Wedge High Tibial Osteotomy For Isolated Medial Compartment Osteoarthritis : A Retrospective Analysis Of Clinical And Radiological Outcomes

Muhammad Ali Ayub

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Abstract

Background: Medial Opening Wedge Osteotomy is an established technique for treating knee unicompartmental osteoarthritis (OA). A high tibial osteotomy (HTO) aims to offload the medial compartment, adjust the mechanical axis, and postpone or prevent the necessity for an arthroplasty. As joint-preserving techniques are needed in younger, active patients, HTO offers a valuable alternative to early knee replacement.

Objective: To measure the clinical and radiological results of Medical Opening Wedge HTO in isolated Medical Compartment OA of the knee.

Methodology: A retrospective study was completed at Ghurki Trust and Teaching Hospital Lahore, from July 2020 to October 2023. Forty patients with segregated medial compartment osteoarthritis were chosen. Patients were surveyed for 6 months postoperatively. Follow-up radiographs were performed to survey association, patellar height index, and posterior tibial slope.

.Results: A sum of 27 patients were comprised, with the average age of patients being 35.76±9.77. Ranging from 13 to 53 years. Mean preoperative post-tibial slope angles were 8.18° ± 1.02° while preoperative posterior-tibial slope angles were 8.66 °±1.13. The preoperative mean Insall-Salvati ratio was 0.97 ±0.16. However, the mean postoperative Insall-Salvati Ratio was 1.01±0.16. Knee pain and function were surveyed utilizing the Oxford Knee Score. The mean pre-operative score was 26.70±4.35 while the average postoperative score was 42.19±2.70, showing significant improvement in understanding result as $p<.05$. Just in 2(7%) cases of infected wound was noticed.

Conclusion: MOW HTO is an effective method for reducing the severity of medial Osteoarthritis of knee with low complication rates and in delaying early knee replacement surgery.

10:49 - 10:52

1404 Comparison Of Functional Outcome Of Proximal Tibial Osteotomy With External Vs Internal Fixation For Medial Compartment Osteoarthritis Knee

Vikas Saxena

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Abstract
Introduction: This retrospective study comprises the functional results of proximal tibial osteotomy with external or internal fixation devices for osteoarthritis knee.
Study Design & Methods: Two cohorts of patients aged less than 65 years of age with varus knee with knee symptoms were included in the study. The first cohort included the patients undergoing correction by external fixator (Orthofix group) and another group included the patients in which correction was done with internal fixation (Tomofix group). Each patient was assessed based on International Knee Documentation Committee (IKDC) score and Oxford Knee score. A clinical assessment was done on the day of surgery and follow-up. The minimum follow-up time was 12 months. Complications and failures resulting from surgery were recorded for each patient.
Results: After the final follow-up visits all scores improved in both groups ($P<0.05$). IKDC and Oxford knee scores were comparable in both groups. In Orthofix group, superficial infection was reported in three patients (12.5%), deep pin tract infection, and delayed union in one patient (4.3%). In Tomofix group three patients developed serous discharge and erythema (15%), under-correction in two patients (10%), and delayed union in one patient (5%). There was no significant difference in complication rate and functional outcome between the two groups.
Conclusion: In patients with an isolated medial compartment OA knee, HTO by external or internal fixations led to good functional outcomes with low complication rates at short-term follow-up. However, proper meticulous planning and execution is the essence of a good functional outcome.
Keywords: Orthofix, Tomofix, Osteoarthritis

10:55 - 10:58

2042 Autologous Cartilage Micrograft Transplantation From The Ear To The Osteoarthritic Knee: Changes In Cytokine Levels And Clinical Outcomes

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3. Semmelweis University, Budapest, Hungary

Abstract
Hyalin cartilage presents poor regeneration, however, the auricular cartilage has a remarkable regrowth potential, which offers a therapeutic tool for restoring articular cartilage function. We tested the clinical feasibility of replanting cartilage micrografts from the ear to the knee in patients with osteoarthritis. Thirty patients were enrolled in a prospecitve, uncontrolled study under approval from the National Board of Research Ethics N833. All patients had knee osteoarthritis Kellgren-Lawrence grade 2-3. Cartilage micrografts were harvested under local anesthesia from the ear then mechanically disaggregated by the Rigeneracons device (Regenera Activa, Barcelona, Spain) and injected in the knee after withrawal of the excess snyovial fluid. Patient reported outcomes (KOOS and pain VAS) were registered before and 1 week and 3 months after the procedure. IL-1beta and TNF-alfa were not elevated in the synovial fluid of any patient, while IL-6 and IL-8 showed high variation in the cohort with a close correlation between the two. Synovial IL1-beta correlates negatively with starting PROMs consistent with higher inflammation. Clinical effectiveness of the therapy was already observed by lower pain and increased knee function at 1 week, which further increased at 3 months. Cartilage autografting from the ear to the osteoarthritic knee is a feasible approach to improve articular function. The promising results from this pilot justifies further studies with longer followups and blinded controls in order to fully evaluate the potential of this novel regenerative therapy.

11:05 - 11:08

2137 Hybrid Treatment Of Osteochondral Lesions With Fragment Fixation And The Fragmented Cartilage Autograft Technique - A Case Series

Sara Machado Raposo, Afonso Nave, Nuno Silva, Joana Sampaio, José Mateus, João Jesus, António Serrano, Luís Sobral, Hugo Ribeiro

Hospital de São Francisco Xavier, Lisboa, Portugal

Abstract
The treatment of osteochondral lesions is gaining attention due to advancements in cartilage reconstruction methods. Although various techniques exist, selecting the best one remains challenging. Recently, hybrid techniques have shown promising benefits. This paper explores a hybrid treatment approach, combining bioabsorbable dice fixation with fragmented cartilage autografting technique.

Two adolescents who had suffered a knee injury, with innocent x-ray images, underwent an MRI scan which showed the presence of an osteochondral lesion of the patella, with the presence of a larger fragment. This fragment was first fixed with bioabsorbable dices. Following this, the smaller fragments resulting from the trauma and those resulting from debriding the lesion were prepared. Platelet-rich plasma was used in combination with a biological sealing agent to fix this preparation. Both procedures were initially performed arthroscopically, followed by a para-patellar approach to fix the fragments and to treat ligament injuries resulting from the same trauma.
With this technique it was possible, in a single procedure, to restore the largest proportion of the native articular surface by fixing the larger fragment and using the smaller fragments to fill the remaining space.

Hybrid treatment with fixation and the fragmented cartilage autograft technique, performed in a single operation, is a safe, reproducible and economical option. The use of bone fragments and an autologous fixation agent increases the local biological potential.
Early diagnosis of these lesions and their treatment are essential to prevent future damage to the joint, which can lead to osteoarthritis.

11:08 - 11:11

2283 Medial Femorotibial Gonarthrosis: Predictive Factors For Failure Of Tibial Valgization Osteotomy

Ahmed Adel Bezzaouia, Mehdi Meddeb, Oussama Ben Mohamed, Hassan Hachicha, Hassen Makhlouf, Mondher Mestiri

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Abstract
Introduction:
Tibial valgus osteotomy (TVO) is a procedure for the treatment of medial femorotibial gonarthrosis in genu varum. Certain factors, which are still the subject of controversy in the literature, may influence the results of this procedure.
The aim of our work was to identify the factors influencing the success or failure of this surgery.

Methods:
This was a retrospective comparative study including patients operated by TVO by external closure for medial femorotibial gonarthrosis on genu varum, between January 2004 and December 2022. The population was divided into two groups: failure-TVO and success-TVO.

Results:
In our series, there were 86 patients, mean age 59 years. The mean BMI was 30.7 kg/m², and the results indicated an increased risk of TVO failure for the highest BMIs ($p < 0.001$). On the other hand, there was no significant difference in the distribution between the two groups of various other preoperative clinical examination data, including mobility, lateral femorotibial pain, patellofemoral syndrome, knee laxity, or IKS score. Furthermore, there was no difference between success and failure of TVO if the rate of correction was less than or greater than 10°.
At a mean follow-up of eight years, we noted a loss of correction in 43% of patients, with a significant difference between the two groups ($p=0.004$).

Conclusion:
The success of TVO is influenced by BMI, preoperative osteoarthritis stage, postoperative HKA angle and loss of correction, hence the importance of rigorous patient selection, careful preoperative planning and precise surgical technique, to optimize long-term clinical outcomes.

11:21 - 11:24

1996 Stromal Vascular Fraction (SVF) Vs Hyaluronic Acid (HA): What Leads In Early Osteoarthritis Care?

Mohamed Jisam Poovanoor[1], Vikrant Manhas[2], Sujata Mohanty[2], Ankur Goyal[2]

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Abstract
Osteoarthritis (OA) is a common, debilitating joint disorder characterized by cartilage degeneration and functional impairment. Conservative treatments like physiotherapy and pharmacological options provide symptom relief but fail to halt disease progression. Intra-articular hyaluronic acid (HA) injections are frequently used but lack evidence for disease modification. Recently, adipose tissue-derived stromal vascular fraction (SVF) has emerged as a promising alternative, potentially offering both symptom relief and disease modification through paracrine signaling. However, comparative studies on SVF and HA remain limited.
Objective: This study aimed to compare the clinical efficacy, safety, and disease-modifying effects of intra-articular SVF injections versus HA in patients with symptomatic knee OA.
Methods: A prospective, comparative study included 22 patients aged 40-75 with symptomatic knee OA unresponsive to conservative treatments. Participants received two intra-articular injections of either SVF (Group A) or HA (Group B) at baseline and 6 months. Functional outcomes were assessed using the Knee Society Knee Scoring System (KSS) and visual analogue scale (VAS). MRI-based Whole-Organ Magnetic Resonance Scoring (WORMS) evaluated cartilage changes.
Results: At one-year follow-up, SVF injection improved joint function and reduced pain, correlating with high mesenchymal cell counts. However, MRI findings showed minimal cartilage regeneration, with WORMS cartilage scores improving slightly from 12 to 10.
Conclusion: SVF injections are superior to HA in pain reduction and functional improvement in knee OA. However, MRI findings suggest limited cartilage regeneration within one year. Further research is needed to assess long-term disease-modifying effects.

11:27 - 11:30

2719 Meniscal Root Repair Vs. Meniscectomy In Adults Aged ≥45: A Retrospective Comparative Study

Vositbek Khakimboevich Tursunov[1,2], Abduaziz Shodievich Babakulov[1], Akbarjon Baxrom O'G'Li Mirzayev[3,1,4], Saodat Ubaevna Asilova[2], Xolbek Erkin O'G'Li Aliyev[1]

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2. Kimyo International University in Tashkent, Tashkent, Uzbekistan
3. Central Asian University, Tashkent, Uzbekistan
4. Tashkent Medical Academy, Tashkent, Uzbekistan

Abstract
Introduction. There is limited evidence on the efficacy of transtibial meniscal root repair in patients over 45.
Objectives. This study aimed to compare clinical and radiological outcomes of root repair with partial meniscectomy.
Study Design & Methods: This retrospective analysis included 84 patients treated between 2020 and 2024: 37 underwent transtibial meniscal root repair, and 47 underwent partial meniscectomy. Groups were matched for age, sex, BMI, meniscal tear type, and osteoarthritis grade. All participants completed KOOS and WOMAC questionnaires and underwent MRI (bone edema, extrusion, synovitis) and X-ray (Kellgren-Lawrence grading) at baseline and follow-up (mean 36.2 months). Clinical failure was defined as progression to TKA or need for revision surgery. Matched-pairs t-tests assessed group differences; Kaplan-Meier analysis estimated osteoarthritis progression.
Results: All patients had medial meniscus posterior root tears. At 1-year follow-up, the repair group showed superior KOOS (86.1 ± 12.1 vs. 62.8 ± 15.9) and WOMAC (28.5 ± 11.0 vs. 46.2 ± 13.5) scores ($P < .001$). These improvements persisted through 2 years. MRI at 2 years showed reduced bone edema (18.3% vs. 32.6%) and synovitis (12.3% vs. 45.2%) in the repair group. Meniscal extrusion was observed in 6% of repair patients. X-ray progression was lower in the repair group at both 1 year (5.5% vs. 10.6%) and 2 years (23.6% vs. 36.1%). Clinical failure occurred in 20% of the repair group.
Conclusion: Meniscal root repair yields superior functional and radiological outcomes compared to meniscectomy in selected patients aged ≥45.
Keywords: meniscal root tear, transtibial repair, meniscectomy.

10:36 - 10:39

945 Role Of High Tibial Osteotomy In Medial Compartment Of Osteoarthritis : A Prospective Study.

Dr Tejas Mukund Kulthe

SMBT institute of medical sciences and research centre, Nashik, India

Abstract
Introduction: High tibial osteotomy offers a unique opportunity to preserve the knee joint and potentially alter the course of the degenerative process.

Aim: The aim of the study is to evaluate the clinical and radiological outcomes after High tibial osteotomy in Medial compartmental osteoarthritis

Methods: A prospective study consisting of 76 patients of Medial compartment Osteoarthritis operated with HTO at a tertiary care center was undertaken for over 2years.The functional and radiological outcomes were evaluated. Various radiological measures including Weight-bearing line ratio (WBLR), Medial proximal tibial angle (MPTA), and posterior tibial slope angle (PTS), were analyzed preoperatively and postoperatively after 5 days, 12 weeks, 26 weeks, and 1 year. The functional outcomes were assessed using American Knee Score (AKS), visual analogue scale (VAS), Western Ontario, and McMaster Universities Arthritis Index (WOMAC).

Results: The values of the radiographic parameters significantly changed from pre-operative condition after HTO, WBLR (20.7 ± 1.6 to 53.9 ± 1.5: p- value <0.430), MPTA (-8.1 ± 1.2° to 2.5 ± 1.2°; p-value < 0.165), PTS (11.2 ± 0.9 to 8.4 ± 0.5: p- value 0.295). There was significant improvement in patient's functional status AKS (52.0 ± 7.4 to 86.2 ± 4.0; p-value <0.390), VAS (6.6 ± 1.0 to 1.6 ± 0.7; p-value <0.261), WOMAC (102.4 ± 16.6 to 48.1 ± 7.1;p-value <0.717).

Conclusion: HTO is highly successful course of treatment for correcting knee malalignment in patients with medial compartment osteoarthritis with good to excellent functional outcome.

Keywords: High tibial osteotomy, Joint preservation, Knee osteoarthritis.

11:34 - 11:37

2826 BILATERAL LIPOMA ARBORESCENS KNEE JOINT

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Abstract
INTRODUCTION: Primary tumors in the knee synovium are usually benign and rare. One such benign tumor is lipoma arborescens. A characteristic feature of this lipoma is the proliferation of the mature adipocytes in the knee joint synovium. The exact cause of this is still unknown and is considered to be an idiopathic disorder.
METHODOLOGY: Case Report and Review of literature
This report describes a case of a 15-year-old female patient who presented with joint effusion and pain in bilateral knees for 3 years, and she was being managed conservatively with multiple knee joint aspirations along with investigations of the aspirated sample, which were inconclusive. Her complete rheumatological workup and blood investigations were done, which were within the normal range. Despite the treatment involving nonsteroidal anti-inflammatory drugs, there was no significant improvement in symptoms. On clinical examination, the patient had diffuse and painless swelling over the suprapatellar region of the right knee with a patellar tap test positive. Radiologically, the X-ray of both the knees was normal. Magnetic resonance imaging (MRI) showed frond-like hypertrophy of the synovium and fat deposition, which were suggestive of lipoma arborescens in the knee joint. Arthroscopic synovectomy of the knee joint was done, and a biopsy was taken. The patient was followed up for 1 year, and there was no recurrence.
CONCLUSION: Lipoma arborescens is a rare intra-articular tumor with a benign, indolent course; therefore, awareness of its clinical findings and radiological imaging findings is very important for early diagnosis and management.
Keywords: lipoma arborescens

11:47 - 11:50

2411 ALL Femoral Tunnel Orientation Does Not Directly Affect The Clinical Outcomes Of Combined Surgical Procedures Of ACL And ALL, But Distally Directed Drilling Can Reduce Tunnel Collision And Surgical Time

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2. yonsei university severance hospital, Seoul, South Korea
3. Hallym University Dongtan Sacred Heart Hospital, hwasung, South Korea

Abstract
Background: The impact of femoral tunnel collision during combined ACL and ALL reconstruction on clinical outcomes and the optimal ALL femoral tunnel orientation remain unclear.

Purpose: To evaluate clinical outcomes and tunnel collision incidence based on ALL femoral tunnel orientation.

Methods: A retrospective review of patients who underwent combined ACL and ALL reconstruction (2018–2022) with ≥2 years of follow-up. Patients were classified by ALL femoral tunnel orientation: Group P (30° axial, 30° coronal) and Group D (0° axial, −40° coronal). Radiographic parameters, tunnel collision rate, minimal distance between tunnels (MDBT), collision volume, functional scores, knee laxity, and surgical time were compared.

Results: Sixty-four patients were included. Group D had a significantly lower tunnel collision rate, larger MDBT, and smaller collision volume ($P < 0.001$ for all). No differences were found in functional scores or knee laxity, but surgical time was significantly longer in Group P ($P = 0.025$). Cases with tunnel collision required longer surgical time ($P < 0.001$).

Conclusion: Distally directed drilling for the ALL femoral tunnel reduces tunnel collision without affecting clinical outcomes. However, minimizing collision risk shortens surgical time, optimizing the procedure.

11:50 - 11:53

2965 Do Anatomical Parameters Matter? A Comparative Study Of Intercondylar Notch Width Ratio And Posterior Tibial Slope In Patients With And Without ACL Injury In Indian Population..

Santosh S Jeevannavar, KESHAV S Shenoy, Prasanna S Baindoor, **RAVI S Kiran**, Steve V Fernandes

SDM COLLEGE OF MEDICAL SCIENCES AND HOSPITAL, Dharwad, India

Abstract
INTRODUCTION:Non-contact ACL injuries are commonly seen in clinical practice, but their exact causes are not fully understood. Abnormal bone parameters, particularly a narrow intercondylar notch width ratio and a high posterior tibial slope, are among the potential etiological factors identified in recent studies. AIMS AND OBJECTIVES:To compare the intercondylar notch width ratio and posterior tibial slope between ACL-injured and non-ACL-injured patient STUDY DESIGN AND METHODS: 50 patients with ACL insufficiency, diagnosed clinically and confirmed by MRI, were assigned to Group A. Group B consisted of 50 patients who underwent knee MRI for other reasons and whose studies were reported as normal (specifically, without ACL injury). Intercondylar notch width ratio and posterior tibial slope were measured in both groups using a standardized methodology and were subsequently compared-RESULTS:-Group A included 50 patients with ACL-deficient knees (mean age was 31.74 years), and Group B included 50 patients with non-ACL-deficient knees (mean age was 36.66 years). We found the mean Intercondylar notch width ratio in ACL-deficient patients (Group A) to be 0.29 and in non-ACL-deficient patients (Group B) to be 0.32. This difference was found to be statistically significant ($p = 0.0001$), as determined by the Chi-square test. The posterior tibial slope was high (average 12 .4Degree) as compared to (average 9.8) in group B-CONCLUSION:The clinical significance of these findings needs to be analyzed in detail. Strategies to potentially address or normalize both the intercondylar notch width ratio and the posterior tibial slope should be considered during primary, and revision ACL surgeries .

11:53 - 11:56

2659 Autograft Tendon Reconstruction Of The Medial Meniscus Combined With ACL Reconstruction And High Tibial Osteotomy In An Athlete: A Case Report With MRI Follow-Up

SAMUNDEESWARI Saseendar, SASEENDAR Shanmugasundaram

Sri Lakshmi Narayana institute of Medical Sciences, Puducherry, India, Pondicherry, India

Abstract
Introduction: The risk of early osteoarthritis progression after meniscectomy is well-documented, yet few surgical options exist to prevent osteoarthritis in patients with a previously excised meniscus. This case report presents a novel and complex treatment approach for an adult athlete with a complete ACL tear, medial knee osteoarthritis, and an absent medial meniscus.
Case Presentation: A 51-year-old male athlete presented with chronic pain, swelling, and recurrent instability in his right knee, persisting for over 10 years. The patient had previously undergone open meniscectomy in 1993 and arthroscopic meniscectomy in 1995. Clinical examination revealed grade 3 anterior drawer and Lachman tests, while MRI confirmed a complete ACL tear, near-total absence of the medial meniscus, and medial knee osteoarthritis. A scannogram showed 7 degrees of varus alignment. The patient was treated with a single-stage ACL reconstruction, high tibial osteotomy, and medial meniscus reconstruction using the peroneus longus tendon. Postoperatively, he recovered well and returned to light sports activities within 6 months.
Discussion: Meniscus reconstruction using a tendon offers an affordable alternative to meniscus replacement in cases of absent meniscus. While long-term outcomes need further evaluation, early results are promising. Identifying and correcting deformities, along with a customized and rigorous rehabilitation program, are crucial for clinical improvement in such complex cases.
Conclusion: Single-stage high tibial osteotomy combined with ACL reconstruction and tendon replacement of the medial meniscus can yield excellent outcomes in active, sports-involved patients with absent medial meniscus and presence of medial osteoarthritis, when meticulously planned and executed.

Wednesday, 3 September

Ostearticular infections
15:18 - 15:21

495 Does The Use Of Dual Antibiotic-Loaded Bone Cements (DALBC) Hold Promise To Further Reduce The Incidence Of PJI In Higher Risk Patients?

Christof Ernst Berberich

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Abstract
Background
Periprosthetic joint infection (PJI) in geriatric and/or multimorbid patients is an enormous challenge for orthopaedic surgeons. Prior patient stratification according to presumed infection risks, followed by a more potent local antibiotic prophylaxis protocol with selective use of DALBC, could be a strategy to decrease the burden of PJI in high risk patients.

Methods
The major literature databases were screened for publications pertaining to the utilization of DALBC in cement for infection prophylaxis & prosthesis fixation. Studies were stratified by level of clinical evidence. Only those studies were considered which compared the PJI outcome in the DALBC vs the SALBC group.

Results
DALBC use (COPAL G+C) in the intervention arm of 7 clinical studies has led to a reduction of PJI cases in a) cemented hemiarthroplasty procedures (4 studies, evidence level I and III), in b) cemented septic revision surgeries (2 studies, evidence level III) and in c) cemented aseptic knee revisions (1 study, evidence level III) without evidence for systemic side effects or a higher prevalences of broad antimicrobial resistancies.

Conclusion
Use of DALBC could be more effective in preventing PJI in high risk patients. The preliminar findings so far may encourage clinicians to consolidate this hypothesis in further studies.

15:24 - 15:27

731 A Complex Case Of Humeral And Radial Fractures Complicated By Pseudarthrosis And Infection: Multistage Surgical Management And Lessons Learned

Francisco Rodrigues, João Marques, Fernando Oliveira, Erica Marto, Nuno Maia, Rui Gameiro, José Mousinho

ULS Leiria, Leiria, Portugal

Abstract
We present the case of a patient who came to the emergency department following a fall that led to a middle-third left humeral fracture (AO 12A2(b)) and distal left radius fracture. Surgery was performed for the two fractures using open reduction and internal fixation (ORIF) with a locking plate for the humerus and a volar plate for the radius. The patient was discharged on the third day post-op.
At 6-week follow-up, the patient was pain-free with some return of motion and fair radiological healing but minimal callus. However, at 3 months post-op, the wound was showing some mild inflammation, osteosynthesis failure and osteolysis of the screws were evident on radiography. CT scans also confirmed a non-union (pseudarthrosis). Despite the typical inflammatory markers, the patient was scheduled for a second procedure, which included hardware removal, debridement, external fixation, and placement of Stimulan (antibiotic-loaded bone graft material).
Approximately two months later, removal of the external fixator, ORIF with plate and screws, decortication, autograft of the iliac crest, and replacement with Stimulan were performed for a third procedure. The patient was discharged on antibiotics and is currently starting to show consolidation of the fracture without signs of new infection.
This case demonstrates how apparently simple fractures become complicated, and how fast and relentless an infection of the surgery site can be, particularly when pseudarthrosis adds to the difficulties of healing. It also emphasizes the need for careful attention to mechanical and infectious causes to improve results and prevent further complications.

15:03 - 15:06

1321 Odyssey Of Infected Non Union Of Femur

Shivam Sinha, Saurabh Kumar Sharma

Institute of Medical Sciences, BHU, Varanasi, India

Abstract
Infected non union of long bones are difficult problem to treat. Usually it requires debridement and distraction osteogenesis along with restoration of length and correction of deformities long with union. Use of illizarov results in cumbersome,especially if used for femur and causes lot of dissatisfaction in patient and surgeons due to high EFI. We herewith present a case of infected femoral nail in a young boy, which was removed but lead to subsequent complications of deformity and shortening. This case also enhanced our understanding of balanced use of debridement, antibiotics,distraction osteogensis along with delayed internal fixation to achieve near complete functions.

14:40 - 14:43

1780 Unusual Presentation Of Tuberculosis In Cases Of Malignancy & Other Morbid Conditions

Vijay Kumar Khariwal[1], Nipun Parkash Garg[2], Sadhna Garg[1]

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2. Dwarka, New Delhi, India

Abstract
Osteoarticular tuberculosis is seen in classical form as evening rise of temp. & other local & general features, but in prior malignancy the patient presentation is unusual which if clinician not suspicious gets neglected. Even the histology is not typical especially after radiotherapy. At times difficult to differentiate as recurrence of malignancy or new infective pathology. Few cases presented with totally unusual pictures. The different presentations are like diffuse extensive cellulites, non healing ulcer, acute osteomyelitis & directly pathological fracture. It is the acumen of clinician which helps in diagnosing this disease which can present in any form and mimic any disease as pyogenic infection, malignancy, autoimmune disorder etc. Even histology not helpful& in few cases ultimately only therapeutic trial is only option left which can create even medico legal problems. Many times dual pathologies exist at the same site. Tuberculosis at the site where radiotherapy given present in a different way as the reaction of the body changes after radiation . In one case after radiotherapy for carcinoma tongue, patient developed pain jaw and discharge from tooth. Dentist extracted the tooth thinking routine infection and pathological fracture of mandible occurred and landed in non healing ulcer which was diagnosed tuberculosis clinically and patient responded to anti T.B. drugs and wound healed, even histology did not help, this behaves differently in patients with different background

14:31 - 14:34

1808 An Intelligent Patient Safety System For The Prevention, Diagnosis And Management Of Surgical Site Infections In Trauma And Orthopedics

Elena Kleymenova, Anton Nazarenko, Vitaly Otdelenov, Natalya Sobur

National Medical Research Center for Traumatology and Orthopedics named after N.N. Priorov, Moscow, Russia

Abstract
Surgical site infections (SSIs) are the most common preventable healthcare-associated infections and represent a significant socioeconomic burden. Digital technologies, particularly clinical decision support systems, are proved to be effective in enhancing patient safety, but there is limited evidence of their implementation for SSIs prevention and management. The aim of the study was to develop a multifunctional (IPSS) in traumatology and orthopedic areas, particularly for SSI prevention, diagnosis and treatment. A web-based IPSS was implemented at the National Center of Traumatology and Orthopedics and integrated with a medical information system. The ISPS includes an analytical-authoring module, designed for generating scenarios and a doctor's module to enter patient data and view recommendations. The scenario for SSI prevention has been developed based on the guidelines of the National Association of Healthcare Associated Infection Control Professionals. It includes 11 recommendations for the preoperative stage, 30 for the peri- and intraoperative stages, 33 recommendations for the prevention of SSI in the operating room and 7 for the postoperative period. The surgical antimicrobial prophylaxis scenario has 24 recommendations. Decision making algorithms for the SSI management are based on the recommendations of the American Association of Orthopaedic Surgeons (AAOS) and take into account 6 factors, giving 264 different clinical situations, for which 9 decision options are provided. First results of the IPSS implementation showed that enhancement of doctor's compliance with the SSI prophylaxis protocol leads to significant savings in antibiotic costs.
The work was supported by the Russian Science Foundation (RSF project No. 24-14-00310).

14:34 - 14:37

1880 Modified Masquelet Technique For Infected Segmental Long Bone Defects In A Low-Resource Setting Of Sub-Sahara Africa

Loïc Fonkoue[1], Albert Sylvain Wembou[1], Kennedy Olivier Muluem[1], Cedric Dongmo Mayopa[2], Franck Olivier Ngongang[1], Urich Tambekou[1], Jean Bahebeck[1], Daniel Eone Handy[1]

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2. University catholique de Louvain, Bruxelles, Belgium

Abstract
Aim infected segmental bone defect (ISBD) is very challenging in developing countries. The aim of this study was to assess the efficacy of a modified induced membrane technique (IMT) in the treatment of ISBD in a low-resource setting.
Patients and Method We conducted a prospective cohort study from 2018 to 2024 in tertiary care hospital in Yaounde (Cameroon). Patients with ISBD of long bones treated with the IMT were included. In the second stage, bone reconstruction was performed using either autologous bone graft (ABG) alone, or antibiotic impregnated bone mixture (AIBM: demineralized bone matrix + tricalcium phosphate + autologous bone graft + 1 gram of vancomycin powder). All patients were followed-up for at least one year. Primary outcome were bone union without recurrence of infection and time to union.
Results Thirty-four patients (76.5 % men) were included, with a median age of 41.5 [9 – 80] years. The average length of the bone gap after debridement was 6.4±3.3 cm. Fixation at the second stage was performed using the same external fixator in 28 (82.4%) cases. Bone union without recurrence of infection was achieved in 10 (90.1%) patients in the AIBM group versus 18 (78.3%) patients in the ABG group (p=0.02). The mean time to union was of 5.5 ± 2.0 months in AIBM group versus 6,9 ± 1,7 months in ABG group (p=0.04).
Conclusion IMT is a reliable procedure that can be performed in limited resources settings with satisfactory results. Antibiotic impregnated bone mixture at the second stage improves the outcome

14:37 - 14:40

2076 Difficulties Of Radiological Diagnosis Of Peri-Implant Hip Infection

Konstantin Diachkov

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Abstract
Introduction: The diagnosis of peri-implant infection at an early stage is not an easy task. Accurate knowledge of the radiological semiotics of infection manifestations makes it possible to start early treatment of patients.
Purpose: To study the semiotics of radiological manifestations of peri-implant hip infection caused by various infectious agents.
Materials and methods: A prospective cohort study. Radiography, MSCT (multispiral computed tomography), and MRI data were examined in 30 patients with peri-implant hip infection prior to treatment.
Results: TAccording to X-ray data, areas of resorption and unevenness of the cortical plate were detected in 5 patients; when using tomosynthesis, the number of patients with detected changes increased to 12. According to computed tomography data, assessment of changes was difficult due to artifacts from implants; various volumes of fluid accumulation in soft tissues were detected in 7 patients; unevenness of the cortical plate was detected in 16 patients. MRI allowed us to detect soft tissue edema, as well as accumulation of heterogeneous fluid in 27 patients.
Conclusion. Thus, a thorough examination of patients with suspected peri-implant infection of the hip joint using various techniques allows us to identify the pathological process at an earlier stage and begin treatment of this group of patients.

15:12 - 15:15

2169 Distally Based Sural Flap To Reconstruct Defect Combined With Chronic Osteomyelitis In The Lateral Malleolus

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1. Department of Orthopedics, The Second Xiangya Hospital, Central South University, Changsha, China
2. School of Medicine, College of Medicine, Nursing and Health Sciences, University of Galway, Galway, Ireland

Abstract
Introduction: Distally based sural flaps are widely used to reconstruct soft tissue defects of the lower extremity. Treatment for soft tissue defect combined with chronic osteomyelitis in the lateral malleolus has rarely been reported. Objective: The aim of this study was to elaborate the superiority of the flap and provide referential experience for using the flap in this situation. Methods: Between June 2010 and March 2024, soft tissue defects in the setting of chronic osteomyelitis in the lateral malleolus were reconstructed with distally based sural flaps in 17 patients. After thorough debridement, the defect was repaired with the flap, and patients subsequently followed an antibiotic regimen for 6 weeks. Follow-up periods for all patients were at least 24 months. The reconstruction outcomes and the satisfaction of the 17 patients were evaluated. Results: Of the 17 flaps, 16 survived uneventfully, except one occurrence of partial necrosis. No infection occurred in the follow-up period. In the study, 17 patients except one were satisfied with flap appearance. All the patients were satisfied with the reconstruction outcomes. Conclusion: In a one-stage procedure, the use of distally based sural flap is ideal for reconstructing soft tissue defects in the setting of chronic osteomyelitis in the lateral malleolus.

Keywords: Sural Flap; Chronic Osteomyelitis; Malleolus.

15:09 - 15:12

2225 Antibiotic-Impregnated Cement: An Optimized Strategy For Treating Chronic Bone Infections

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Abstract
Chronic bone infections pose a therapeutic challenge due to the poor vascularization of infected tissues, resulting in limited diffusion of systemic antibiotics. Antibiotic-impregnated cement allows targeted diffusion, enabling the eradication of the infection.
Study Objective:
To evaluate the effectiveness of local antibiotic therapy using antibiotic-impregnated cement in treating chronic post-traumatic osteitis, analyzing the infection eradication rate, bone consolidation, and associated complications.
Methods:
This retrospective study included patients treated for chronic osteitis of the tibia or calcaneus between 2012 and 2022. Patients either had calcaneal osteitis from a mine foot injury or tibial osteitis after an open fracture. All patients underwent extensive surgical debridement followed by antibiotic-impregnated cementoplasty. Post-operative evaluation included the disappearance of infectious signs, healing time, and functional recovery. Local and systemic complications were analyzed with a mean follow-up of 24 months.
Results:
Fifty patients were included, 46 (92%) achieved complete infection eradication without recurrence after a mean follow-up of 24 months. Healing occurred in an average of 4 weeks, with bone consolidation achieved after 3 months. Significant functional improvement was noted by the 6th post-operative week, allowing most patients to gradually resume partial weight-bearing. In the calcaneal osteitis group (n=40), 37 patients (92.5%) healed without recurrence, while 3 required reintervention due to persistent drainage, with favorable evolution after local care and adapted antibiotics. In the tibial osteitis group (n=10), 8 patients (80%) healed without recurrence.
Conclusion:
Antibiotic-impregnated cementoplasty is an effective strategy for treating chronic osteitis, with reduced morbidity and satisfactory healing rates.

14:47 - 14:50

2971 Assessment Of Risk Factors For Surgical Site Infections In Patients Undergoing Orthopedic Surgeries At A Tertiary Care Centre In Western India

Subhadip Sanyal

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Abstract
Introduction: Surgical site infections (SSI) are a significant cause of morbidity and mortality in patients undergoing Orthopedic surgery. This study has been carried out to identify the risk factors for SSI pre operatively using basic hematological and biochemical parameters in a resource constrained setting. Materials and Methodology: Duration 2 years. Gustilo Anderson Open type 2 and type 3 fractures were excluded. Pre operative Prognostic Nutritional Index (PNI = 10* Serum albumin in g/dL + 0.005* Total Leucocyte Count) and Neutrophil Lymphocyte Ratio (NLR) is calculated. Post operatively patients were followed up at Day 5, day 15th, 1 month and 3 months from the day of surgery. Results: The study involves 500 patients who underwent Orthopaedic surgeries. 92 (18.4%) developed SSI. SSI rates Trauma surgeries is 19% followed by Spine surgeries (13.8%), Arthroplasty (11.5%), Oncologic surgeries (10%) and Arthroscopic procedures (6.25%). λAmong the organisms Staphylococcus aureus (26.5%) is found to be most common followed by Acinetobacter baumanii (19%), Klebsiella spp (16%), Pseudomonas spp (13.2%) and Escherichia coli (13.2%). Conclusion: The study underscore the need for a multifaceted approach to SSI prevention like optimising the nutritional status of patients preoperatively, early identification of high risk patients who may benefit from more aggressive antibiotic prophylaxis or closer postoperative monitoring, infection control protocols during longer surgeries should be enhanced and unnecessary personnel traffic in operating rooms should be minimised, hospitals in resource constrained settings face challenges such as inadequate sterilisation procedures, overcrowded wards and insufficient infection control measures contributing high SSI rates.
References:DoespreoperativeprognosticnutritionindexpredictsurgicalsiteinfectionafterspinesurgeryUshirozakoH,HasegawaT,YamatoY,YoshidaG,YasudaEurSpineJ.2021Jun;30(6):1765-1773.Epub

14:50 - 14:53

2981 Personalized Approaches To Diabetic Foot Care: The Impact Of Ethnic And Socioeconomic Disparities

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2. Nursing Department, The Stanley Steyer School of Health Professions, Faculty of Medical and Health Sciences, Tel Aviv University, Tel Aviv, Israel

Abstract
Introduction. Diabetic foot ulcers, affecting 15–25% of diabetes patients, result from neuropathy, ischemia, and foot deformities, exacerbated by socioeconomic and demographic disparities.
Ain and Objective. To explore the impact of ethnic and socioeconomic disparities on diabetic foot ulcer care and outcomes, emphasizing the need for personalized treatment approaches tailored to diverse patient populations.
Study Design & Methods. This retrospective observational study analyzed 1409 patients hospitalized with DFUs between 2016 and 2023 at a tertiary medical center. Data extracted from electronic medical records included demographics, socioeconomic status (SES), clinical variables, and healthcare utilization. Statistical analyses included descriptive statistics, Chi-Square and Kruskal–Wallis tests, and a regularized logistic regression model to identify predictors of mortality and disparities in treatment access.
Results. Arab patients had significantly lower SES (median score: 3.00) compared to Jewish patients (median score: 8.00), resulting in reduced healthcare access and worse clinical outcomes. Arab patients were diagnosed with diabetes at a younger age (57 years vs. 68 years for Jewish patients) and exhibited higher body mass index (30.36 vs. 28.68, $p < 0.05$). Despite similar mortality rates between groups (21.52% vs. 22.83%, $p = 0.65$), differences in healthcare utilization were evident, particularly in younger patients (18–59 years) within the internal medicine department ($p = 0.017$). Conclusions. Personalized approach to diabetic foot care, considering socioeconomic, demographic, and cultural factors, can optimize prevention, specialized care access, treatment adherence, improving outcomes and reducing disparities, especially for ethnic minorities with lower SES and higher-risk profiles.
Keywords: personalized medicine; diabetic foot ulcers; health disparities; socioeconomic

15:21 - 15:24

3069 Peroneus Brevis Muscle Flap: A Reliable Solution For Lower Leg Soft Tissue Defects After Orthopaedic Trauma

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Abstract
Ankle fractures are among the most common fractures, with complication rates following fixation ranging from 5% to 40%. Wound complications occur in 1.4% to 18.8% of cases and pose a significant challenge, particularly in the presence of exposed hardware or bone. In such cases, advanced reconstructive techniques are required. This study evaluates the distally based peroneus brevis muscle flap as a reliable option for soft-tissue coverage following ankle fracture fixation.
A retrospective analysis was conducted on two patients who underwent peroneus brevis muscle flap coverage for lateral malleolus plate exposure after failed prior wound management.
Case 1: A 78-year-old diabetic female underwent ORIF for a bimalleolar fracture. The lateral malleolus developed wound dehiscence with plate exposure, refractory to negative pressure wound therapy. Four months postoperatively, the plate was removed, and a peroneus brevis flap was performed, followed by a split-thickness skin graft, achieving complete wound healing.
Case 2: A 71-year-old diabetic male with tibia and fibula fractures developed fibular wound necrosis and plate exposure. Following delayed intervention, plate removal, debridement, and a peroneus brevis flap were performed. Despite partial flap necrosis, wound closure was achieved with a dermal regeneration template and skin grafting.
Both cases demonstrated successful soft-tissue coverage and wound healing. The distally based peroneus brevis flap provides reliable soft-tissue coverage for lateral ankle defects, even in challenging cases involving diabetes and delayed intervention. Its consistent anatomy and dependable vascular supply make it a valuable tool for managing complex ankle wound complications.

14:53 - 14:56

3108 Clinical Outcomes And Microbiological Profiles Of Prosthetic Joint Infection Management From DAIR And Revision Procedures Using Stimulan Antibiotic Beads: Insights From A District Hospital

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Abstract

Background: Management of prosthetic joint infection (PJI) remains challenging with multiple surgical strategies available. We present our experience using antibiotic-loaded calcium sulfate beads (Stimulan) across all surgical strategies, analyzing outcomes, microbiology, and risk factors.

Methods: Retrospective analysis of consecutive PJI cases between February 2021 and November 2023. Standardized antibiotic loading protocol was 1g vancomycin + 240mg gentamicin per 10cc Stimulan. Surgical strategies included DAIR, single-stage, and two-stage revisions. Primary outcome was infection eradication. Secondary outcomes included mortality, reinfection rates, and microbiology profiles.

Results: 42 procedures were performed in 39 patients. Median age was 73 years (range 48-89). Joint distribution was 26 knees, 16 hips. The ratio of female to male patients was 2.5:1. Staphylococcus aureus predominated (54%), followed by streptococcal species (14%), and polymicrobial infections (12%). Mean presenting CRP was 166 (range <2-651). DAIR success rate was 71% (22/31). Post procedure mortality was 19% (8/42) during follow-up. Median Stimulan volume was 10cc (range 5-30cc), with higher volumes used in revision cases (median 20cc). The most common antibiotic used at induction was Gentamicin + Teicoplanin at 57.14%. Gram-positive organisms showed 95% vancomycin sensitivity. Mean surgical washout volume in DAIR was 7.74L.

Conclusion: This comprehensive series demonstrates that standardized antibiotic-loaded calcium sulfate beads achieve comparable outcomes across surgical strategies. DAIR procedures show 71% success when appropriate patient selection is employed. Polymicrobial infections, sinus tracts, and previous infection predict poorer outcomes. Two-stage revision remains the preferred strategy for complex cases with these risk factors.

14:15 - 14:18

552 Does The Concept Of Viable But Not Culturable VBNC Apply To Orthopedic Infection?

Turkia Bashir Erouk

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Abstract
The phenomenon of viable but non-culturable (VBNC) bacteria has garnered attention in various fields of microbiology, yet its implications for orthopedic infections remain underexplored. This systematic literature review aims to evaluate the extent to which the VBNC concept applies to bacterial infections within the orthopedic domain. To date, it has been determined that more than 100 microorganism species have entered the VBNC state through many chemical and physical factors. During the last four decades, dating from the initial detection of the VBNC condition, new approaches have been developed for the induction, detection, molecular mechanisms, and resuscitation of VBNC cells. Methods: A comprehensive search was conducted in PubMed and Embase databases using the keywords "VBNC," "Bacteria," and "Orthopedic Infection." The search followed PRISMA guidelines, with an initial screening of 136 papers. Inclusion criteria; papers less than 10 years , English written ones, relevant to the subject . After applying predefined inclusion and exclusion criteria, 24 articles were included in the final review. Results: The review highlights the presence of VBNC states in several bacterial pathogens associated with orthopedic infections, including common organisms such as Staphylococcus aureus and certain gram-negative bacteria. The findings suggest that VBNC bacteria may contribute to chronic infections and complicate diagnosis and treatment strategies in orthopedic settings. Conclusion: This systematic review underscores the relevance of VBNC bacteria in orthopedic infections and calls for increased awareness among clinicians. The mechanism of the VBNC state still contains serious loopholes.

14:21 - 14:24

637 Does Surgical Debridement Of Chronic Osteomyelitis, Guided By Preoperative Planning Using 18F-FDG-PET-CT, Yield Different Outcomes Compared To Conventional Planning Methods?

Ahmed A. Elsheikh

Faculty of Medicine - Benha University, Benha, Egypt

Abstract

Background
Although surgical debridement is critical to treating chronic osteomyelitis, defining the resection edges represents a challenge. PET-CT could offer a precise edge, but the question about its clinical efficacy remains unanswered.

Methods
This retrospective comparative study included 125 patients with chronic osteomyelitis who were treated in one centre by the author over 5 years. 83 patients (66males/17females) had PET-CT for Preoperative planning, and 42 patients (31males/11females) had conventional planning (X-ray/ CT or MRI). The primary outcome is recurrence of infection at a minimum of 12 months postoperatively.

Results
In the first year following the initial debridement, infection recurrence was observed in 3.7% of the PET-CT-group compared to 16.7% of the conventional group, (P=0.011).
The median follow-up in PET-CT-group was (23, range 12-52 months) versus 20 (range 12-48 months in conventional) P=0.128. Age median (33 in PET-CT-group versus 38 in conventional, P=0.106). The tibia was the most affected bone (38% of PET-CT-group versus 50% of conventional). Postoperative FRI was the route of infection in 74.69% in PET-CT-group versus 92.85% in conventional group (P 0.070). Followed by open fractures and hematogenous routes.
In the whole series, 17% had no growth, and 8% had mixed polymicrobial. Gram +ve grew in 56.6% of PET-CT-group, most commonly MRSA versus 61.9% in conventional-group (P=0.479). Grame -ve grew in 34.9% of PET-CT-group, most commonly Klebsiella versus 26.2% in conventional-group (P=0.150).

Conclusion
While most variables are comparable, PET-CT planning for debridement achieves a statistically significant reduction in the recurrence of infection.

14:24 - 14:27

725 Optimizing Surgical Planning Using 18F-FDG PET-CT In Appendicular Chronic Osteomyelitis: Insights From 84 Patient Scans And Clinical Outcomes

Ahmed A. Elsheikh

Faculty of Medicine - Benha University, Benha, Egypt

Abstract

Background

Surgical debridement is crucial for managing chronic osteomyelitis (COM), requiring precise resection margins and thorough removal of infected tissue. 18F-FDG PET-CT could improve preoperative planning by mapping infection and guiding surgical decisions.

Methods

This retrospective study analyzed 84 patients (66 males/18 females), at a mean Age 33.4±16.7years old, with confirmed COM who underwent 18F-FDG PET-CT before surgery. The most commonly affected bones were tibia (38%) and femur (37%) followed by the ankle, calcaneus, clavicle, fibula, radius, ulna, humerus, and knee. Infections were post-fixation of closed fractures in 44%, open fractures in 37%, and hematogenous in 19%. The median delay from infection to debridement was 43.1 months. PET-CT identified soft tissue collections in 23.8% and clearly outlined sequestrum in 67.9%. The mean SUVmax at infection sites was 6.69

Results

Half the patients had nonunion, while the rest had intact bones with COM. Debridement was performed in 51%, while 49% underwent reconstruction using LRS, Ilizarov, nailing, or induced membrane techniques. The mean external fixator duration was 296±127 days, with Stimulan used in 22.6% and Gentacoll in 32.1%. Geographic debridement sufficed in 65.5%, while 34.5% required complete resection. 82.1% of Cultures grew organism (Gram+ve in 56% , mostly MRSA, Gram-ve in 34%, mostly klebsiella),10% mixed growth). no growth in 17.9%. At a mean follow-up of 27.9 months, the recurrence rate was 3.6%.

Conclusion

18F-FDG PET-CT effectively mapped infection, aiding preoperative planning and minimizing extensive resections. Its use facilitated precise surgical decision-making, reducing recurrence rates and optimizing outcomes in COM management.

15:06 - 15:09

1387 Results Of 6-Months Anti-Tubercular Therapy In Musculoskeletal Tuberculosis : 7-Year Follow-Up

Sumit Sural, Ram Mohan

Maulana Azad Medical College, New Delhi, India

Abstract
Introduction: Absent robust end-point, tends to prolong antitubercular therapy (ATT) in musculoskeletal (MSK) tuberculosis (TB). WHO recommends 6-9 months; Indian Index-TB guidelines recommend 12-18 months ATT. Aim : To assess healed-status of MSK-TB at 6-months. Methods: Gadolinium-MRI before and after 6-months ATT were compared with clinical parameters of fever, loss of appetite, weight loss, presence of tenderness, cold abscess, discharging-sinus and ESR. Results : Among 50-cases (34-spinal-TB and 16-extraspinal-TB); mean age was 24.5 years (10-75 years). Fever in 40-cases (80%), subsided within 2-months in 39-cases and 4-months in 1-case. ESR-values dropped (51.4 pre-ATT; 36.98 at 2-months; 28.52 at 4-months, 21.62 at 6-months). After 6-months ATT, Gadolinium-MRI revealed complete resolution with no contrast-uptake in only 6/50 cases (12%); partial resolution in 36/50 cases (72%); no resolution in 8/50 cases (16%). Irrespective of the MRI findings, ATT was stopped at 6 months in 44/50 (88%) clinically healed cases and they remained healed at 7-year follow up. Among 6/50 (12%) clinically-active cases (tenderness, discharging-sinus), ATT was prolonged in 3 patients while the remaining 3 patients (2 spinal TB and one Hip TB) were drug-resistant.
Conclusion: After 6-months ATT, majority (88%) of cases were clinically-healed with normal ESR and irrespective of MRI-Gadolinium-uptake status, ATT stopped at 6-months showed no-recurrence at 7-year follow-up. Clinically-active cases (12%) with tenderness, persisting discharging-sinus after 6-months ATT were either slow-responders (6%) or drug-resistant cases (6%).

Key words : musculoskeletal tuberculosis, spinal tuberculosis, treatment duration, 6-months treatment

14:18 - 14:21

598 Oral Versus Intravenous Antibiotic For Bone And Joint Infections: Systematic Review And Meta-Analysis Of Randomized Controlled Trials

João Pedro Campos Lima[1,2], Kaue Abreu Chagas[1], Bruno Dos Santos Bastos Filho[1], Lucas Barreto Paes Oliveira[1], Flávia Maria Ribeiro Vital[1,3]

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2. Hospital São Vicente de Paulo, Bom Jesus do Itabapoana, Brazil
3. Fundação Cristiano Varella, Muriaé, Brazil

Abstract
Background/Objectives: Recent trials suggest oral (PO) antibiotics may be as effective as prolonged intravenous (IV) regimens in specific clinical scenarios. This meta-analysis compared PO and IV antibiotic therapy in bone and joint infections.

Methods: PubMed, Embase and CENTRAL databases were searched for published trials from inception until February 2025 for randomized clinical trials (RCTs) that enrolled patients of any age with confirmed bone and/or joint infections compared oral versus intravenous antibiotic therapy and reported at least one of the prespecified outcomes.

Results: Nine RCTs (1,723 patients) published from 1987 to 2025 were included. PO and IV therapies showed comparable efficacy in treatment failure (RR 0.96; 95% CI 0.78–1.17; p=0.68; I^2=0%) and adverse effects (RR 1.00; 95% CI 0.90–1.12; I^2=10%; p=0.94). Overall, recurrence rates were similar. However, a sensitivity analysis excluding fracture-related infections favored IV therapy (RR 1.47; 95% CI 1.08–2.02; I^2=0%; p=0.02). Superinfection rates showed no difference (RR 1.12; 95% CI 0.32–3.98; I^2=0%; p=0.86). Although not statistically significant, hospitalization duration may be shorter with PO therapy (MD -5.03 days; 95% CI -15.84–5.77; I^2=4%; p=0.36). GRADE assessments rated evidence as moderate for treatment failure, recurrence, and adverse events, low for hospitalization duration, and very low for superinfection.

Conclusion: Appropriately selected PO antibiotic regimens demonstrate comparable efficacy and safety to IV therapy in bone and joint infections, although there is a slight tendency to increase the recurrence of infections. These findings support a shift toward oral therapy in carefully chosen patients.

Keywords: Oral Administration; Intravenous Administration; Antibiotic Therapy; Osteomyelitis; Infectious Arthritis.

14:56 - 14:59

522 Predictors Of Two-Stage Revision Failure In Periprosthetic Knee Infection: Insights From A Retrospective Cohort Study

Emilio Ferrari, Luca Cavagnaro

Bone Infection Unit (MIOS), Santa Maria di Misericordia Hospital, Albenga, Italy

Abstract
Introduction
Despite standardized protocols, two-stage revision for periprosthetic knee infection (PJI) still presents a high failure rate. Identifying predictors of failure is crucial for optimizing patient management and improving outcomes.

Aims & Objectives
This study aimed to determine risk factors for treatment failure, assess implant survival, and evaluate mid-term clinical outcomes in patients undergoing two-stage revision for PJI.

Study Design & Methods
A retrospective analysis was conducted on 108 patients treated between 2012 and 2016, with a mean follow-up of 52.9 ± 15.6 months. Logistic regression identified significant predictors of failure, and Kaplan-Meier curves were used to evaluate implant survival. Preoperative and final follow-up outcomes were compared.

Results:
Difficult-to-treat infections (OR = 4.2, 95% CI 1.2-14.5, p = 0.025), number of previous surgeries (OR = 1.8, 95% CI 1.2-2.6, p = 0.005), and tibial bone defect severity (OR = 2.3, 95% CI 1.1-4.7, p = 0.027) significantly predicted failure. Implant survival was lower in patients with these risk factors ($p < 0.05$). Functional outcomes improved, with the mean Knee Society Score increasing from 49.0 ± 12.0 to 80.2 ± 13.6 and the Oxford Knee Score from 22.2 ± 4.9 to 36.1 ± 6.0.

Conclusion
In conclusion, difficult-to-treat pathogens, prior surgical history, and tibial bone defects were independent risk factors for two-stage revision failure. However, the protocol demonstrated good implant survival and functional improvement in most cases.

Keywords: Knee arthroplasty; PJI; Periprosthetic knee infection; Two-stage revision.

Wednesday, 3 September

Hand&Wrist 2
16:49 - 16:50

5 Improving Wrist X-Ray Quality: A Closed-Loop Audit

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Abstract

Introduction
Wrist fractures account for 17% of fractures seen in emergency departments, and require high-quality radiographic imaging for accurate diagnosis. Many protocols suggest that significant dorsal angulation of a distal radial fragment is an indication for operative management. On plain film X-rays apparent angulation will change depending on the pronation or supination of the wrist. A true lateral X-ray has been defined by Goldfarb et al as alignment of the palmar edge of the pisiform bone between the palmar edges of the capitate and scaphoid bones. We aimed to measure and then maximise the percentage of trauma wrist x-rays that were Goldfarb true laterals in our department.

Methods
We conducted an initial review of 100 wrist X-rays from adult patients with wrist injuries. X-rays were reviewed by 2 authors blinded. Discrepancies were reviewed by the senior author blinded. Following this, an educational intervention for radiographers was performed, including a presentation, discussion and a poster in the radiographers' station in the emergency department. A second review of 100 X-rays was then performed to assess the impact of the intervention.

Results
In the initial audit, 32% of lateral wrist X-rays met the Goldfarb criterion. After the educational intervention, this showed a marked improvement to 67%.

Conclusion
This study demonstrated that a targeted educational intervention can improves wrist X-ray quality, enhancing diagnostic accuracy. Continuous feedback with multidisciplinary team members is essential for maintaining high diagnostic standards.

16:56 - 16:59

1001 In An One-Year Experience In An Industrialized District With Low Population Regarding Procedures For The Replantation And Revascularization Of Fingers Performed By Two Surgeons In Single Center

Burak Kuscu, Mustafa Kinas

Private Bandirma Royal Hospital, Balikesir, Turkey

Abstract
Objectives: This study aims to evaluate the clinical results and experiences in a single center regarding procedures for the replantation and revascularization of fingers. Patients and methods: Between September 2023 and December 2024, a total of 69 patients (62 males, 7 females; mean age: 43.6±9.3 years; range, 16 to 67 years) who were followed after total and/or subtotal amputation and replantation were retrospectively analyzed. The patients were evaluated at six months in terms of cold intolerance, static two-point discrimination, and functional results using the range of motion (ROM) and QuickDASH questionnaire. Results: The majority of the patients presented with work-related injuries (78,6%), most commonly by the mechanism of guillotine (92.6%), and to the dominant hand (96,7%) and the second finger (36%) most frequently. The overall success rate of digit salvage was 77% (n=47). Of 14 digits with unsuccessful surgical outcomes, 11 were from total and 3 were from subtotal amputations. In the long term, cold intolerance was observed in 14 patients (22.9%) according to the cold intolerance severity scale. The mean static two-point discrimination value was 5.2±0.6 mm, and the mean QuickDASH score was 22.3±5.0. The mean ROM measured at six months after surgery in the metacarpophalangeal and interphalangeal joints of the third and fourth digits was significantly lower than that in the others ($p<0.05$).
Conclusions: The predictors of survival of a replanted digit indicated in this study can be used as a guide and decision-making aid for any attempts at replantation.
Keywords: industrialized district, digit, predictors of survival, replantation.

16:18 - 16:21

1133 Microsurgical Reconstruction After Failed Thumb Replantation: Outcomes Of Surgically Treated 17 Cases

Feridun Arat[1,2], Kaan Gürbüz[3,4]

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Abstract
Introduction: Replantation of the thumb after complete amputation is a common and well-accepted surgical procedure. However, literature indicates a gap between objective assessments and patient-reported satisfaction, with limited studies addressing cases of unsuccessful thumb replantation. Objectives: This study aimed to evaluate the long-term outcomes of 17 thumbs that underwent microsurgical reconstruction following transplantation failures. Patients & Methods: This observational, retrospective, monocentric study was conducted from January 2010 to December 2020, including 17 subjects who met the inclusion criteria. Each patient was assessed for range of motion using the Ka-Pandji test, mechanism and level of amputation, grip strength measured by a Dexter dynamometer, sensory function using the Disk-Criminator and Semmes-Weinstein aesthesiometers, and subjective disability perception via the DASH questionnaire. Results: All participants were male, with 70% returning to their former occupations. The mean follow-up duration was 5 ± 1.6 years, with a combined amputation mechanism present in 65% of cases. Most injury levels involved interphalangeal joints and proximal phalanxes. Strength recovery ratios were 0.89 ± 0,43 kg ($p = 0.63$) for the five-handle grip, 0.81 ± 0,27 kg ($p = 0.64$) for the key grip, and 0.72 ± 0,1 kg ($p = 0.78$) for the tri-digital grip. The Ka-Pandji test yielded 8 ± 2, while DASH scores were 16 ± 21. A tactile protective threshold was regained by 58% of participants. Conclusion: The clinical findings support the notion that microsurgical reconstruction can lead to positive long-term functional outcomes following unsuccessful thumb replantation.

17:12 - 17:15

1207 Echoes Of Progress: Review Of The Evolution Of Ultrasound In Carpal Tunnel Syndrome Care

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2. Manchester University NHS Foundation Trust, Manchester, United Kingdom

Abstract

This is a review of 209 papers on the Evolution of Ultrasound in Carpal Tunnel Syndrome (CTS) Care.

CTS is the most prevalent entrapment neuropathy, increasing with age and causing significant morbidity. No gold standard exists for CTS diagnosis; conventionally, clinical features serve as primary criteria, supplemented by electrophysiological tests. Recently, ultrasound (US) has been explored for CTS diagnosis and treatment. Conventional US modes, including static, dynamic, and Doppler studies of the median nerve, are reliable. Novel techniques like elastography and speckle tracking have also been used. Additional parameters such as wrist-forearm ratio (WFR), flattening ratio (FR), and US Doppler assess anatomical aberrations. Dynamic US evaluations show reduced nerve mobility and deformation during finger flexion-extension. Elastography and speckle tracking report increased stiffness and shear index.

Therapeutic US improves clinical and functional outcomes compared to placebo or low-level laser therapy by promoting blood flow, tissue regeneration, and reducing inflammation. US-guided corticosteroid injections outperform blind injections. Recently, US-assisted surgical decompression has enabled smaller incisions, faster recovery, and reduced post-operative pain and complications.

While US shows great promise in CTS diagnosis and treatment, larger multicenter randomized trials are needed to further validate its merits.

16:31 - 16:34

1261 Operative Treatment For Ulnar Club Hand

Alexandra Dos Santos, Diogo Catelas, João Nelas, Filipa Cordeiro, Filipa Adan E Silva, Bianca Barros, João Seixas, Mário Silva, Gonçalo Silva, Francisco Serra, César Silva

ULSSA, Porto, Portugal

Abstract
Cubital club hand is a rare congenital deformity characterized by radial and ulnar dysplasia, leading to forearm instability, functional limitations, and progressive deformity. We present a case of a patient with severe cubital club hand managed with radial head resection and the creation of a one-bone forearm. The surgical approach involved excision of the radial head and fusion of the proximal ulna and residual radius to provide a stable, functional limb. Postoperative outcomes demonstrated improved forearm alignment, enhanced grip strength, and pain reduction. This case highlights the effectiveness of the one-bone forearm technique in restoring stability and function in severe forearm deformities.

17:19 - 17:22

1273 Surgical Reconstruction In Townes-Brocks Syndrome: Finger Separation And Pollicization For Functional Restoration

Alexandra Dos Santos, Filipa Cordeiro, Diogo Catelas, João Nelas, Filipa Adan E Silva, Bianca Barros, João Seixas, Mário Silva, Gonçalo Silva, Francisco Serra, César Silva

ULSSA, Porto, Portugal

Abstract
Townes-Brocks syndrome (TBS) is a rare genetic disorder characterized by limb malformations, including hypoplastic digits and finger duplications, which can significantly impair hand function. We present a case of a patient with TBS who exhibited thumb hypoplasia and duplication of the second finger. Surgical management involved separation of the duplicated fingers and pollicization of the radial digit to improve thumb function and overall hand dexterity. Postoperatively, the patient demonstrated enhanced pinch strength, grasp ability, and functional hand use. This case highlights the role of surgical reconstruction in optimizing hand function in patients with congenital anomalies associated with TBS.

17:22 - 17:25

1346 Bipartite Scaphoid: A Case Report

Bianca Sousa Barros[1], Filipa Cordeiro[1], Filipa Adan E Silva[1], João Nelas[1], João Seixas[1], Mário Rui Silva[1], Sara Lima[2], Nuno Sevivas[2]

1. ULS Santo António, Porto, Portugal
2. ULS Médio Ave, Famalicão, Portugal

Abstract
Introduction: Bipartite scaphoid is a rare condition characterized by two ossification centers which fail to fuse. Its etiology and clinical significance are still on investigation. The differential diagnosis with trauma conditions, including non-union, is key, as treatment is different. This case shows a presentation of a bilateral bipartite scaphoid diagnosed in a trauma episode.

Case Report: 43-years-old man presented in the emergency room following a motorcycle accident. After evaluation, a Galeazzi fracture with articular extension was diagnosed, and the scaphoid on the affected limb consisted of two separated ossicles. The patient had no history of previous trauma or symptoms. Differential diagnosis between congenital and traumatic etiology was made based on clinical and imaging information. Congenital etiology was considered as the radiographs showed a well-formed cortex of the ossicles with smooth and regular margins, and computed tomography showed smooth edges and clear space between the components with well-defined cortex. X-ray of the contralateral wrist showed the same image, and the patient had no associated symptoms. Regarding the fracture, appropriate surgical treatment followed with rehabilitation was made. The patient is presently asymptomatic with good function and symmetrical wrist mobility.

Conclusion: Bipartite scaphoid rarity and diagnostic challenges makes it a subject of research. A high degree of suspicion is needed and based in clinical history complemented with imaging allowing an accurate diagnosis. This step is essential for the differentiation with pathological conditions, avoiding unneeded surgical aggression. Further research is needed to understand the developmental aspects and clinical significance of this condition.

16:24 - 16:27

810 Rare Case Of Peri Lunate Dislocation With Scaphoid Fracture In A Post Traumatic Injury : A Case Report

Dr Tejas Mukund Kulthe

SMBT institute of medical sciences and research centre, Nashik, India

Abstract
Introduction: Peri lunate dislocations are rare injuries comprising of less than 10% of all wrist injuries. These usually occur after high-energy trauma to the wrist. The volar dislocation of the carpus on the lunate with scaphoid fracture is an extremely rare injury, account for <3% of these injuries.

Aim : The aim of the study is to evaluate the functional outcomes after surgical management of peri lunate dislocation with scaphoid fracture in acute injury .

Methods : We report a case of, 48 year old male patient who presented with wrist pain, swelling, tenderness, painful range of motion with history trauma. He underwent open reduction through a combined approach and internal fixation with K-wires, Herbert screw fixation.

Results : Immediate post-operative X-rays showed satisfactory reduction, His pre-operative DASH and PRWE score was,95/100 and 99/100 with poor Range of motion due to pain. The patient was regularly followed up and he regained flexion-extension arc 82°, pronation-supination arc 155° and grip strength averaged 59 % .At 6 months his DASH and PRWE scores are 8.3/100 and 20/100, respectively, retrieved near-normal range of motion at the wrist as well as neither revealed recurrence of the dislocation nor signs of avascular necrosis.

Conclusion: Successful results in peri lunate dislocation with scaphoid fracture can be obtained with open reduction, ligament reconstruction with K-wires fixation through a single combined approach and Herbert screw in Acute presentation resulting in achieving near normal range of movements.

Keywords: Peri lunate dislocation, carpal injuries, wrist injuries.

16:34 - 16:37

1445 Schwannoma Of The Palmar Cutaneous Branch Of The Median Nerve: A Rare Case Report And Surgical Considerations

Jose Luis Raposo, André Jorge Guimarães, Sara Machado Neves, Rui Nobre Chaves, Afonso Jorge Teles, Ana Rita Sapage

Unidade Local de Saude Trás-os-Montes e Alto Douro, Vila Real, Portugal

Abstract

Introduction
Peripheral schwannomas are benign tumors originating from the Schwann cells of the peripheral nerve sheath. In the upper extremity they most usually arise from the ulnar nerve. Median nerve schwannoma is less frequent and those involving the palmar cutaneous branch are even more uncommon.

Case Presentation
56-year-old women presents to the clinic with painful growing swelling of the volar aspect of the distal forearm that she had noticed 3 years ago. She denied paresthesia. She presented a negative Tinel at examination and no neurovascular deficit was found. Ultrasound and MRI suggested a well-defined oval shaped mass, located deeply to the flexor carpi radialis, and closely related to the median nerve.

Management
Surgical excision of the tumor was performed using a Modified Henry approach. An encapsulated mass was identified involving the cutaneous palmar branch of the median nerve. At one month follow-up, patient was pain free. She presented hypoesthesia of the proximal aspect of the thenar region. Histopathological analysis confirmed the diagnosis of schwannoma.

Discussion and Conclusion
We want to bring attention that Schwannomas can affect smaller peripheral nerve branches, presenting unique surgical challenges. A more careful surgical approach can optimize outcomes while minimizing neurological deficits.

Keywords:
Peripheral schwannoma, Median nerve schwannoma, Palmar cutaneous branch, Modified Henry approach, Hypoesthesia, Surgical management, Nerve sheath tumor, Forearm mass, Peripheral nerve tumor, Schwann cell tumor.

16:37 - 16:40

1733 3D-Planned Intraarticular Corrective Osteotomy Of Malunited Bennett'S Fracture Using Patient-Specific Guides: Clinical Outcomes And Postoperative Assessment Of Reconstruction Accuracy

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2. Department of Hand Surgery, Balgrist University Hospital, University of Zurich, Zurich, Switzerland

Abstract

Introduction:
Malunions of Bennett fractures can cause deformities and impairments. Intra-articular corrective osteotomy, though demanding due to the small fragment size, is the only reconstructive treatment. 3D planning and patient-specific guides can enhance accuracy and aid in such cases.

Aims & Objectives:
This study evaluated the post-op joint congruency, and functional outcomes of first metacarpal base corrective osteotomies using three-dimensional (3D) planning and 3D-printed patient-specific instruments (PSI).

Study Design & Methods:
We report outcomes of 14 patients who underwent corrective osteotomies for malunited Bennett's fractures. Preoperative 3D planning using the contralateral hand enabled creation of patient-specific 3D-printed guides for navigation. Articular step correction and reduction of subluxation were assessed with follow-up CT scans and 3D analysis based on these scans. Clinical assessments (ROM, pain, grip, pinch strength) were done at final follow-up, and complications documented.

Results:
14 patients (mean age 29±12 years, range 14–56) underwent corrective osteotomy with a median follow-up of 13.5 months (IQR: 10.0–18.0). CT scans in 13 patients showed successful corrections and good consolidation. Articular step-off decreased from 1.9 ± 0.4 mm to 0.2 ± 0.1 mm. (3D follow-up analysis results are being evaluated and will be presented at the congress.) One patient required carpometacarpal (CMC) I arthrodesis due to screw cut-out. ROM and strength improved to contralateral levels.

Conclusion:
Our results highlight the effectiveness of 3D planning and PSI in achieving precise corrections for first metacarpal base osteotomies following Bennett’s fracture malunion. This approach ensures optimal surgical accuracy, significant clinical improvements, and high patient satisfaction.

16:40 - 16:43

1812 Autologous Replacement Of The Lunate For The Treatment Of Kienbock's Disease: A Systematic Review

Naadir Nazar[1], Ibrahim Muhammad[2], Rituja Kamble[3], Priyanka Nageswaran[4], Kalpesh R. Vaghela[1]

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2. Queen Mary University of London, London, United Kingdom
3. St Andrew's Centre for Burns and Plastic Surgery, Cambridge, United Kingdom
4. Royal National Orthopaedic Hospital NHS Trust, London, United Kingdom

Abstract

Introduction / Aims

Autologous replacement of the fragmented, collapsed, and unreconstructable lunate is a treatment option for Kienbock's disease. This study aimed to evaluate the effectiveness, safety and outcomes of autologous replacement of the lunate.

Methods

A PRISMA-P-compliant systematic review (PROSPERO: CRD42024552066) was conducted, searching Cochrane, Medline, PubMed, and Embase databases for outcomes of autologous lunate arthroplasty. Primary outcomes included patient-reported measures, complications, and re-operations. Secondary outcomes included pain, grip strength, range of motion, and radiographic parameters.

Results

From 1,444 citations, 38 studies met inclusion criteria including 551 patients, identifying three autologous replacement types: tendon ball, osteochondral, and osteochondral wrapped in tendon. Subgroup analyses included: Tendon ± bone replacements (tendon ball and tendon-wrapped bone grafts), Free flap techniques (osteochondral grafts), and Localized flap techniques (pisiform, capitate, Graner's, scaphoid grafts).

Tendon ± bone replacements showed modest, non-significant improvements in radioscaphoid angle (RSA) (SMD=−0.34, $p=0.30$) and significant gains in grip strength (SMD=0.55, $p=0.03$), wrist flexion (SMD=0.75, $p=0.03$), and extension (SMD=0.66, $p=0.06$). Free flap techniques significantly improved RSA (SMD=0.45, $p=0.04$), wrist flexion (SMD 0.8, $p<0.05$), and extension (SMD0.70, $p<0.05$). Localized flap showed significant functional improvements but minimal radiographic change. All techniques had low complication (OR=0.16–0.17, $p<0.001$) and re-operation rates (OR=0.10, $p<0.001$).

Conclusion

Autologous lunate arthroplasty shows promise, particularly with free flap techniques, providing significant radiographic and functional improvements. Tendon ± bone and localized flap techniques yielded modest radiographic outcomes but had favorable functional results and consistently low complication and re-operation rates. Further research is necessary to optimize techniques and long-term stability.

16:21 - 16:24

1926 Metacarpal Head Malunion: A Rare Entity With A Novel Surgical Approach

Rohit R. Somani, Prashant Kamble

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Abstract
Introduction:
Metacarpal head malunion is an extremely rare and underreported condition, with limited literature available on its management. This study aims to highlight the challenges of diagnosing and treating this condition, define a standardized surgical approach, and evaluate clinical outcomes.

Methods:
A retrospective analysis was conducted on five patients with symptomatic metacarpal head malunion. All patients presented with pain, stiffness, deformity (loss of knuckle contour), decreased grip strength, and a clunk during MCP joint flexion. Diagnosis was confirmed using X-rays and CT scans. Surgical correction involved a volar approach, intra-articular osteotomy at the malunion site, and fixation with two 1-mm screws. No bone grafts were used. Postoperative rehabilitation commenced after suture removal. Functional outcomes were assessed using pain scores, grip strength, range of motion (ROM), and the DASH score at a minimum follow-up of nine months.

Results:
At final follow-up, 100% of patients achieved radiological union and reported complete pain relief. Functional restoration was observed in all cases, with significant improvement in grip strength and ROM. No infections were reported, and only one patient experienced transient stiffness, which resolved with rehabilitation.

Conclusion:
Metacarpal head malunion is either an extremely rare or underrecognized condition. This study presents a standardized intra-articular osteotomy and fixation technique, achieving excellent functional and radiological outcomes. To our knowledge, this is the first modern study on this topic, with only one previous report from 1984. Further research is needed to establish best practices for managing this condition.

16:53 - 16:56

2221 CORRECTIVE OSTEOTOMY FOR DISTAL RADIUS OR ULNA MALUNION USING PLANNED AND PATIENT TAILORED PLATES-INDIVIDUAL PATIENT SOLUTION

Author: Ahmad Faraz 1,Saliha Zahid2 ,Prasanth Jesudason 3, Karitkeyan Dhandapani4, Muhammad Abnaell 5

Ahmad Faraz[1], Kartikeyan Dhandapani[2], Mohammad Abnael[3], Saliha Zahid[4]

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3. Ysbyty Gwynedd Health board, Bangor, United Kingdom
4. WATIM DENTAL COLLEGE, Islamabad, Pakistan

Abstract

INTRODUCTION: We evaluated the postoperative patient-reported and radiological outcomes of radius or ulna malunion, who underwent a 3-dimensional planned corrective osteotomy of their distal radius, radial shaft, or ulnar shaft using a printed, anatomical and patient-tailored plate.
METHOD: Outcomes of 12 patients who underwent corrective osteotomies for radius or ulna malunion were evaluated retrospectively. CT scan of normal side was performed to design anatomically customized plates. Surgical models, and three-dimensionally printed surgical guides were developed involving the distal radius and forearm using computer-assisted preoperative planning for corrective osteotomies. Grip strength and range of motion tests were performed before surgery (baseline) as well as post-operatively. Additionally, Q-DASH scores and the Pain Evaluation Measure were recorded at three months or 1 year interval.

RESULTS:
Twelve patients underwent corrective surgery, 10 female and 2 male patients with a mean age of 48 years (interquartile range, 12–68 years) were available for analysis. Range of flexion and extension arc movement improved significantly (p-0.0045) at 1 year, the pronation-supination arc of motion of the wrist improved significantly (p-0.001). Differences in radiological measurements for palmar and radial inclinations, as well as for ulnar variance between affected and unaffected side improved with osteotomy. QDASH and PEM scores showed improvement between pre-operative and post-operative assessment (p0.01). Complications include redo surgery due to the ulna non-union ,1 patient had EPL tendon injury (managed with EIP transfer under WALANT), whereas 1 was recorded to have CRPS (which resolved with conservative

16:50 - 16:53

2558 Peri-Lunate Dislocations: Which Radiological Signs Are Most Relevant For Diagnosis?

Youssef Othman[1], Hichem Msek[2], Anas Bougharriou[1], Anis Lassoued[1], Foued Saihi[1], Makram Zrig[1], Mouhamed Faouzi Hamdi[1], **Abderrazek Abid**[1]

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2. Fattouma Bourguiba Hospital - Monastir University, Monastir, Tunisia

Abstract
Introduction
In contrast to the severity of peri-lunate dislocations (PLD) on functional prognosis, early diagnosis is missed in 25% of these injuries in emergency settings. Diagnostic delay results in more complicated management and persistant sequelae. The difficulty in interpreting the x-ray is one of the causes of this delay. The multitude of radiological signs described for these injuries adds further ambiguity during interpretation. Identifying the most commonly observed signs could standardize this interpretation and facilitate early diagnosis.
Objective:
The objective was to identify the most frequently observed radiographic signs of PLD on wrist plain radiographs, specifying their respective frequencies.
Methods:
In a retrospective series of 22 consecutive cases operated for PLD, we verified 13 direct and indirect radiological signs suggestive of the diagnosis described in the literature. The respective frequencies of each sign were calculated.
Results:
On the anteroposterior wrist radiograph, the three most frequently observed signs were: disruption of Gilula's arcs in all patients (100%), the "piece of pie" sign (95.4%), and a pathological McMurthy translation index (77.2%). The "ring sign" was present in only 50% of cases.On the lateral view, the three most frequently observed signs were: loss of alignment of the radius-lunate-capitate-third metacarpal (100%), an abnormal radiolunate angle (77.2%), and an abnormal scapholunate angle (68.1%).
Conclusion
The assessment of Gilula's arcs and the alignment of the radius-lunate-capitate-third metacarpal are necessary in the presence of a post-traumatic swollen wrist.

16:15 - 16:18

2983 From Deformity To Function: Surgical Treatment Of Arthritis Mutilans In Psoriatic Arthritis With Total Carpal Resorption

Joana Miranda, Catarina Pereira, Adriana Neves, João Valadas Silva

Hospital Prof Doutor Fernando Fonseca, Lisbon, Portugal

Abstract
Introduction:
Psoriatic arthritis (PsA) is a chronic inflammatory disease that can cause severe joint deformities, pain, and functional impairment. Advanced cases may lead to extensive bone resorption, particularly in the hands and wrists, resulting in joint instability and tendon ruptures, often requiring surgical intervention.

Clinical Case:
A 56-year-old male with a 20-year history of PsA presented with severe wrist and hand pain, deformity, and total dysfunction. Examination revealed ruptures of the extensor tendons in the 3rd and 4th fingers. Imaging showed complete carpal bone resorption and chronic dislocation of the first metacarpophalangeal (MCP) joint, causing instability.

Methods:
A comprehensive surgical approach was performed. Wrist arthrodesis with a dorsal plate stabilized the wrist, while a Darrach procedure addressed ulnar-sided pathology. The first MCP joint was stabilized with intramedullary screws. Extensor tendons of the 2nd, 3rd, and 4th fingers were repaired proximally to restore extension.

Results:
The procedure was completed without complications. After immobilization, rehabilitation improved hand stability, reduced pain, and restored function.

Discussion:
This case represents Arthritis Mutilans, a severe PsA form causing progressive joint destruction. The combination of wrist arthrodesis, MCP stabilization, and tendon repair effectively restored function. Anatomically designed arthrodesis plates optimized hand positioning for daily activities. Intramedullary screws preserved soft tissues, minimizing further damage. Early rehabilitation played a key role in maximizing recovery.

Conclusion:
This case demonstrates the effectiveness of a comprehensive surgical strategy in managing severe PsA, providing long-term joint stability and function.

17:06 - 17:09

3023 Approaches To Pacinian Neuromas

Dean Malik, Aysha Abu Hassan, Raymond Anakwe

Imperial College Healthcare NHS Trust, London, United Kingdom

Abstract
Introduction:
Pacinian neuromas are rare tumours that can occur in the hand. Pearly and layered in appearance, they are the result of either hypertrophy or proliferation of Pacinian corpuscles. These benign tumours are thought to be secondary to trauma, occurring on the volar aspect of the hand. Nonetheless, it is important to be aware of their presentation to ensure prompt and appropriate short- and long-term management.

Methods:
We present the case of a 67-year-old right-hand dominant lady with a 2-year history of a right thumb interphalangeal joint swelling. The patient reported a progressive, painless 3mm swelling on the radial side of her right thumb. She underwent an MRI scan, which raised the possibility of a Masson s tumour.

Results:
A z-plasty over the interphalangeal joint was utilised to expose the lesion. Dissection down to the lesion did not reveal characteristics of a Masson's tumour, instead multiple pearly firm nodules were encountered. Careful resection of the abnormal tissue was performed around the neurovascular bundle and subcutaneous tissue to ensure full clearance. Samples were sent for histology and identified characteristics consistent with a Pacinian neuroma. Clinical correlation post-operatively revealed resolution of her symptoms and no recurrence

Conclusions:
Pacinian neuromas are a rare and difficult to diagnose condition requiring thorough assessment. There may not be a definite history of trauma and even with modern imaging modalities, they can purport as other conditions. Surgical management in the form of an excisional biopsy is a good treatment strategy for both diagnostic and therapeutic perspectives.

17:03 - 17:06

2747 Functional And Radiographic Outcomes Of Prosthetic Versus Arthroplastic Surgeries For Trapeziometacarpal Arthrosis: A Five-Year Retrospective Study

Filipa Adan E Silva, Filipa Cordeiro, Ana Lucinda Correia, Diogo Rodrigues, João Nelas, João Seixas, Alexandra Dos Santos, João Rosa, Pedro Teixeira Da Mota

Unidade Local de Saúde de Santo António, Porto, Portugal

Abstract

Introduction

Trapeziometacarpal(TMC) arthrosis is a prevalent degenerative condition, leading to significant functional impairment. When conservative management fails, surgical options such as prosthetic arthroplasty and resection arthroplasty (ligament reconstruction and tendon interposition – LRTI) are commonly performed, yet their comparative effectiveness remains debated.

The aim of this study is to compare the functional and radiographic outcomes of patients who underwent prosthetic or arthroplastic surgery for TMC arthrosis over the past five years at our institution.

Methods

A retrospective analysis of all the patients treated for TMC arthrosis between 2020-2024 at our institution was conducted. Patients were divided into two cohorts: Group-A with those who underwent prosthetic arthroplasty and Group-B with those who underwent LRTI. Functional outcomes were assessed using the Kapandji-score, grip and pinch strength. Radiographic evaluation included implant positioning, subsidence, and joint space maintenance. Statistical comparisons were performed.

Results

We evaluated 143 patients with TMC arthrosis (47 patients in Group-A and 96 in Group-B). The Kapandji-score differed significantly at 3-months: 9.6vs9.1 (p0.013). No differences were found between grip and pinch strength. Although Group-B early functional improvement was slower, they achieved comparable pain relief and functional outcomes at later follow-ups. No significant differences were found in radiographic evaluation. However, the complication rate of Group-A is higher.

Conclusion

Both prosthetic and LRTI offer effective surgical solutions for TMC arthrosis. Prosthetic arthroplasty yields better short-term functional results, while LRTI provides more stable long-term outcomes. Patient selection should consider functional demands. Further prospective studies are needed to validate these findings and optimize treatment selection.

17:25 - 17:28

2011 1st CMC Arthrodesis For Painful Adduction Deformity Of Dominant Thumb In Patients Having OA Secondary To Rheumatoid Arthritis - Why & How We Do It

Kaunteya Ghosh

KPC Medical College & Hospital, Jadavpur, Kolkata, India

Abstract
In elderly patients of OA 1st MetacarpoPhalangeal joint , our aim is twofold - to provide pain relief and to restore or maintain thumb functions like grip , pinch and grasp . Our candidates our usually low demand with analgesia being the biggest priority along ADLs like glass holding , key grip , ability to do signatures , and handling a normal mobile phone . They are usually not high demand and do not need extremes of thumb movement . Furthermore they have frail soft tissues and usually have some issues with agreesive rehabilitation . We get a CT for the 1st MCPJ . We open up the joint with a Wagner s like incision , using image intensifier control (the arthritis mutilates the joint beyond recognition intra op) , and apart from EPB we open up the sheath of APL and fully mobilise it . Unless the APL is fully mobile reaching the depths of the joint is difficult for non hand surgeons . Under C Arm control we pass two Kirschner Wires and close the soft tissues . A good thumb spica is kept applied for around 6 weeks . Our results and functional outcomes are satisfactory according to patients .

17:09 - 17:12

954 The Long-Term Patient-Reported Outcome Metrics Of Fingertip Injuries Covering With A Heterodigital Neurovascular Island Flap

Muhammed Ali Demir[1], Kaan Gürbüz[1,2]

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2. Huma International Hospital, Clinics of Orthopedics & Traumatology, Kayseri, Turkey

Abstract
Introduction: The optimal goal is to achieve a sensitive, painless, and stable pulp. Various surgical techniques have been proposed to provide skin cover of the fingertip without shortening the digit. Objective: The aim was to address the longterm patient-reported outcomes measures and objective outcomes of the heterodigital, neurovascular island flap for fingertip reconstruction. Patients and methods: Between September 2015 and December 2020, a total of 54 patients at a median follow-up of 5.1 years (IQR 3.2 to 9.1) (34 males, 20 females; mean age: 33.7±5.4 years; range, 21 to 63 years) who were followed after fingertip injuries reconstructed with heterodigital neurovascular island flap with the thumb excluded were retrospectively analyzed. We assessed the global subjective and aesthetic outcomes, range of motion, sensitivity, and strength. Results: The patient-reported median subjective global score was 8.2/10 points (IQR 7 to 9) and the aesthetic score was 8/10 points (IQR 8 to 9). Range of motion, sensitivity, and strength were similar to the uninjured side. Stiffness was present in more than half of the cases; 14 patients had a hook nail deformity, and seven patients reported symptomatic cold intolerance. There were no infections or total flap necrosis. One flap was partially necrotic, requiring healing by secondary intention. The presence of a neuroma on the pedicle required resection with a satisfactory outcome in six cases.Conclusions: Although the number of different surgeons may have caused disparities in surgical technique and rehabilitation protocols, the reliability of the flap is indicated by the low incidence of complications.

Wednesday, 3 September

Hip 2
17:16 - 17:19

439 A Novel Acetabular Biplanar Calibration Method In Establishing Hip Arthroscopic Portals

Qilong Jiang

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Abstract
Objective: To introduce a novel acetabular biplanar calibration (ABC) method to improve the accuracy of hip arthroscopic portal establishment. Methods: This study included patients with femoro-acetabular impingement syndrome or acetabular labral tear admitted to our hospital from January 2023 to December 2024. Pelvic morphology was measured from preoperative radiographs. The ABC method involved placing metallic markers on the coronal (Landmark A) and sagittal (Landmark B) plane to identifing hip joint space, measuring distances from the anterior superior iliac spine (ASIS) to the two markers. The establishments of anterolateral (AL), mid-anterior (MA), and distal anterolateral accessory (DALA) portals referred to the two markers and were confirmed by the fluoroscopy. The accuracy rates of establishing these portal placement were calculated respectively. Results: A total of 55 patients were included. The joint space on the coronal plane was 3.06 ± 0.39 cm distally and 2.97 ± 0.42 cm medially from the ASIS. The joint space on the sagittal plane was 2.88 ± 0.38 cm distally and 8.13 ± 1.25 cm laterally from the ASIS. The accuracy rates of establishing the AL, MA, and DALA portals based on the ABC method were 92.8%, 94.9%, and 90.3%, respectively. Conclusion: The ABC method appears to be a promising avenue for improving hip arthroscopic portal establishment accuracy with reduced reliance on femoral positioning. It can also be used for frequent arthroscopic instrument navigation.

Key Words: Hip arthroplasty, Landmark, Portal establishment.

16:54 - 16:57

424 A Comparative Meta-Analysis Of Outcomes In Simultaneous And Staged Total Hip Arthroplasty

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Abstract
Introduction: There is debate regarding the optimal timing of bilateral Total hip arthroplasty(THA), with simultaneous or staged approaches considered. Cost-effectiveness is an important factor that influences resource allocation. The main aim of this study was to conduct a thorough and comprehensive assessment of the cost implications associated with simultaneous and staged total hip arthroplasty.
Materials and methods: A systematic review and meta-analysis was conducted adhering to the PRISMA reporting guidelines. Studies comparing simultaneous bilateral THA(sim-THA) and staged bilateral THA(st-THA) in terms of cost, complications, hospital stay, and patient outcomes were eligible. Odds ratios(ORs), mean differences(MD), and standard mean differences(SMD) with 95% confidence intervals (CIs) were calculated. The risk of bias was assessed using MINORS. Meta-analyses were performed using Review Manager version 5.4.
Results: 26 observational studies including 1,558,090 patients were included. Sim-THA was associated with significantly lower total costs (SMD-0.54, 95%CI -0.92 to -0.16; participants=1619; studies=9; I2=91%;p=0.005) and shorter hospital stay (MD-2.90, 95%CI -4.38 to -1.42; participants=4037; studies=15; I2=97%;P=0.0001) compared to st-THA. Revisions were less frequent with sim-THA. No differences in the mortality or readmission rates were observed. Functionality (SMD0.37, 95%CI 0.20 to 0.53; participants=1283; studies=7; I2=70%;p<0.0001) and pain scores (SMD0.19, 95%CI 0.04 to 0.33; participants=755; studies=4; I2=0%;p=0.01) favored sim-THA.
Conclusions: A comprehensive analysis demonstrated that sim-THA offers economical and clinical advantages, including reduced hospital expenses and improved patient quality of life, despite a higher number of transfusions, with comparable surgical blood loss to standard total hip arthroplasty.

16:00 - 16:03

978 Role Of Cultured Osteoblasts In The Management Of Avascular Necrosis Of Head Of Femur: A Retrospective Study.

Bishnu Prasad Patro

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Abstract
Introduction: Avascular Necrosis (AVN) of the femoral head, a condition characterized by the interruption of blood supply leading to bone tissue death, presents significant therapeutic challenges. Recent advancements in orthobiologics, including the use of Autologous Adult Live-Cultured Osteoblasts (AALCO), combined with core decompression, offer a novel approach for managing AVN. This study assesses the efficacy of this treatment modality in improving functional outcomes and hindering disease progression.

Materials and methods: This retrospective observational study encompassed 30 patients treated between 2020 and 2023 for idiopathic AVN of the femoral head, grades I to III, who had not responded to conservative treatment. Patients were excluded based on specific criteria including age, secondary AVN causes, and certain health conditions. The treatment involved a two stage surgical procedure under spinal anesthesia with OSSGROW ® for AALCO generation. Post-operative care emphasized early mobilization, DVT prevention, and avoidance of NSAIDs. Outcome measures were evaluated using the Visual Analog Scale (VAS) for pain, modified Harris Hip Score, and annual imaging for up to 36 months.

Results: Among 26 patients (41 hips) completing the study, statistically significant improvements in pain and hip functionality were documented, alongside positive radiological signs of osteogenesis in the majority of cases. However, four instances required advancement to total hip replacement due to disease progression.

Conclusion: The combination of core decompression and AALCO implantation shows promising treatment for AVN of the femoral head, with notable improvements in functional and radiological outcomes. This study supports the potential of orthobiologic approaches in AVN treatment, warranting further evaluation.

16:35 - 16:38

1087 Total Hip Arthroplasty For Hip Dysplasia: Outcomes And Complications

Saadedine Hichem Amouri, Mohamed Fouzi Djidi, Salim Fourmas, Mustapha Yakoubi

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Abstract
Introduction: Osteoarthritis secondary to congenital hip dysplasia is becoming increasingly rare due to advances in neonatal screening and early management of this condition. However, orthopedic surgeons still encounter this pathology and its inevitable progression to osteoarthritis in adulthood. Once osteoarthritis is established. Performing a THA in these patients presents a challenge due to the technical difficulties related to bone deformities and the adaptation of soft tissues. This study aims to evaluate the mid-term outcomes of this surgery and to identify the complications.
Methods: We conducted a retrospective study of 35 cases of total hip arthroplasty performed for hip dysplasia between 2020 and 2022. Implant positioning (both acetabular and femoral) was assessed using standard anteroposterior and lateral radiographs. Functional outcomes and complications were analyzed using a bivariate statistical approach.
Results: The average age of the patients was 37 years, with 33% classified as Crowe II and 28% as Crowe III. The mean preoperative limb length discrepancy was 2.3 cm, and the average Postel-Merle d'Aubigné score was 11. Dual-mobility implants accounted for 40% of cases, while the most common bearing couple was metal-polyethylene. Most implants were cementless. The complications observed included sciatic nerve palsy with paresthesia in 15% of cases, a residual limb length discrepancy of approximately 1 cm on average, and one case of dislocation. A significant improvement in functional scores was noted postoperatively.
Conclusion: Although total hip arthroplasty for dysplasia-related osteoarthritis remains relatively uncommon, it is associated with a non-negligible complication rate. However, these complications can be minimized with appropriate preoperative

17:22 - 17:25

3057 Clinical Insights From A Case Series Of Post Traumatic Hip Stem Fracture

Pulkit Kalra, Daniel Cohen

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Abstract
Revision total hip arthroplasty is a complex surgical procedure often necessitated by complications such as aseptic loosening, infection, or mechanical failure. Femoral stem failure after total hip arthroplasty is frequently documented in the literature, Although rare (prevalence 0.23-11%), the repercussions can be devastating for patients. These days component breakage is rare because to advancements in metallurgy and stem design .According to three-dimensional analysis, the lateral aspect of the middle third of the femoral stem has the highest stress concentrations. Hence, stem fractures typically occur from the anterolateral aspect. This case demonstrates an alternative technique for extracting a broken femoral stem, reducing morbidity.Fractures of femoral stems are uncommon but significant complications of total hip arthroplasty, often necessitating surgical intervention. The technique highlighted in this case provides an alternative to conventional approaches, minimising morbidity and promoting faster recovery. Our strategy uses the short cortical window distal to the fractured stem's proximal half. The cortical window is not new, but this version uses inexpensive instruments to make a small oval window laterally along the proximal femur's long axis using a tungsten carbide drill-bit. Another variation is to drill a hole over the lateral side of the well-fixed distal fractured stem using a tungsten carbide drill bit after creating the cortical window. A Charnley pin retractor disimpacts the femoral stem with controlled retrograde orthopedic mallet impaction until extraction. We highlight the importance of Minimally invasive techniques, such as the oval cortical window, that can effectively extract broken femoral stems while preserving bone stock.

16:03 - 16:06

430 MAKO Robot-Assisted Total Hip Arthroplasty: A Comprehensive Meta-Analysis Of Efficacy And Safety Outcomes

Rafael Llombart-Blanco[1], Gonzalo Mariscal[2], Carlos Barrios[2], Rafael Llombart[3]

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Abstract
Introduction: Introduction: Robotic surgery in total hip arthroplasty (THA) has emerged as a promising approach for improving precision and reducing errors. This meta-analysis aimed to compare the efficacy and safety of robot-assisted MAKO total hip arthroplasty.
Methods: Studies were searched using four databases. Meta-analysis was performed using Review Manager 5.4. Efficacy was assessed radiologically, and functional scores and complications were recorded.
Results: Twelve studies (1224 hips) were analyzed. The MAKO group achieved greater cup anteversion (MD 1.53, 95%CI 1.04–2.03) and a higher percentage of components within safe inclination and anteversion ranges ($p>0.05$). Harris Hip Scores did not differ significantly (MD 0.61, 95%CI -0.22–1.45) but the forgotten joint scores favored MAKO (MD 5.99, 95% CI 4.10-7.88), although not exceeding the minimally clinically significant difference. No differences in intraoperative complications emerged (OR 0.96, 95%CI 0.51–1.79) but preoperative plans significantly mismatched the final cup placement after MAKO ($p<0.05$).
Conclusions: The use of the MAKO robot in THA improves radiological outcomes by enhancing safe prosthesis placement. However, no significant differences were observed in terms of complications. Longer follow-up studies are required to assess the clinical impact of improved radiological results.

16:16 - 16:19

758 GLYCEMIC CONTROL AND ITS ASSOCIATION WITH POSTOPERATIVE OUTCOMES IN TOTAL KNEE AND HIP ARTHROPLASTY.

Yuri Klassov

Shaare Zedek Medical Center, Jerusalem, Israel

Abstract
Introduction: Hip and Knee arthroplasty constitute a growing proportion of orthopaedic surgeries. However, relationship between diabetes control and outcomes of orthopaedic surgeries are controversial. This study examined an intervention that was conducted in our orthopaedic department . Policy for diabetes patients were changed, and surgeries were performed on patients with HbA1c values below a threshold of 7.5%. we assessed the effects of this intervention and examined
the impact of glycaemic control on postoperative complications.

Methods: We conducted a retrospective cohort study that analysed all patients who underwent total hip or knee arthroplasty at SUMC from 2015 to 2022.The study group included all diabetes patients who had arthroplasty between January 2018 to January 2022. Patients were divided into three groups, before and after intervention and a control group without diabetes. Data was obtained from the computerized database system.

Results: This study involved 1366 patients, 685 of whom had diabetes mellitus. The diabetes group was split into two subgroups and compared, based on whether they were operated before (DM_1 group) or after (DM_2 group) the intervention. The results of the multivariate model showed that Patients with a BMI greater than 25, those undergoing total knee arthroplasty, and those with HbA1c levels above 6.5% had a significantly higher risk of developing complications.

Conclusions: In summary, our results showed that patients with HbA1c ≤6.5%, had a lower risk of complications. Patients with diabetes, regardless of glycaemic control status, had a higher risk of re-hospitalization than those without diabetes.

16:19 - 16:22

897 Do We Meet The Expectations Of Patients With Total Hip Arthroplasty (THA) At 10 Years? Validity Of The IHOT33 And HOS Scores

Beatriz Martín-Vélez, Miguel Cañones-Martin, Jorge Martin-Lozoya, Giovanni Provenza, Claudia Santafé-Campos, Esther Fernández-Tormos, David Guzmán-Domenech, Ricardo Larrainzar-Garijo, Oliver Marín-Peña

Hospital Universitario Infanta Leonor, Madrid, Spain

Abstract

INTRODUCTION

Patient-reported outcome measures (PROMs) are essential for assessing clinical outcomes in total hip arthroplasty (THA). Questionnaires that minimize the "ceiling effect" are particularly recommended for active patients. Our objective is to evaluate 10-year clinical outcomes in THA using the iHOT33 and HOS questionnaires compared to preoperative values.

MATERIALS AND METHODS

We conducted an observational study on 34 patients who underwent THA between 2012 and 2015. All surgeries were performed by the same surgeon, with the same approach and follow-up protocol. We collected demographic data, intraoperative findings, complications, and iHOT33 and HOS scores preoperatively and at 10 years. Mean differences between pre- and postoperative scores were calculated. Statistical analysis was performed using JASP0.19.1.

RESULTS

Of the 34 patients, 22 were male (62.8%), with a mean age of 51.7 years. The mean follow-up was 10.98 years. Significant improvements were observed: iHOT33 increased by 67.5 points, HOS-function by 48.5, and HOS-sports by 43.3. The percentage achieving the minimal clinically important difference (MCID) was 97.1% for iHOT33, 88.2% for HOS-function, and 67.7% for HOS-sports. Substantial Clinical Benefit (SCB) was reached by 85.3% with iHOT33, 82.4% with HOS-function, and 55.8% with HOS-sports.

CONCLUSIONS

This is the first study reporting 10-year outcomes using more demanding scores, iHOT33 and HOS, in THA for active patients. Over 80% achieved significant quality-of-life improvements achieving the Substantial Clinical Benefit (SCB) on the iHOT33 and HOS scales. Therefore, we propose the use of iHOT33 and HOS for the evaluation of clinical outcomes in THA for active patients.

16:22 - 16:25

1185 Behavioral Aspects Of Hip Osteoarthritis Progression: Developing A Model Based On Clinical And Functional Data

Anzhela Sergeevna Mulyk, Anton Andreevich Akulaev, Alexander Vadimovich Gubin

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Abstract
Research Objective: To investigate the impact of behavioral factors on the progression of hip osteoarthritis (OA).
Methods: The study involved 386 patients. Questionnaires used: SPbU OKTAR, HOOS, SF-36, alongside gait analysis.
Results: Nutrition and physical activity significantly influence clinical and functional outcomes in hip OA. Patients with higher physical activity levels and balanced diets exhibited less severe symptoms and better quality of life.
Behavioral Model: A behavioral model was developed, describing the progression of hip OA while accounting for individual behavioral patterns, such as physical activity levels and dietary habits. The model emphasizes the importance of integrating behavioral factors into the understanding of OA progression, offering a comprehensive framework to analyze the interaction between lifestyle choices and disease course.
Conclusions: Behavioral factors play a crucial role in the progression of hip OA. Further research is needed to validate the model and develop personalized management strategies that consider both medical and behavioral aspects, ultimately improving patient outcomes. This approach highlights the need for a holistic perspective in OA management, combining medical treatment with behavioral insights to optimize long-term results.

16:25 - 16:28

1189 Factors Contributing To Opioid Usage After Total Hip Arthroplasty At A Large-Scale Tertiary Care Centre

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4. University of California Davis, Sacramento, United States
5. University College London Medical School, London, United Kingdom

Abstract

Introduction: Effective postoperative pain management is imperative in total hip arthroplasty (THA) for early mobilization and recovery pathway acceleration. This study investigated inpatient opioid consumption patterns and identified factors linking increased opioid usage following THA.

Methods: Data was analysed from 1,867 primary THAs between May 2019 and July 2023 at our large-scale single institution. Data included demographics, length of stay (LOS), anaesthesia type, Post Anaesthesia Care Unit (PACU) admissions, 30-day readmissions, total opioid consumption (morphine equivalents), implant fixation techniques, surgical characteristics and pre- and postoperative haemoglobin (Hb) levels. Increased opioid consumption factors (patients above third quartile in opioid consumption distribution) were identified through univariate and multivariate logistic regression models.

Results: Cohort included 1150 females (61.6%) and 717 males (38.4%) and 88mg (IQR = 39.3 – 211.9) median in-hospital opioid consumption. In hierarchical multivariate logistic regression model, baseline demographics were adjusted revealing higher opioid consumption predictors including age (OR 0.989 [95% CI 0.981 – 0.997], p=0.01), general anaesthesia (OR 2.386 [95% CI 1.865 – 3.054], p<0.001), PACU admission (OR 2.098 [95% CI 1.310 – 3.358], p=0.002), ASA score (OR 1.492 [95% CI 1.193 – 1.866], p<0.001), postoperative Hb levels (OR 0.981 [95% CI 0.970 – 0.992], p<0.001), and surgery year (OR 0.638 [95% CI 0.579 – 0.703], p<0.001).

Conclusions: Younger age, higher ASA scores, lower postoperative haemoglobin, PACU admission and general anaesthesia were significantly associated with increased opioid consumption following THA. Specifying factors can facilitate development of tailored postoperative pain management protocols, enabling targeted interventions minimizing opioid reliance, while enhancing recovery.

Keywords: Arthroplasty,Hip,Analgesics,Opioid,Rehabilitation

16:32 - 16:35

1892 Hip-Knee Relationship In Asian Population

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Abstract

Introduction
Hip and knee degeneration are closely related but the prevalence of concomitant total hip arthroplasty (THA) and total knee arthroplasty (TKA) are not well documented. This retrospective study aims to determine the prevalence, time interval and outcome in Asian patients receiving staged THA and TKA.

Methods
This retrospective study analyzed an electronic health database (CDARS) which records all arthroplasty surgeries performed in all public hospitals in Hong Kong. For primary analysis, patients receiving THA in HA hospitals from 2010 to 2019 were identified. The proportion of patients requiring a TKA before and after the THA were then calculated. For secondary analysis, the operation time and length of stay were compared between TKA without a prior THA and TKA performed after a THA, as well as between THA without a prior TKA and those performed after a TKA.

Results
Among 4592 patients receiving THA, 170 (3.7%) had a previous TKA while 241 (5.3%) had a subsequent TKA in 10-year follow-up. More patients received TKA on contralateral side (5.4%) than the ipsilateral side (3.5%) which is statistically significant ($p<0.001$). There are no significant differences in operation time and length of stay when comparing the 2 TKA groups and when comparing the 2 THA groups.

Conclusion
A stronger relationship between contralateral THA and TKA may be related to increased weight loading on contralateral side due to ipsilateral pain, exacerbating the degeneration. This study also suggested that patients would experience similar outcomes regardless of the sequence of THA and TKA.

16:41 - 16:44

2594 Outcomes Of The Stryker Trident 'All-Poly' Cemented Constrained Acetabular Insert In 252 Patients: A District General Experience

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Abstract

Introduction

Constrained acetabular inserts are designed for revision procedures but increasingly being used for complex primaries. Evidence surrounding their use is limited and concerns linger around their survivorship. We have been cementing this insert directly into the acetabulum for over 15 years and accumulated one of the largest series in the literature.

Materials and Methods

Data was obtained retrospectively from trust NJR records between 20/05/2008 and 23/09/2024. Both primary and revision procedures were included. Routine demographic data, comorbidities and mortality were recorded. Patient records and all pre and post-operative radiographs were studied to identify complications.

Results

252 patients were identified comprising 31.7% (80) male and 68.3% (172) female. Mean age was 79.7 years (47-98). 48.4% (122) were primary constrained THR's and 51.6% (130) were revision. The most common reason for constrained insert in primary cases was a perceived high dislocation risk and for revisions it was recurrent dislocations. 30-day mortality was 1.2% (3) and 1-year mortality was 5.6% (14).

There were 4 ring breakages with head dislocation (two underwent revision to another constrained, one died before revision, one underwent Girdlestones), 1 ring breakage without head dislocation (treated non-operatively), 2 constrained cup pull-outs (both patients decided against surgery), 1 periprosthetic femoral fracture (revised to uncemented modular stem) and 4 PJI's (all underwent revision).

Conclusions

Our results demonstrate a low overall mechanical complication rate of 3.2% when this constrained insert is cemented directly into the acetabulum without a metal shell, providing a viable option in high-risk primary and revision hip arthroplasty procedures.

16:48 - 16:51

2704 A Comparative Study Of In-Hospital Complications Following Cemented And Cementless Femoral Stems In Elderly Patients With Osteoarthritis Undergoing Total Hip Arthroplasty.

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Abstract

Keywords. Hybrid fixation, cementless fixation, bone cement implantation syndrome, hemodynamic reactions, elderly patients.
Introduction. The use of cementless total hip arthroplasty (THA) in elderly patients is associated with a higher risk of early periprosthetic femoral fractures, while cemented femoral components increase the risk of bone cement implantation syndrome. This study compared in-hospital complications following hybrid versus cementless THA in elderly patients with osteoarthritis.
Methods. A retrospective review of cases from February 2012 to June 2023 was performed using data from the Hospital of Traumatology and Orthopaedics arthroplasty registry. Only primary THAs for osteoarthritis were included.
Results. A total of 773 (84.9%) patients underwent hybrid THA with cemented femoral fixation, while 138 (15.1%) underwent cementless THA. The hybrid group was older (median = 72.4 vs. 68.2 years, $p < 0.001$), had higher ASA physical status scores (range 1–4 vs. 1–3, $p = 0.022$), more frequent walking aid use (46.4% vs. 21.7%, $p < 0.001$), more preoperative thromboprophylaxis (54.7% vs. 44.9%, $p = 0.034$), and longer operative times (median = 80 vs. 74 minutes, $p = 0.001$). The overall complication rate was higher in the hybrid group (56.9% vs. 47.1%, $p = 0.033$). Hemodynamic reactions during acetabular cup implantation occurred more frequently in the hybrid group (29.1% vs. 15.2%, $p = 0.001$).
Conclusion. Elderly patients with osteoarthritis who undergo hybrid total hip arthroplasty experience more complications than those who undergo cementless total hip arthroplasty.

17:04 - 17:07

716 The Direction Of Pelvic Obliquity After Total Hip Arthroplasty For Dysplastic Hip Osteoarthritis: A Retrospective Observational Study

Hiroyuki Yokoi, Yusuke Osawa, Hiroto Funahashi, Yuto Ozawa, Hiroaki Ido, Kimihiro Ono, Shiro Imagama

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Abstract
Introduction: Pelvic obliquity (PO) in dysplastic hip osteoarthritis (DHOA) can present as either upward or downward tilting on the affected side. This study investigated the influence of preoperative PO direction on postoperative clinical outcomes and hip–spine morphology in patients undergoing total hip arthroplasty (THA).
Methods: Data from 116 unilateral DHOA patients (21 men, 95 women) with ≥2° PO who underwent THA between June 2018 and September 2023 were analyzed. Patients were categorized into upward PO (U-PO, n=35) and downward PO (D-PO, n=81) groups. Patient demographic information, hip function scores, and radiographic parameters were compared between the groups.
Results: There were no significant differences in patient background between the groups. Preoperatively, the U-PO group exhibited a larger acetabular offset, greater hip adduction angles, longer functional leg length on the affected side, and ipsilateral convex lumbar scoliosis (P=0.030, P<0.001, P<0.001, and P<0.001, respectively). Postoperatively, differences in acetabular offset and lumbar scoliosis disappeared; however, a greater hip adduction angle and longer functional leg length discrepancy persisted in the U-PO group (both P<0.001). The mean (±standard deviation) residual PO was greater in the U-PO group (2.8±3.6) than that in the D-PO group (1.2°±2.2°) (P=0.003). Mean postoperative hip Japanese Orthopaedic Association scores were significantly lower in the U-PO group (85.9±8.7 vs. 90.3±7.3; P=0.007).
Conclusion: The U-PO group exhibited greater residual hip adduction angles, longer functional leg lengths on the affected side, and less improvement in PO after THA than those in the D-PO group, resulting in poorer postoperative hip function.

17:07 - 17:10

980 Transverse Acetabular Ligament (TAL) As A Tool For Acetabular Cup Orientation In Patients Undergoing Primary Total Hip Replacement.

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Abstract
Background: TAL bridges the inferior acetabular notch, and along with the labrum, it extends the bearing surface for the femoral head and prevents its inferior displacement. In THA, TAL is used intra-operatively as a guide to acetabular anteversion (AA). The objective of the study is to find the incidence of the presence of TAL and the rate of hip dislocation following cup placement using TAL as a reference.
Material and Methods:
Between Jan 2022 and Dec 2023, a total of 135 hips have been operated on by a single surgeon for various hip pathologies, irrespective of age and sex. All cases operated through a modified Harding's approach and TAL was the reference point for acetabular cup placement. Head size varied from 22 to 32 as per the cup size. All cases followed for a period of 12 months.
Results:
In contrast to earlier studies, TAL was present in all the hips, even in fused hips. There was not a single dislocation within 12 months of operation. There was limp in 36 patients at 3 months and 10 patients at 12 months. All the hips were painless.
Conclusion:
TAL is present in all patients we operated during the above period. TAL absence could be due to inadequate visualization because of fused hip or extensive osteophyte formation. TAL is dependable marker for placement of acetabular cup. There may be violation of combined anteversion, but all hips were painless and stable at 12 months of operation. More analytical studies can confirm its authenticity.

17:19 - 17:22

1694 Challenges In Total Hip Arthroplasty In Cancer Survivor Patients - Case Series Of Uncemented THR

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2. Bedford Hospital, Bedford, United Kingdom

Abstract
Background and Aim: As we all know the number of patients diagnosed with cancer is increasing every year in the UK and also world wide and the need for arthroplasty in these patients is also increasing.There is very little evidence in what fixation methods to be used in them and what precautions should be taken preoperatively.
Methods:We retrospectively analysed 30 patients with history of some form of malignancy in the past who underwent uncemented THA for osteoarthritis or avascular necrosis of the hip in a DGH and followed them up for a year.
Results: Among the 30 patients that we followed up there were no changes in their immediate and 1 year follow up x rays for 25 patients, 3 patients are waiting for 1 year review, 1 patients had dislocations which was reduced successfully and 1 patient died before 1 year follow up.These patients also had similar outcomes like normal patients with THR using Oxford hip scores. We have made certain recommendations as how to tackle this small subset of patients in our day to day practice. Overall we saw 33 various forms of malignancies in these patients but the common ones were breast, prostrate,kidney, skin and bladder.
Conclusion
Due to advancements in cancer treatments leading to longer survival rates and improved quality of life in these patients arthroplasty surgeons in future will be encountering more patients like this.So surgeons should not hesitate to take up these challenges as long as the patients consent and follow the recommendations put forth by us.

16:06 - 16:09

586 HIP REPLACEMENT THROUTH MODIFIED ANTERIOR APPROACH. COMPARATIVE ANALYSIS

Oleg Pimanchev

Federal State Budgetary Institution "National Medical and Surgical Center named after N.I. Pirogov" of the Ministry of Health of the Russian Federation., ??????, Russia

Abstract
HIP REPLACEMENT THROUTH MODIFIED ANTERIOR APPROACH. COMPARATIVE ANALYSIS

Classic anterior approach performed in supine position has some disadvantages.
Aim. Evaluation of the results of using the modified anterior approach developed by us - without dissection and damage to muscles, blood vessels, and lateral cutaneous nerve during hip replacement.
Materials and methods. A comparative analysis of two groups of patients.The control group consisted of 185 people who underwent total hip replacement using the Anterior Approach (Smith-Petersen) technique in the supine position. The experimental group consisted of 200 patients who underwent surgery through modified anterior lateral access. The analysis of the frequency of damage to anatomical structures in the area of intervention was carried out.
Results and discussion.
In the Experimental group, damage to the tensor fascia latae was noted in 5%, and in the control group – in 87%. When performing the classical anterior access on the back, coagulation of the vessels encircling the femur was performed in all cases, and with a modified anterior access on the side – in 7%. Postoperative neuropathy of the lateral cutaneous nerve of the femur in the experimental group was diagnosed in 1%, in the control group in 12.4% of cases.
Conclusion. Performing hip replacement through our modified anterior approach, the risk of damage to the lateral cutaneous nerve of the thigh, lateral vessels encircling the femur, and muscle fibers decreases; the severity of pain syndrome decreases, which contributes to earlier activation of the patient and acceleration of rehabilitation.

17:10 - 17:13

1248 The Practicality Of Adjustable Trial Neck In Total Hip Arthroplasty

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Abstract
Introduction:
In total hip arthroplasty (THA), the surgeon determines the appropriate neck length after placing the stem and cup. However, this process requires repeated dislocation, attachment of the trial neck, and reduction, which is time-consuming, prolongs surgery, and increases patient invasiveness. To address this, an adjustable trial neck that expands and contracts freely within the surgical field has been developed and is used in Kinectiv (Zimmer Biomet). In this study, we developed a similar adjustable trial neck for use with Taperloc (Zimmer Biomet) and evaluated its effectiveness.

Method:
A total of 40 patients who underwent THA using Taperloc at our institution were randomly assigned to two groups: the adjustable trial neck group (A group) and the conventional trial neck group (C group). The number of dislocation-reduction maneuvers, operative time, and blood loss were compared.

Results:
The median number of intraoperative dislocations was significantly lower in the A group (0.8 times) than in the C group (3.3 times) ($p < 0.05$). The mean operative time was also significantly shorter in the A group (98 minutes) than in the C group (113minutes) ($p < 0.05$). However, no significant difference was observed in blood loss (505 ml vs. 529 ml).

Discussion:
Although the adjustable trial neck in Taperloc did not significantly reduce blood loss, it effectively reduced dislocation-reduction maneuvers and shortened operative time. These results demonstrate clear benefits for both surgeons and patients, supporting its effectiveness in improving surgical efficiency. Further studies with larger cohorts are necessary to evaluate long-term outcomes.

16:09 - 16:12

593 25-Year Follow Up Of The Exeter Universal Stem In THAs In A District General Hospital.

Zaid Haj Ali, David Chrastek, Konrad Wronka

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Abstract
25-year follow up of the Exeter Universal stem in THAs in a district general hospital.

Background: We present the results of our study of the survivorship and clinical outcomes of the Exeter Universal femoral components (Stryker, Newbury, UK) in a district general hospital over 30 years. A total of 476 femoral components were inserted in 443 patients between 1994 and 1998.

Methods: This retrospective analysis includes data from 476 total hip arthroplasty (THA) operations using an Exeter Universal femoral component with either a cemented (n=461) or uncemented (n=15) acetabular component. Radiological and clinical data, including HHS pain scores, were collected prospectively at one year, five years, and every five years subsequently. Patients lost to follow-up were cross-referenced with NJR data and GP records to investigate outcomes.

Results: During the study period, 372 patients (402 hips) died (85%), and 14 (3%) were lost to follow-up. At 20 years, 111 patients responded; at 25 years, 51 patients responded; and at 30 years, 3 patients responded. The mean total HHS score was 69.9 at 20 years, 68.5 at 25 years, and 88.75 at 30 years (n=3). Of the 476 THAs, 21 underwent revisions: 4 for infection, 9 for aseptic loosening of the acetabulum, 4 for loosening of both components, and 4 for unknown reasons. Even with worst-case scenario assumptions for femoral stem failure (n=8), the survival rate of the Exeter stem is 98%.

Conclusion: Our results confirm that the cemented Exeter Universal femoral stem continues to perform well past 25 years.

16:57 - 17:00

563 The Impact Of Electronic Cigarettes On The Outcomes Of Total Joint Arthroplasty - A PRISMA Systematic Review

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Abstract
Background: Cigarette smoking is known to result in poorer outcomes for patients undergoing total joint arthroplasty. Smoking tobacco cigarettes in the perioperative period is associated with higher analgesia usage, increased mortality, poorer healing, and an increased risk of medical complications. As such, many surgeons advise their patients not to smoke in the perioperative period. Electronic cigarettes are emerging as a popular alternative for usage by patients who would otherwise continue to smoke traditional cigarettes. Importantly, there has been limited investigation into the impact of electronic cigarette usage on the outcomes of total joint arthroplasty. This review investigates the potential detrimental effects caused by the usage of electronic cigarettes on the outcomes of total joint arthroplasty.

Methods: A systematic review was carried out in accordance with the PRISMA Guidelines. We have drawn from studies that investigated the impact of the constituents of E-cigarette vapour on bone health, wound healing, the immune system and the direct impact of electronic cigarette usage on surgical outcomes.

Results: Electronic cigarettes release nicotine in an inconsistent manner, resulting in many negative consequences for bone health. Furthermore, they depress the immune system, impair wound healing and may result in longer hospital stays.

Conclusions: Electronic cigarette usage should be monitored in the perioperative period to reduce the risk of complication. There is a pressing need for more comprehensive research in this area to fully understand the implications of EC usage on the outcomes of total joint arthroplasty.

16:38 - 16:41

2096 Redefining The Lewinnek Safe Zone: Objective Results Of Meta Analysis For Advancing Outcomes In Total Hip Arthroplasty Through Precise Acetabular Cup Placement

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2. P K Das Institute of Medical Sciences, Palakkad, Kerala, India
3. GMC Ortho Foundation Hospital and Research Centre, Calicut, Kerala, India

Abstract

Introduction:
The Lewinnek safe zone is questioned as complications were also reported among those who are in the safe zone, and vice versa, which led to the concept of functional safe zone.

Aims and Objectives:
To review and compile the normal and aberrant biomechanics of the spine-pelvis-hip complex in the current literature for advancing outcomes in Total Hip Arthroplasty

Study Design and Methods :
Biomechanical review and analysis.Studies that evaluated spinopelvic characteristics in patients undergoing THA, including SS,SPT, PI, and AI and that evaluated the spinopelvic complex's balance, were reviewed. The means and standard deviation were determined, and meta-analysis was conducted to assess the optimal range of value through the pooled means and to conceptualise the biomechanics of spine-pelvis-hip complex.

Results:
Four studies were taken for complete review. The change in Ante-Inclination is constant and the anterior limb of PI creates a difference in version in subjects with same PI angle making it more vulnerable.For both standing and sitting, the computed mean SS was 35±10 and 34±12.5. The mean SPT and AI in standing
and sitting positions are 20.21±6/20±13 (n = 219) and 30±11.91/35.1±13 (n = 121) respectively. 5.01, 3.1, and1.79 were the respective ΔAI, ΔSS, and ΔSPT.

Conclusion :
To ascertain the native functional acetabular orientation and,consequently, to orient the cup,it is essential to assess the spine to detect "stiff and stuck patterns" and the "anterior arm of PI angle"which reflect the difference in the magnitude of motion that can occur with the same PI.

Key words:Lewinnek safe zone,Functional safe zone, Biomechanics of the spine-pelvis-hip

17:25 - 17:28

1931 Femoral Torsion Correction With Uncemented Total Hip Replacement

Josep Ferrer-Rivero[1], Marc Tey-Pons[1,2], Xavier Lizano-Díez[1,3], Joan Cabello-Gallardo[1,4]

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2. Corporació Consorci Sanitari Hospital Parc Taulí, Sabadell, Spain
3. Parc Sanitari Hospital del Mar, Barcelona, Spain
4. Hospital Universitari Germans Trias i Pujol, Badalona, Spain

Abstract

Introduction

Optimal implant positioning in total hip arthroplasty (THA) improves clinical outcomes.

Aims & Objectives

This study aimed to determine whether femoral torsion can be corrected in robotic-assisted THA using cementless stems. We hypothesized that robotic assistance ensures reliable femoral version correction and adherence to preoperative plans without increasing complications.

Study Design & Methods

All patients undergoing robotic-assisted THA at a single center (2022–2024) were included. Native acetabular and femoral versions were measured using preoperative CT scans. Preoperative plans defined target acetabular inclination, acetabular version, and femoral version, which were compared to final intraoperative measurements. Final acetabular and femoral component size accuracy was evaluated. Complications were registered. Subgroup analyses compared preoperative variables.

Results

A total of 73 patients were analyzed. Mean preoperative femoral version was 1.5° (SD 9.2), increasing significantly postoperatively to 12.8° (SD 6.9), with a mean correction of 11.3° (95% CI: 8.5–14.1, $p < 0.001$). No preoperative differences in native femoral version were observed between genders (men: 1.6° ± 9.1 vs women: 1.3° ± 9.4, $p = 0.87$), though men exhibited greater postoperative correction ($\Delta = 12.6°$ vs 9.5°, $p = 0.02$). No complications occurred.

Conclusion

70% of our patients had femoral retrotorsion (femoral torsion less than 5º). Robotic-assisted THA with cementless stems effectively corrects femoral torsion and achieves precise component placement without increasing postoperative risks. Future studies should explore the clinical impact of femoral version correction on functional outcomes and long-term implant performance.

Wednesday, 3 September

Knee 3
16:00 - 16:03

269 All-Intra-Incisional Pins In Robotic Total Knee Arthroplasty (TKA) As A New Standard Of Care – A Practical Technique Guide

Glen Zi Qiang Liau, Yu Liu, Ryan Wai Keong Loke

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Abstract
INTRODUCTION
Robotic-assisted total knee arthroplasty (TKA) requires the placement of array pins in the tibia and femur for accurate registration. Conventional extra-incisional pin placement is associated with soft tissue injury and peri-prosthetic fractures. However, a standardized, reproducible technique for reliable pin placement remains lacking. We present an all-intra-incisional pinning technique and evaluate its proximity to implants and potential benefits in reducing complications.

METHODS
A retrospective analysis of 102 robotic-assisted TKAs performed using ROSA, MAKO, and CORI systems was conducted. Patient demographics, including age, gender, body mass index (BMI), and ethnicity, were recorded. Postoperative-day zero anteroposterior and lateral radiographs were analyzed, with magnification adjustments for accurate measurements.

RESULTS
Compared to extra-incisional placement, intra-incisional tibial pins were positioned 6.52 times closer to the tibial implant in anteroposterior radiographs without a significant increase in complication rates. Mean distances in the anteroposterior view were 8.99 ± 1.21 mm (95% CI: 7.78, 10.2) from the tibial implant, 5.93 ± 1.29 mm (95% CI: 4.64, 7.22) from the tibia-reamed surface, and 6.01 ± 1.37 mm (95% CI: 4.64, 7.37) from the femoral implant. In the lateral view, tibial pins were placed within 9.40 ± 1.43 mm (95% CI: 7.97, 10.8) of the implant. Univariate analysis demonstrated no significant correlation between pin positioning and patient demographics.

CONCLUSION
Our standardized intra-incisional pinning technique enables precise pin placement without the need for repositioning, minimizing soft tissue disruption and reducing the risk of pin-site complications.

16:22 - 16:25

819 The Painless Collapse: A Rare Case Of A Subacute Anterior Knee Dislocation In A Patient With Familial Amyloid Polyneuropathy

Filipa De Carvalho Cordeiro, João Nelas, Mário Silva, Paulo Pereira

Unidade Local de Saúde de Santo António, Porto, Portugal

Abstract
Familial amyloid polyneuropathy (FAP) is a rare inherited disorder characterized by progressive peripheral neuropathy due to amyloid deposits, leading to sensory and motor deficits. These neurological impairments can predispose patients to joint instability and unrecognized trauma.
We report the case of a 69-year-old woman with a known history of FAP who presented to the emergency department with an history of progressive knee deformity and difficulty ambulating but denied significant pain or a clear history of trauma, with three weeks of evolution. Clinical examination revealed joint instability, swelling, and abnormal positioning of the knee, with radiographic evaluation confirming an anterior knee dislocation. No neurovascular impairment was found. Given the chronicity and potential soft tissue contractures, an attempt at closed reduction was deemed inappropriate. The patient was taken to the operating room, where it was performed a mini-open reduction and osteotaxis, stabilizing the joint with an external fixator. Four weeks later, the external fixator was removed and a knee arthrodesis was performed.
This case highlights the impact of neuropathy on joint stability and pain perception, which likely contributed to the delay in diagnosis. Chronic knee dislocations are rare and pose challenges in management, particularly in patients with underlying neuromuscular disorders. The use of a mini-open approach allowed for controlled reduction while minimizing soft tissue damage.
FAP-associated neuropathy can lead to unusual orthopedic presentations, necessitating a high index of suspicion. Early recognition and tailored surgical management are essential for optimal outcomes.

16:48 - 16:51

855 Does Anterior Cruciate Ligament (ACL) Tear Alter The Lateral Collateral Ligament (LCL) - Bicep Femoris (BF) Angle And Its Radiological Significance?

Arnav Gupta[1], Kapil Shirodkar[2], Suvinay Saxena[3], Jamie Arbuthnot[4], David Beale[5], Karthikeyan P Iyengar[6], Rajesh Botchu[2]

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2. Royal Orthopaedic Hospital, Birmingham, United Kingdom
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4. University Hospitals Birmingham, Birmingham, United Kingdom
5. Heath Lodge Clinic, Knowle, United Kingdom
6. Southport and Ormskirk Hospital, Southport, United Kingdom

Abstract

Introduction

There are multiple indirect signs for predicting ACL tears on imaging, apart from the direct visualization of the tear.

Objective

The primary goal of this study was to assess the correlation between the angle of the LCL-Biceps femoris and ACL injury on MRI and to explore its potential as an ancillary indirect radiological sign.

Materials and Methods

A retrospective cohort study was conducted on 142 consecutive patients who had been referred for an MRI due to suspected ACL and knee injuries. Among the patients examined, 92 had an intact ACL on MRI, whereas 50 had ACL tears. The angle between the LCL and biceps femoris was measured on the sagittal PDFS (proton density fat-suppressed) sequence. Two readers independently measured the angle, and intra-observer and inter-observer reliability were assessed.

Results

The mean angle in the intact ACL group was found to be 28.29° (N=92, SD=6.63, SEM=0.69), while the mean angle in the ACL tear group was 20.24° (N=50, SD=7.13, SEM=1.01). The mean difference between the groups was 8.05° (95% CI=5.69°–10.42°), which was statistically significant with a p-value of less than 0.0001. There was good intra- and inter-observer reliability, with a kappa value of 0.8.

Conclusion

Our study demonstrated a statistically significant trend toward a decreased angle between the LCL and biceps femoris secondary to an ACL tear, owing to the posterior translation of the femur in relation to the tibia. This angle can be used to predict the probability of ACL tears.

16:51 - 16:54

1746 Anterolateral Thigh Chimeric Perforator Flap For Repair Of Large Area Compound Tissue Defect Around Knee

Panfeng Wu

Xiangya hospital, Changsha, China

Abstract
To investigate the feasibility and clinical efficacy of anterolateral thigh perforator flap in repair of large area soft tissue defects around the knee. Methods From January, 2015 to October, 2019, 9 patients with large area soft tissue defects around the knee were treated. According to the size and shape of the wound surface, single leaf or lobulated perforator flap was designed based on the principle that the donor site should be closed directly. The minimum area of the flap was 14.0 cm×5.0 cm, and the maximum was 17.0 cm×9.0 cm+18.0 cm×8.5 cm. The chimeric tissue flap (muscle flap or fascia lata flap) was taken according to the location and severity of joint opening. The grafted tissue flap was used to fill the articular cavity, the flap was used to repair the wound of knee joint, the blood supply of the flap was reconstructed, and a drainage catheter was placed in the cavity of knee joint. Results All flaps survived without vascular incident. The recipient site of skin flap in one patient was not thoroughly washed and drained, and there was more exudation. After dressing change and drainage, the rest recipient areas of the skin flap were healed in stage I. All patients entered 3 to 36 (average 12) months of follow up. The appearance and function of recipient area recovery were satisfactorily. Only a linear scar remained in donor site.

16:54 - 16:57

1898 Comparison Of Rehabilitation Outcomes Between The Slider Device And Conventional Physiotherapy In Total Knee Replacement Patients: A Pilot Study

Jun Wei Lim[1], Stephen Mcdonald[1], Karthikeyan Shanmugan[1], Claire Mcgarvey[1], Andrew Johnston[1], James Bidwell[1], **Mikail Aktas**[2]

1. NHS Grampian, Aberdeen, United Kingdom
2. AI Rehab, Georgia, United States

Abstract
Introduction: Knee osteoarthritis (OA) is a leading cause of disability worldwide, often requiring total knee replacement (TKR) surgery. The effectiveness of physiotherapy before and after TKR significantly impacts recovery, patient mobility, and quality of life.

Aim: To evaluate whether integrating the Slider, an AI-powered rehabilitation device providing real-time feedback on force and motion, could improve clinical outcomes compared to standard physiotherapy alone.

Methods: Eighteen patients undergoing robotic-assisted TKR were divided into two groups: nine used the Slider for daily home exercises alongside standard physiotherapy, while the control group followed only standard physiotherapy. Outcome measures, including range of motion (ROM), Oxford Knee Score (OKS), and patient satisfaction, were assessed six weeks post-surgery.

Results: The preoperative ROM was higher in the Slider group (118° vs. 108°), but postoperative ROM improvement showed only a trend favoring the Slider (104° vs. 89°, p=0.121). Fixed flexion at six weeks was better in the Slider group (1° vs. 5°, p=0.127). The Slider group had slightly shorter hospital stays and similar inpatient physiotherapy sessions. Patient satisfaction was significantly higher (p=0.017), and OKS scores were meaningfully better in the Slider group (39 vs. 33, p=0.045).

Conclusion: These preliminary findings suggest that the Slider may enhance recovery and patient satisfaction when combined with standard physiotherapy. Further research with a larger sample is needed to confirm its benefits, and a cost-effectiveness analysis could determine if the Slider reduces in-person therapy requirements. The Slider may enable healthcare systems to allocate resources more effectively while maintaining quality outcomes for patients.

16:35 - 16:38

1902 Patellar Tendon Rupture Reconstruction Using Autologous Semitendinosus Graft: A Case Report

José Miguel Rodrigues, Tiago Barbosa, César Correia, André Moreira, João Pereira, Joana Azevedo, David Ferreia, Ana Vilela, Pedro Domingues, Pedro Varanda, Pedro Pinho

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Abstract
Introduction
Patellar tendon rupture is a rare but severe knee injury with high morbidity, most commonly affecting men in their 30s and 40s. Complete ruptures compromise the extensor mechanism and typically require surgical intervention. In cases of poor tendon quality—often due to degeneration or chronic conditions—reconstruction with a hamstring graft may be necessary.
Case report
We report the case of a 78-year-old male who sustained a knee trauma, leading to severe anterior knee pain and an inability to extend his right knee. Clinical examination revealed a palpable infrapatellar gap and loss of active knee extension. Ultrasound confirmed a complete patellar tendon rupture. The patient underwent reconstruction using a Krakow suture technique, reinforced with an autologous semitendinosus graft.
Postoperative recovery was uneventful. At one month, the patient achieved 0-90º of knee motion and began partial weight-bearing. By two months, he progressed to 0-100º with full weight-bearing. At five months, he regained 0-120º of mobility and was walking without limitations.
Conclusion
While partial patellar tendon tears may be managed conservatively, complete ruptures require surgical repair to restore function. This case highlights the effectiveness of reconstruction with an autologous hamstring graft, demonstrating a successful functional recovery.
Key Words: Patellar tendon rupture, Extensor mechanism injury, Autologous hamstring graft, Knee reconstruction, Functional recovery

16:32 - 16:35

2078 Extensor Mechanism Disruption Following Total Knee Arthroplasty –A Systematic Review And Limited Proportional Meta-Analysis

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Abstract
Introduction: Extensor mechanism disruption (EMD) following total knee arthroplasty (TKA) is a debilitating complication, with an incidence up to 2.5%. This condition requires surgical management, either by direct repair or reconstruction. Existing literature reports inconsistent outcomes and high complication rates.
Objective: This systematic review and proportional meta-analysis aims to evaluate the management strategies for EMD after TKA, analyzing their outcomes and associated complications.
Methods: A comprehensive search of MEDLINE and Cochrane database (1990–2024) identified studies on EMD management. Studies with Levels of Evidence I–IV with minimum 6 months follow-up, and clear reporting of interventions for EMD were included for evaluation. Data extraction included patient demographics, management, outcomes such as failure rates, complications, extensor lag, range of motion, and ambulation status. Quality appraisal was conducted using the Joanna Briggs Institute checklist.
Results: Using PRISMA 32 studies were selected. Reconstruction outcomes varied by graft type, with allografts and synthetic mesh showing comparable failure rates (~32%). Direct repair showed a higher failure rate (33.9%), particularly for patellar tendon repair (63%). Autograft reconstructions yielded no reported failures. Extensor lag varied across groups, with autografts demonstrating the least lag (5°). Ambulation status improved postoperatively in successful cases, although assisted ambulation was common. Periprosthetic joint infection was associated with high failure rates.
Conclusion: Reconstruction using allografts or synthetic mesh was the most studied modalities with similar outcomes. Autografts and flaps showed potential but require further research due to limited data. Standardized surgical and rehabilitation protocol along with larger prospective studies are needed.
Extensor mechansim, total knee arthroplasty

16:06 - 16:09

2288 Accuracy And Reproducibility Of Intra-Operative Fluoroscopic Measurements For Describing The Femoral Tunnel Aperture Positions In Anatomical ACL Reconstruction - Analysis Using 3D Quadrant Method On Automated 3D Reconstructed Model

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2. Department of Orthopedic Surgery, Gangnam Severance Spine Hospital, Yonsei University College of Medicine, Seoul, South Korea

Abstract
Introduction 1) to introduce a new automated analysis program of 3D quadrant method to find an ideal femoral or tibial tunnel position; 2) to analyze the accuracy of femoral tunnel positioning during anatomical ACL reconstruction with fluoroscopic assistance compared to conventional 3D-CT analysis, and 3) to demonstrate the clinical advantages of fluoroscopy-assisted tunnel positioning in anatomic ACL reconstruction.
Methods A total of 15 patients who underwent DB-ACLR from 2010 to 2014 using the TP and OI techniques were evaluated retrospectively. Routine CT scan was evaluated at 5 days postoperatively in all patients. Femoral tunnel location was calculated using 3 methods included as the quadrant method using fluoroscopic radiographs and conventional 3D-CT images, and 3D quadrant method on automated 3D reconstructed model. For each knee, three independent observers conducted the measurements. Reliability of both measurement techniques of quadrant methods using fluoroscopic radiographs and conventional 3D-CT images was evaluated compared to automated 3D reconstructed model.
Results Taking 0% as the anterior and 100% as the posterior extent, femoral tunnel location measured by 3D quadrant method using automated 3D reconstructed model were 23.1 ± 7.9 % of height and 17.9 ± 4.0 % of depth in AM tunnels, 47.8 ± 6.6% of height and 32.4 ± 6.3% of depth in PL tunnels. We found larger variability and bias in the opinions of what measure a correct femoral tunnel location by 3D quadrant method using conventional 3D-CT images compared than using fluoroscopy. 9.0 % vs.15.6%, of height in AM tunnels, 6.0% vs. 6.9% of

16:19 - 16:22

2867 Novel Intraoperative Classification For Managing Primary Tibial Bone Defects With Total Knee Replacement

Nipun Rana, ONKAR Nath Nagi

SIR GANGA RAM HOSPITAL, New Delhi, India

Abstract
Introduction: Total knee replacement in tibial defect is challenging task, which is classified preoperatively based on plain radiograph, using AORI classification. This study is to describe a novel simple, intraoperative methodology to classify defect and their management after initial proximal tibial resection has been made.
Material and method: It's a retrospective observational study on 33 patients (25 females and 8 males) with a mean age group of 65 years (45 to 70 years) who were operated using standard mid vastus TKR approach for medial and posterior-medial tibial defects.
The medial tibial plateau (excluding the osteophytes) was divided in sagittal plane into three equal segments (medial - Zone 1, middle- Zone 2 and lateral – Zone 3). The treatment was classified based on the defect residing in either/all of the three segments, after taking the adequate tibial resection.
Results: We found zone 1 defect in 10 patients, zone 2 defects in 14 patients and in zone 3 defect in 9 patients. The rationale of management of zone 3 was to use bone graft and stem extenders, whereas zone 1 were managed using reduction osteotomy.
Conclusion: In our experience this classification gives a simplified approach to understand the biomechanics of the stability of the implant over the residual bone stock and helps in taking judicious decision intraoperatively. Compare to AORI classification, which may under/overestimate the defect size, this method gave us quick true anatomical inference.

16:41 - 16:44

3083 Does Pre-Operative Muscle Strength Affect The Outcomes Of Anterior Cruciate Ligament Reconstruction? A Systematic Review Of The Literature

Lara Abraham[1], Jessica Treves[1], **Raunak Khanduja**[1], Ignatius Liew[2], Arman Memarzadeh[2]

1. University of Cambridge, Cambridge, United Kingdom
2. Cambridge University Hospitals, Cambridge, United Kingdom

Abstract

Background:
Anterior cruciate ligament (ACL) injuries commonly lead to reconstructive surgery followed by extensive rehabilitation. Several factors, including pre-operative muscle strength training, can influence the success of ACL reconstruction (ACLR). These factors subsequently affect return-to-sport (RTS) and patient reported outcomes (PROMs).

Aim:
This systematic review and meta-analysis aims to analyse available literature on the association between pre-operative muscle strength and post-ACLR outcomes.

Methods:
The following databases were searched from inception to 4th April 2024: OVID MEDLINE, Embase, Cochrane CENTRAL, and Web of Science. 471 studies were identified, and duplicates removed, yielding 278 studies for screening following PRISMA guidelines. Inclusion criteria involved adults with unilateral injury to the ACL undergoing primary ACLR. Studies with <6-month follow up were excluded. Data extraction was performed by two researchers and 9 studies were included in the final analysis. All were prospective studies with follow up times of 6-24 months. A narrative review was conducted as the data were too heterogeneous for meta-analysis.

Results:
1,700 participants were included across nine studies, six showed a significant correlation between pre-operative muscle strength and post-operative outcomes at 6-12 months. 5/6 studies (83.3%) reported a positive correlation with post-operative muscle strength. Two studies commented on the predictive value for RTS, with only one showing statistical significance (50%). One study demonstrated a significant correlation with PROMs using the Cincinnati Knee Score (100%).

Conclusion:
This review highlights the role of preoperative quadriceps muscle strength in shaping the outcomes of ACL reconstruction, which can help inform prehabilitation protocols.

16:25 - 16:28

3100 Clinical And Radiological Outcomes Of Total Knee Arthroplasty For Excessive Varus Deformity

Nidhal Mathlouthi, Khaled Zitouna, Maher Malouche, Mahdi Ben Ayed, Khlif Mohamed Ali, Maher Barsaoui

La Rabta Hospital, Tunis, Tunisia

Abstract
Introduction: Total knee arthroplasty (TKA) for severe genu varum (> 20°) presents major technical challenges due to bone deformities and ligament imbalance. Correcting these deformities requires a precise surgical approach. The aim of this study was to examine the different aspects of management, the specific problems encountered, and the clinical and radiological outcomes obtained.
Methods: This was a retrospective study of 42 patients who underwent total knee arthroplasty between January 2014 and December 2023 for osteoarthritis with genu varum greater than 20°, either unilaterally or bilaterally (10 patients underwent bilateral TKA), with a minimum follow-up of 12 months. We collected epidemiological, clinical, and radiological data preoperatively, postoperatively, and at the final follow-up.
Results: We identified 33 women and 9 men with an average age of 67.87 years. Degenerative osteoarthritis was the predominant pathology (75%). Preoperative analysis revealed a poor IKS score for all patients. Ligamentous laxity was observed in 31 cases. The mean HKA angle was 157.10°. Intraoperatively, bone defect filling was performed in 24 cases, including three requiring wedges. Ligament release was necessary in 73% of cases. At the final follow-up, the mean postoperative total IKS score was 155.36 points, and the mean postoperative flexion was 119.08°. The mean postoperative HKA angle was 178.04°, with a correct realignment rate of 69.23%.
Conclusion:Total knee arthroplasty for excessive varus requires meticulous preoperative planning to assess the respective roles of ligament retraction and bone wear in the development of this deformity. This planning helps anticipate intraoperative challenges and determine the sequence of ligament releases.

16:09 - 16:12

597 Enhanced Postoperative Recovery With All-Inside ACL Reconstruction: Superior Graft Fixation And Accelerated Rehabilitation Compared To Traditional Techniques

Cumhur Deniz Davulcu, **Derya Akbaba**, Erdem sahin, Nuri Aydin

Istanbul University-Cerrahpasa, Istanbul, Türkiye

Abstract
Introduction:This study evaluates the all-inside ACL reconstruction technique, emphasizing its superior graft fixation strength and uniform stress distribution compared to traditional methods.
Objectives:This study aimed to assess the benefits of the all-inside technique in terms of early mobilization, knee flexion preservation, immediate weight-bearing capacity, pain reduction, and faster return to daily activities.
Study Design & Methods:In this prospective study conducted at a single tertiary care center, 42 patients (33 males, 9 females; aged 17-46) with complete ACL ruptures underwent all-inside ACL reconstruction between July 2023 and December 2024. All surgeries were performed by the same surgeon using minimally invasive technique involving retrograde reamers to create femoral and tibial sockets.Semitendinosus autograft was secured with suspensory fixation devices. Postoperatively, protocols focused on immediate mobilization, unrestricted knee flexion,full weight-bearing, alongside accelerated rehabilitation program with early physiotherapy interventions.

Results:Patients showed rapid recovery, achieving full knee flexion and weight-bearing early postoperatively. Pain levels, assessed using Visual Analog Scale(VAS), were significantly lower than those reported in traditional ACL reconstruction. Early physiotherapy led to swift functional improvements, allowing patients to return to daily activities and social engagements sooner. No complications occurred,and graft integrity was maintained throughout the follow-up period.
Conclusions:All-inside ACL reconstruction technique offers significant postoperative benefits over conventional methods. Advantages include early mobilization, preservation of knee flexion range of motion, immediate full weight-bearing capacity, reduced pain levels, and a quicker return to daily activities. These findings support the adoption of all-inside technique as a superior approach for ACL reconstruction, promoting enhanced patient outcomes and satisfaction.

16:16 - 16:19

2319 One-Stage Revision Of Septic Prostheses Using Antibacterial Hydrogel-Coated Prostheses: Results At 7 Years Follow-Up.

CARLO Luca Romano[1], DELIA Romano[2], LUIGI Bonomo[3], GIULIO Bonomo[3], NICOLA Luca Logoluso[2]

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2. IRCCS GALEAZZI, Milano, Italy
3. Universitatea de medicina Victor Babes din Timisoara, Timisoara, Romania

Abstract
Introduction Single-stage revision offers significant advantages over two-stage procedures, provided that comparable results can be achieved regarding infection control. New antibacterial coatings help reduce bacterial adhesion and biofilm formation, opening new therapeutic possibilities. The aim of this study is to evaluate the safety and efficacy of the resorbable antibacterial coating DAC® (Novagenit Srl) for the single-stage treatment of septic knee joint prostheses.
Materials and Methods
A total of 30 patients (11 males, 19 females) who underwent single-stage reimplantation for septic knee prosthesis in year 2017-2018 were included in this retrospective study. In all cases, the reimplantation was performed after the removal of the infected prosthesis and thorough excision of all infected and necrotic tissues, using non-cemented or hybrid (partially cemented) prostheses coated with the DAC® antibacterial hydrogel, intra-operatively augmented with vancomycin and 5% meropenem.
Results
At an average follow-up of 7.5 years, one patient (4.2%) presented clinical and laboratory signs of infection recurrence and one more underwent implant revision for aseptic loosening, while the remaining patients showed no clinical or instrumental signs of infection or prosthetic loosening. No side effects related to the use of the antibiotic-coated antibacterial hydrogel were observed.
Discussion
This is to our knowwledge the longest observation study after one-stage knee revision surgery using the DAC coating. The results show that the antibacterial coating is safe and effective with long-term no infection recurrence rate exceeding 95% of the cases.

16:38 - 16:41

2064 RISKS FOR REOPERATION IN PERIPROSTHETIC TOTAL KNEE DISTAL FEMUR FRACTURES

Anton Denisov, Adam Schlauch

The Taylor collaboration, San-Francisco, United States

Abstract
Distal femur fractures around a total knee arthroplasty (TKA) are increasingly encountered by orthopaedic surgeons. Understanding the risk factors for nonunion following open reduction and internal fixation (ORIF) is crucial for optimizing patient outcomes. This study aimed to identify independent risk factors associated with reoperation to achieve union in TKA periprosthetic distal femur fractures (PDFF).
Methods.
A retrospective review was conducted on patients with PDFF (AO 33A-C[VB1, C1, D1], Su types 1-3) treated with ORIF. Patients were excluded if they underwent acute distal femur replacement, had less than six months of follow-up, or lacked necessary imaging. The primary outcome was reoperation for nonunion. Univariate analysis identified variables for multivariate analysis to determine independent risk factors.
Seventy-seven patients met inclusion criteria, with a union rate of 89.6% (69/77). No significant differences were found between reoperation and non-reoperation groups in terms of age, sex, BMI, comorbidities, Su classification, open injury, or mechanism of injury. Multivariate analysis identified five independent risk factors for nonunion:
• Post-operative malalignment (OR 1.41; $p<0.001$)
• Pre-operative notching (OR 1.22; $p=0.012$)
• Screws through fracture line (OR 1.28; $p<0.001$)
• Plate length <12 holes (OR 1.16; $p=0.024$)
• Screw density >40% (OR 2.18; $p=0.006$)

Conclusion
The reoperation rate for nonunion was 10.4%. Post-operative malalignment, pre-operative notching, screws through the fracture line, shorter plate length, and high screw density were identified as significant risk factors for nonunion. Optimizing surgical techniques may reduce the need for reoperation.

16:03 - 16:06

521 Is Every Revision The Same? Definition Of Complexity Of Knee Revision Surgery

Emilio Ferrari, Luca Cavagnaro, Valentina Providenti

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Abstract
Introduction
Revision Total Knee Arthroplasty (rTKA) is a complex procedure, requiring advanced surgical skills.

Aim & Objectives
This study evaluates clinical and radiological outcomes and complication rates in patients undergoing rTKA, defining complexity criteria.

Study Design & Methods
Patients who underwent rTKA from 2018 to 2020 with a minimum 2-year follow-up (FU) were analyzed. They were classified into Simple (Group A) and Complex Knee Revisions (Group B) based on the presence of ≥2 of the following criteria: bone deficiency, re-revision, soft tissue impairment, knee stiffness, infection, or fracture requiring revision. Demographics, surgical complexity, clinical and radiological outcomes, and complications were assessed.

Results
The study included 50 patients (26 in Group A, 24 in Group B). Mean FU was 50.2 vs. 49.5 months. Significant differences were found in operative time (110.2 vs. 200.4 min; p=0.0027), blood loss (2328.5 vs. 3014.2 ml; p=0.0008), and blood transfusions (2.1 vs. 3.6 units; p=0.0001). Patient Reported Outcomes improved in both groups, but postoperative KSS (84.2 vs. 75.3; p=0.001), KOOS-ADL (68.4 vs. 63.1; p=0.03), and Quality of Life (QoL) (54.4 vs. 46.9; p=0.02) were significantly lower in Group B. Complication rates were higher in Group B (37.5% vs. 11.5%), including quadriceps tendon rupture, infection recurrence, aseptic loosening, stiffness, and wound complications.

Conclusions:
Complex rTKA requires greater surgical efforts, but acceptable clinical and radiological outcomes can be achieved. Early identification of complexity criteria is essential for effective surgical planning and improved clinical networking in knee revision surgery.

Keywords: rTKA, complex knee revision surgery.

Wednesday, 3 September

Sports Medicine 2
17:06 - 17:09

1231 Arthroscope-Assisted Resection Of A Lesion In Cuboid-Navicular Coalition: A Case Report

Maiko Yasumizu, Hiroki Yabiku, Kotaro Higa, Fuminari Uehara, Takashi Toma, Chinatsu Azuma, Kotaro Nishida

University of the Ryukyus Hospital, Ginowan City, Japan

Abstract
【Introduction】
Tarsal coalition is one of the causes of hindfoot and midfoot pain, mainly in young patients who participate in sports. It is relatively rare, with a reported prevalence of 1-6%. Furthermore, there are only a few reports on the cuboid-navicular coalition. In this case, we performed an arthroscope-assisted resection of the lesion and achieved favorable short-term clinical outcomes.
【Case report】
An 11-year-old male soccer player presented with right hindfoot pain. Examination revealed tenderness between the cuboid and navicular bones, with pain elicited by passive foot supination. Computed tomography showed abnormal cuboid-navicular contact with degenerative changes, including sclerosis and bone cysts. The preoperative American Orthopaedic Foot and Ankle Society (AOFAS) ankle-hindfoot scale score was 66 points.
As conservative therapy was ineffective, we performed arthroscope-assisted resection of the lesion. After one week of non-weight-bearing with a lower leg splint, range of motion training and weight-bearing were initiated as tolerated. The patient returned to play five weeks postoperatively.
Five months after surgery, he was able to play soccer without pain, and the AOFAS score has improved to 100 points.
【Discussion】
The cuboid-navicular coalition is located deep in the midfoot, with the talonavicular and calcaneocuboid articular surfaces close to the lesion. Arthroscopic instruments facilitated clear visualization and precise resection in the narrow surgical field, allowing complete lesion removal without adjacent articular damage.

17:00 - 17:03

944 Arthroscopic Debridement For Dysplasia Epiphysealis Hemimelica Of The Ankle Joint: A Case Report

Hiroki Yabiku, Maiko Yasumizu, Kotaro Higa, Takashi Toma, Fuminari Uehara, Chinatsu Azuma, Kotaro Nishida

Department of Orthopedic Surgery, Graduate School of Medicine, University of the Ryukyus, Okinawa, Japan

Abstract
(Introduction)
Dysplasia epiphysealis hemimelica (DEH) is an abnormal overgrowth of the epiphysis on one side of the body, most commonly affecting the joints of the lower extremities. It is a rare condition with an incidence of 1 in 1,000,000 and can lead to arthritis, deformity, and leg length discrepancy. In this case, we performed an arthroscopic resection of the lesion for DEH in a minimally invasive manner and achieved favorable short-term clinical outcomes.
(Case Report)
A 12-year-old boy presented to our hospital with right ankle pain. Having been diagnosed with DEH at age 10, he underwent two open resections, but the pain recurred six months later. Physical examination revealed a dorsiflexion (DF) limitation and tenderness in the ankle joint. Plain radiographs and computed tomography showed an epiphyseal outgrowth on the anterior margin of the tibial articular surface accompanied by free bodies. The preoperative American Orthopaedic Foot and Ankle Society (AOFAS) ankle-hindfoot scale score was 39 points. We performed an arthroscopic resection of the lesion. Three years postoperatively, he remains pain-free in daily life and can play table tennis. DF improved from 3 degrees to 10 degrees, and the AOFAS score reached 100 points.
(Discussion)
In general, patients with symptomatic DEH require resection of the lesion. However, achieving complete resection can be challenging in cases where DEH affects a large portion of the articular surface, often requiring repeated surgeries until skeletal maturity. Therefore, minimally invasive arthroscopic surgery is a valuable option for patients with DEH.

16:12 - 16:15

1544 ONE-STAGE CARTILAGE REPAIR BY LIPO-AMIC TECHNIQUE: STABLE RESULTS AT 5 YEARS FOLLOW-UP

Fabio Valerio Sciarretta

Clinica Nostra Signora della Mercede, Rome, Italy

Abstract
Background: Focal articular cartilage lesions are common and result in development of knee OA. To improve patients outcomes,, biologic augmentation procedures have been investigated and become of actual interest.
Objectives: To evaluate medium term outcomes of knee cartilage defects repair by the LIPO-AMIC technique.
Study Design & Methods: The LIPO-AMIC technique has been used for the treatment of ICRS degree III-IV knee focal cartilage defects. Eighteen patients have been prospectively evaluated during two and five years, clinically and by MRI. Mean age of the patients (5 females, 13 males) was 43,9 years (range 31-58).
Results: Patients showed significant improvement of all scores starting at 6 months and further increased values were noted till last follow-up at 60 months.
Mean subjective pre-operative IKDC score of 36,1 significantly increased to 86,4 at 24 months and to 87,2 at 60 months.
Mean pre-operative Lysholm Score of 44,4 reached 93,5 at 2 years and 93,5 at 5 years.
Mean total MOCART score showed a significative improvement from 69,1 points at 2 year follow-up to 81.9 points at last f-up.
Complete filling of the defect at the level of the surrounding cartilage was found in 77.8 %.
Conclusions: Adipose tissue can represent ideal source of MSCs due to easiness of withdrawal and reported chondrogenic capacity.
The LIPO-AMIC technique is feasible as treatment of knee cartilage defects, resulting in statistically significant progressive clinical, functional and pain improvements in all treated patients better than what reported for the standard AMIC technique.

16:00 - 16:03

1591 A Study On The Functional Outcome Of Anterolateral Rotational Instability Of Knee Treated With Combined Anterior Cruciate Ligament And Anterolateral Ligament Reconstruction

Parichay Sharma[1], Varun Wade[2], Nilesh Vishwakarma[3], Kuldip Raj Salgotra[3], Vasu Jindal[3], Chinmay Naidu[3]

1. Jupiter Hospital, Thane, India
2. Seven Hills Hospital, Mumbai, India
3. MGM Medical College & Hospital, Navi Mumbai, India

Abstract

Introduction: The ACL, which mainly works to stop the tibia from anteriorly translating onto the femur while the knee is in flexion, provides up to 85% of the anterior stability. Cutting or pivoting actions, in which an athlete plants a foot and abruptly changes direction, can result in an ACL tear. Anterolateral Ligament (ALL) is important for rotational and anterior stability around the knee. Remaining anterolateral rotatory instability after ACL reconstruction spurred research into the functional role of the ALL and the development of surgical techniques to address it. Up to 25% of ACL reconstruction patients have been shown to have relative rotational instability.

Aims & Objectives: The purpose of the research was to assess the functional result of treating anterolateral rotational instability of the knee with combined ACL and ALL reconstruction, and to investigate potential complications associated.

Materials & Methods: Anterior Cruciate Ligament injuries were diagnosed clinically and radiologically in 144 patients admitted to a tertiary care hospital. These patients underwent arthroscopic ACL and ALL reconstruction, and their functional outcome was assessed over time using the Tegner Lysholm knee score and IKDC score.

Results: Tegner Lysholm knee score climbed to 91.41 (SD = 4.92) and IKDC score increased to 88.31 (SD = 5.22) during the 6-month follow-up. The Tegner Lysholm knee score (F-stat=244.665, $p < .001$) and the IKDC score (F-stat=203.475, $p < .001$) both show a substantial rise.

Conclusion: Anterolateral rotational instability of the knee can be effectively treated with a combination of anterior cruciate ligament and anterolateral ligament reconstruction.

16:53 - 16:56

2235 Is Internal Brace Augmentation (IBA) Better Than Isolated Modified Brostrom Gould (IMBG) Procedure For Chronic Lateral Ligament Injury: Effect On Functional Outcomes And Return To Preinjury Activity. A Retrospective Analysis

Mohammad Salim[1], Vishal Upadhyay[1], Mohit Sethi[1], Rajiv Limaye[1], **Hermant Sharma**[2]

1. University Hospital of North Tees and Heartlepool NHS Foundation Trust, Stockton-On-Tees, United Kingdom
2. County Durham and Darlington NHS Trust, Darlington, United Kingdom

Abstract
Introduction : Inversion injuries to the ankle leading to lateral ligament injury are very common in the sporting and non-sporting population. Surgical intervention is the gold standard for symptomatic patients that fail conservative management. Internal brace (which is a braided ultrahigh molecular weight polyethylene ligament) has been used to enhance the MBG repair. Several studies have shown good functional outcome and early rehabilitation with IBA.

Aim : Compare the results of MBG repair with and without IBA.

Methods : 213 patient retrospective, single centre, single surgeon study from Nov 2017 to Feb 2023. Diagnosis confirmed by MRI. Symptomatic patients that failed 6 months of rehab were included. All patients were examined under anaesthesia, underwent arthroscopy followed by open procedure (either IMBG or MBG with IBA) followed by dedicated post-op rehab. Scoring was done with the Manchester-Oxford Foot Questionnaire (Foot and Ankle) Score (MOxFQ - foot and ankle).

Results : 183 patients were available for final follow up. 108 had IMBG while 75 had IBA procedure. Mean age: 38 years. Mean follow up: 22months. IBA group showed better MOxFQ (foot and ankle) scores (19.7 vs 18.2) with more patients returning to pre-injury activity levels (103 vs 80) as compared to IMBG group.

Conclusion : IBA with MBG repair facilitated early rehabilitation and return to preinjury activity levels in majority of patients.

16:50 - 16:53

2218 Medium Term Results Of Open Autologous Matrix Induced Chondrogenesis (AMIC) Procedure In Osteochondral Lesions Of The Talus

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1. University Hospital of North Tees and Heartlepool NHS Foundation Trust, Stockton-On-Tees, United Kingdom
2. County Durham and Darlington NHS Trust, Darlington, United Kingdom

Abstract
Introduction : 60% of the talus is covered by cartilage. Sports injuries and trauma can lead to osteochondral lesions (OCL) of the talus, which inherently has poor regenerative capacity.

Aim : Evaluate medium term functional outcome of AMIC procedure for OCL of the talus and correlate them with the size of lesion, patient age, functional outcome and failures.

Methods : 25 patient retrospective, single centre, single surgeon study from Jan 2015 to Feb 2023. Pre-operative standing radiographs and MRI followed by post-op MRI for all patients. Intraoperative debridement/ microfracture combined with Chondro-guide (type I/III porcine collagen matrix) application with fibrin glue. Pre and Post-op American Orthopaedic Foot and Ankle Score (AOFAS) and Visual Analogue score were done at 3, 6 and 12 months

Results : Mean age: 36 years. Mainly etiology: trauma (92%). Mean follow up: 24 months (95% CI- 19.80 - 28.28). Mean OCL size: 1.74 cm2. Mean pre and post-op AOFAS score difference : 49.40 (CI- 53.21 - 45.59) ($p<0.05$) and VAS score difference: 5.36 (CI- 4.75 - 5.97) ($p<0.05$)

Conclusion : AMIC procedure for OCL >1 cm2 is a single step surgical technique with excellent to good results

17:03 - 17:06

677 Enhancing Predictive Accuracy In Ankle Arthroplasty Outcomes Using Machine Learning

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Abstract
INTRODUCTION:
Machine learning (ML) methods are increasingly applied to predict postoperative outcomes in orthopedic surgery, yet their effectiveness in ankle arthroplasty remains underexplored. This study evaluates the applicability of ML algorithms in predicting prolonged length of stay (LOS) following ankle arthroplasty using a national surgical outcomes database.
METHODS:
The NSQIP PUF database (2015–2022) was queried for ankle arthroplasty cases using CPT codes 27700, 27702, and 27703, identifying a final cohort of 2,650 patients.
Four ML algorithms—Support Vector Machines (SVM), Logistic Regression, Random Forest, and XGBoost Classifier—were trained to predict prolonged LOS, which was defined as any stay exceeding the 75th percentile (≥2 days) in the dataset. Preoperative variables included demographics, functional status, medical history, and laboratory values.
Hyperparameter tuning was conducted using GridSearchCV, and feature importance was assessed via permutation importance.
RESULTS:
The SVM classifier exhibited the highest predictive performance (AUC = 0.67). The strongest predictor of prolonged LOS was operative time (mean feature importance [mFI] = 0.0907). After excluding operative time, key predictors included age (mFI = 0.0185), preoperative creatinine levels (mFI = 0.0150), dyspnea (mFI = 0.0143), sex (mFI = 0.0122), and preoperative serum sodium levels (mFI = 0.0120).
CONCLUSION:
Despite moderate predictive accuracy, model performance suggests potential class imbalance and unaccounted confounders. Future research should incorporate a larger dataset and additional clinical variables to improve risk stratification. These findings highlight the potential of ML in perioperative decision-making for ankle arthroplasty patients.

17:09 - 17:12

2410 Postoperative Outcomes Of Primary Treatment For Scapholunate Ligament Injury Associated With Distal Radius Fractures

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2. Takita Hospital, Nara, Japan
3. Nara Medical University, Nara, Japan

Abstract
Introduction:
Scapholunate (SL) ligament injury associated with distal radius fractures can affect postoperative outcomes. At our institution, we perform arthroscopic examination of the dorsal SL ligament via the MCRV portal. Thermal shrinkage is done for ligament laxity, and ligament reconstruction using DICL capsulodesis is performed in case of rupture.
Aim:
This study evaluates postoperative outcomes of primary treatment for SL ligament injuries associated with distal radius fractures and compares them with outcomes from cases without SL ligament injury.
Methods:
We reviewed 254 consecutive distal radius fracture cases surgically treated at our institution. All patients underwent arthroscopic examination of the dorsal SL ligament. Excluded were cases with degenerative changes like CPPD deposition. Thermal shrinkage was performed for ligament laxity, and ligament repair using bipedicle capsulodesis was done for ruptures. A control group of 30 age- and sex-matched patients without SL ligament injury was included. Outcomes assessed included joint range of motion, grip strength, patient-reported outcomes (qDASH, PRWE, Hand 20), and SL distance and angle on X-rays.
Results:
SL ligament injury was found in 56 cases (22%). Of these, 11 cases underwent primary SL ligament repair. The mean postoperative range of motion was 83° for wrist extension, 79° for flexion, 90° for forearm pronation, and 89° for supination. Average grip strength was 100% of the unaffected side. No significant differences were found between the treatment and control groups in any outcomes.
Conclusions:
Primary treatment for SL ligament injury resulted in postoperative outcomes similar to cases without SL ligament injury.

17:16 - 17:19

2891 Results Of Arthroscopic Transosseous Outside-In Reinsertion Of « R1 Type » TFCC Foveal Avulsion

Guillaume Herzberg[1], Marion Burnier[2], Lyliane Ly[3]

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2. Médipole, Villeurbanne, France
3. Hopital Herriot, Lyon, France

Abstract
Introduction/Aim
Wrist arthroscopy has become the elective diagnostic and therapeutic tool for TFCC acute and chronic disorders.
Traumatic TFCC foveal avulsion is a well known entity called « R1 » in the most recent classification. Our Aim is to report our experience with an trans-osseous technique for repair of TFCC foveal avulsion.

Methods
Between 2012 and 2024, one surgeon performed 104 wrist arthroscopies for TFCC disorders.
All foveal avulsions (R1) were reinserted according to Nakamura's technique (1).
A total of 20 arthroscopies were performed at the acute stage for TFCC
disorders
A total of 84 arthroscopies were performed at the chronic stage (average 22 months delay)

Results
There were no complications, reoperations or residual DRUJ instabilities in the 10 acute cases
The average Lyon wrist score which includes the forearm active motion and strength was 91 (excellent).
There was 1 residual DRUJ instability, 2 persistent wrist pain, 1 RSD, 2 suture granuloma in the 34 chronic cases treated with trans-osseous technique for repair of TFCC foveal avulsion.
The average Lyon wrist score which includes the forearm active motion and strength was 83 (good).

Discussion
Fixation of TFCC avulsions at the acute stage is controversial. We present a series with adequate follow-up showing that it may be a useful adjunct to the surgical treatment of an acute wrist injury.
This study also suggests that arthroscopic trans-osseous fixation is a feasible technique to treat DRUJ instability. Only one case (3%) was not adequately stabilized.

16:06 - 16:09

2069 Complications When Performing The Trans-Septal Approach For Posterior Knee Arthroscopy

Mahdi Ghenaiet[1], Nabil Akroune[1], Redouane Si Larbi[2], Amina Hadad[1], Ahcene Said Ouamer[1], Amel Djerbal[1]

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2. SMS orthopedic center Bach Djerrah, Algiers, Algeria

Abstract

Introduction

This study will report the vascular and nervous complications associated with the transseptal approach.

Materials and Methods

This is a prospective, single-center, study conducted between September 2019 and december 2024, including 75 knees operated on under arthroscopy.
First we startes with classic anterior approachs then we performed the posteromedial and posterolateral approachs. Finally the septum is resected allowing posterior triangulation. The indications for this approach were: 48 cases of left posteromedial ramp lesions, 11 PCL reconstructions, 7 symptomatic popliteal cysts, 4 PCL cysts, 4 cases of villonodular synovitis, and 1 posterior nodule.

Results

In our series, males were the majority, with 68 men and 7 women. The average follow-up was 26 months, with a range of 6 to 53 months. Regarding vascular injuries, we had two cases of injury to the posteroinferior capsular branches due to capsular detachment during the creation of the PCL tibial tunnel. Paresthesia in the territory of the sartorial branch of the saphenous nerve was noted in 3 patients, which resolved by the 3-month follow-up. No injuries to the common peroneal nerve were reported.

Conclusions

Based on these results, we can recommend this method for performing the trans-septal approach, which requires a thorough understanding of posterior anatomy, adherence to the steps of the procedure, and the selection of appropriate indications.

16:15 - 16:18

700 Far-Lateral Approach Of Arthroscopic-Assisted Uni-Portal Spinal Surgery: A New Endoscopic Technique For The Treatment Of Far Lateral Disc Herniation

En Song

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Abstract
Introduction: Arthroscopic-assisted uni-portal spinal surgery (AUSS) as a new endoscopic technique has both working and observation channels, but both are located in the same incision, and each channel can move freely.
Objectives: The purpose of this study was to describe the technique of far-lateral approach of AUSS for the treatment of far lateral disc herniation (FLDH) and to analyze early clinical results after endoscopic discectomy.
Methods: A total of 38 patients of a single center surgically treated for FLDH between 2022 and 2023 were retrospectively included in this study. All patients underwent AUSS discectomy via far lateral approach.The pre/post-operation neurological function and pain status were evaluated by VAS and ODI, blood loss and complication rates were examined as indicators for clinical outcomes and adverse events.Patients were followed up at intervals of preoperative, postoperative 1 week, 1 months, 3 months, last follow-up.
Results: The procedure was successfully performed in all cases. The mean operative time was 35.8 minutes. The mean quantity of bleeding was 40 mL.The preoperative symptoms were alleviated significantly after surgery. All the standardized measures improved significantly. At the last follow-up, including VAS score (7.1±1.1 to 1.1±0.3; $p<0.001$) and ODI (71.1 to 9.3; $p<0.001$). There was no postoperative complication.
Conclusion: The far-lateral approach of AUSS technique was a feasible and advantageous endoscopic technique for the treatment of FLDH. AUSS may be considered as an alternative surgical treatment for FLDH.
Key words
Arthroscopic-assisted uni-portal spinal surgery ; far-lateral approach ; far lateral disc herniation

16:18 - 16:21

2903 Proximal Hamstring Avulsion Tear: Is Speed-Bridge Technique A Viable Option For This Condition?

Naveen Lokikere, Sameer Khateeb Mohammed

Sports Orthopedics Institute, Bangalore, India

Abstract
Introduction: Proximal hamstring avulsion injury is a debilitating condition with very few treatment options. Variety of techniques of fixation have been described but there is very limited evidence reporting the outcomes of the repair.

Aims and objectives: We report the outcome of a patient treated with Speed-bridge technique for proximal hamstring avulsion tear.

Study design and methods: A 34-year-old male presented with a proximal hamstring tear with bruise in the gluteal area. This was confirmed by clinical examination and MRI scan. A palpable defect was felt and the tendon was retracted by about 3 cm on the MRI Scan. He underwent proximal hamstring repair using the Speed-bridge technique using 4 bio-suture anchors. The ischial bone was prepared and the Speed-Bridge technique helped to compress the tendon onto the bone. He was allowed early mobilization. He was advised to refrain from doing active and passive straight leg raising for the first 6 weeks.

Results: At 3 months the patient had full recovery in terms of ROM and was able to walk outdoors. At 6 months he was able to return to high intensity activities such as running. Repeat MRI scan at 6 months showed good healing of the hamstring tendon to the ischial bone.

Conclusion: We conclude that the Speed-bridge technique of fixation is a good option for proximal hamstring tear repair. Long term outcomes need to be ascertained.

Keywords:
Hamstring tear, Speed-bridge technique, Hamstring avulsion, Tendon repair.

16:21 - 16:24

1586 A Study On The Functional Outcome Of Rotator Cuff Injuries Treated With Arthroscopic Rotator Cuff Repair

Parichay Sharma[1], Nilesh Vishwakarma[2], Sarabjeet Singh Kohli[2], Vasu Jindal[2], Chinmay Naidu[2]

1. Jupiter Hospital, Thane, India
2. MGM Medical College & Hospital, Navi Mumbai, India

Abstract

Introduction: The four muscles that make up the rotator cuff group are the supraspinatus, infraspinatus, teres minor, and subscapularis. These muscles originate from the scapula and insert as tendons at the humerus' tuberosities, where their tendons merge with the glenohumeral joint's subjacent capsule. Cuff injuries is part of a spectrum of shoulder related disorders. With thousands of arthroscopic cuff repairs performed annually throughout the world, rotator cuff surgery is a rapidly developing branch of orthopaedics that is now recognised as a subspecialty and even an independent, highly specialised field. These procedures have a substantial impact on patient outcomes, surgical department profitability, and the innovation drive of orthopaedic companies.

Aims & Objectives: To evaluate the clinical and functional outcome in Rotator Cuff Injuries treated with Arthroscopic Single Row Rotator Cuff Repair and to study the complications of Arthroscopic Rotator Cuff Repair postoperatively, if any.

Materials & Methods: 156 patients with rotator cuff tears were identified clinically and radiologically in a tertiary care hospital and treated with Arthroscopic single row rotator cuff repair and the UCLA Shoulder Score was used to evaluate the outcome of the treatment.

Results: It was observed that the mean pre-operative UCLA score was 20.31 ± 2.75 while the post-operative score was 29.51 ± 1.94. The post-operative scores were significantly higher than the pre-operative score; P value: less than 0.001.

Conclusion: Arthroscopic rotator cuff repair can be concluded as a good modality of treatment for patients with tears, resulting in symptomatic as well as clinical improvement.

16:28 - 16:31

1688 Mid-Term Effectiveness Of LU-Tarjet Procedure For Recurrent Anterior Shoulder Dislocation

Rubing Lin Rubing Lin

Shenzhen Children's Hospital, Shenzhen, ??

Abstract
Objective :To evaluate the mid-term effectiveness of limited unique coracoid osteotomy suture button fixation Latarjet (LU-tarjet) procedure in treatment of recurrent anterior shoulder dislocation. Methods Between March 2017 and February 2019, 56 patients with recurrent shoulder dislocation were treated with arthroscopic LU-tarjet procedure. There were 44 males and 12 females with an average age of 26.3 years. Shoulder joint dislocation occurred 2-16 times, with an average of 7.5 times. The time from the initial dislocation to operation ranged from 6 months to 13 years, with a median of 4.6 years. Preoperative shoulder joint fear test and re-reduction test were positive in all patients. The Beighton score of joint relaxation ranged from 1 to 7, with an average of 4.1. The shoulder Instability Severity Index Score (ISIS) ranged from 5 to 10, with an average of 7.8. The size of glenoid defects on the affected side ranged from 15% to 32% . All patients had Hill-Sachs injuries of varying degrees. Six patients had re-dislocation after Bankart surgery. The range of motion and muscle strength in shoulder flexion, abduction, external rotation, and internal rotation) of shoulder joint were compared between pre- and post-operation. The improvement of shoulder function was evaluated using the American Association for Shoulder and Elbow Surgery (ASES) score, Walch-Duplay score, and Rowe score. X-ray films and three-dimensional CT were used to analyze the location,healing.Conclusion:LU-tarjet procedure for recurrent anterior shoulder dislocation has good mid-term effectiveness with short operation time and few complications.

16:34 - 16:37

2895 OUTCOME ANALYSIS OF ADOLESCENT ANTERIOR SHOULDER INSTABILITY TREATED WITH EARLY ARTHROSCOPIC STABILIZATION – A CASE SERIES

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Abstract
Purpose: To analyse the outcomes of early arthroscopic stabilization in adolescents with anterior shoulder instability involved in competitive sports.
Methodology: Five patients between 13-15years of age, with anterior shoulder instability secondary to sports related injuries were enrolled. Clinical and radiological investigations revealed isolated Bankart lesion with associated Gleno labral articular disruption (GLAD) in one patient and Bankart's with Hill-Sach defect in four patients. The mean time to surgery was 4 months. They were treated with early arthroscopic Bankart repair +/- remplissage. The mean follow up was 1 year. Preoperative and postoperative, patient reported surveys such as the shortened version of the Disabilities of the Arm, Shoulder and Hand (QuickDASH) score and Paediatric/Adolescent Shoulder Survey (PASS) were analysed.
Results: The mean postoperative QuickDASH score improved from 38.63 to 15.6 and the PASS score improved from 56 to 36.8. None of the patients reported subluxation/ dislocation post stabilization.
Conclusion: This study demonstrates that early arthroscopic stabilization leads to excellent outcomes, high return to sports rate and higher patient satisfaction.

16:37 - 16:40

988 The Relationship Between Mechanoreceptor Density And Distribution In The Shoulder Joint And Rotator Cuff Tears

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Abstract
Introduction: The aim was to investigate the relationship between mechanoreceptor levels and degenerative rotator cuff tears using immunohistochemical analysis.

Materials and Methods: The study included 34 patients who underwent shoulder arthroscopy due to rotator cuff tears. Tear sizes were categorized as small, medium, large, or massive using the DeOrio-Cofield classification. Tissue samples were taken from the distal rotator cuff tendon, proximal long head of the biceps tendon, and anterior capsule. These were stained with hematoxylin-eosin and immunohistochemically with S100 protein antibody to determine mechanoreceptor levels. The relationship between mechanoreceptor count and factors such as tear size, coracoacromial ligament degeneration, muscle atrophy-fatty degeneration, age, and preoperative shoulder function was analyzed.

Results: In the sections of the biceps long head, rotator cuff, and capsule examined, the numbers of Pacinian corpuscles, Ruffini endings, and Golgi tendon organ-like mechanoreceptors were found to be higher in massive tears compared to small tears ($p<0.05$). No statistically significant correlation was found between the number of free nerve endings and tear size or other parameters. Mechanoreceptor numbers were reduced in stage 3 coracoacromial degeneration compared to stage 1 ($p<0.05$). Increased fatty degeneration in the supraspinatus muscle was associated with decreased mechanoreceptor numbers, showing a positive correlation with functional scores.

Conclusion: In conclusion, our study found that as the severity of shoulder pathologies, such as rotator cuff tears, muscle atrophy, fatty degeneration, and coracoacromial ligament degeneration, increased, there was a decrease in mechanoreceptor levels.

16:47 - 16:50

2000 Return To Sports After Anterior Cruciate Primary Repair In Skeletally Mature Patients: Our Experience So Far

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2. Hospital Ribera Covadonga, Gijón, Spain
3. Ibermutua Asturiana, Gijón, Spain

Abstract
Objective: We aim to evaluate return-to-sports rates and functional outcomes following anterior cruciate ligament primary repair (ACLPR).

Methods: A retrospective review of all patients treated by the main author with ACLPR due to a proximal or high-grade partial tear was conducted. A total of 84 patients (aged 21–55) underwent ACLPR, with a minimum follow-up of one year. Of these, 44 participated in sports regularly before injury (at least once a week). Return-to-sport rates and preinjury performance of those 44 patients were analyzed. Functional outcomes were assessed using the Tegner Activity Scale (TAS), Objective International Knee Documentation Committee (O-IKDC) scores, Lysholm score, and Knee Injury and Osteoarthritis Outcome Score (KOOS) before and after surgery.

Results: The median preinjury TAS score was 7. Among the 44 patients with preinjury sports participation, 35 (79.55%) successfully returned to their previous sport, with 32 (91.42%) achieving their preinjury performance level. All nine patients who did not return to their preinjury sport transitioned to lower-impact activities, with none completely ceasing recreational sports. Seven of these nine patients (77.78%) were aged 45 or older. Three patients (6.8%) experienced failure of the repair.

Conclusion: There are good return-to-sports and functional outcomes after ACLPR, with a high percentage resuming athletic activity at their preinjury level. However, older patients were more likely to shift to lower-impact sports. These findings support ACLPR as a viable option in select cases, though further research is needed to assess long-term durability and functional performance.

16:03 - 16:06

1081 Surgical Outcomes Of Insertional Achilles Tendinopathy: A Comparison Of Techniques With And Without FHL Augmentation

Günes Ates, Hamza Özer, Mehmet Ali Tokgöz, Saffet Bugra Korkut

Gazi Üniversitesi Hastanesi, Ankara, Turkey

Abstract
Background: Insertional Achilles tendinopathy is a degenerative condition often requiring surgery when conservative treatments fail. Flexor hallucis longus (FHL) tendon transfer is a promising option for cases with significant tendon degeneration. This study compared the outcomes of FHL transfer combined with debridement and retrocalcaneal ostectomy to debridement and retrocalcaneal ostectomy alone.

Methods: A retrospective analysis was conducted on 30 patients who underwent surgery for insertional Achilles tendinopathy between 2017 and 2023. Patients were divided into two groups: 15 underwent FHL transfer along with debridement and retrocalcaneal ostectomy (FHL group), and 15 underwent only debridement and retrocalcaneal ostectomy (control group). Outcome measures included the Foot and Ankle Ability Measure (FAAM), Foot and Ankle Disability Index (FADI), Victorian Institute of Sport Assessment-Achilles (VISA-A), visual analog scale (VAS), and American Orthopaedic Foot and Ankle Society Ankle-Hindfoot Scale (AOFAS-AH). Scores were collected preoperatively and one year postoperatively. Minimal Clinically Important Difference (MCID) rates were also analyzed.

Results: Both groups showed significant post-operative improvements ($p < 0.05$). However, the FHL group had superior VISA-A scores compared to the control group ($p = 0.031$). MCID achievement for VISA-A was 93.3% in the FHL group vs. 66.6% in the control group ($p = 0.046$). No significant differences were observed in wound complications or other functional scores.

Conclusion: FHL transfer, when combined with debridement and retrocalcaneal ostectomy, is a safe and effective option for insertional Achilles tendinopathy with advanced degeneration, providing superior Achilles tendon-specific functional improvements.

17:19 - 17:22

3025 Chronic Ischial Tuberosity Avulsion In A High-Demand Adolescent: Case Report And Surgical Considerations

Mónica Sánchez Santiuste[1], Carlos Miranda Gorozarri[2], María Galán Olleros[2], Hugo Garlito Díaz[2], Ángel Palazón Quevedo[2]

1. Prince of Asturias University Hospital, Madrid, Spain
2. Niño Jesús University Hospital, Madrid, Spain

Abstract
Proximal hamstring tendon avulsions are relatively rare and and predominantly affect adolescent athletes engaged in repetitive kicking or sprinting sports. Prognosis varies, and there are no established treatment guidelines. Management must consider patient age, physical demands, injury pattern (Wood's classification), chronicity and neurological symptoms. Surgical complexity increases in chronic injuries due to tendon retraction. Our objective is to present a surgical technique for managing non-union of ischial tuberosity avulsion fractures in high-demand adolescent patients.
A 16-year-old soccer player presented persistent pain and functional limitation following a non-operatively-treated left ischial tuberosity avulsion fracture. Imaging showed a 3.8 cm displaced non-union. No "bowstring sign" or neurological symptoms were present during physical examination. Surgery was performed two years after injury. Due to tendon retraction, open reduction and fixation were not feasible. The avulsed fragment was excised and proximal hamstring tendons reattached to the remaining ischial tuberosity using suture anchors.
Postoperative treatment involved dynamic knee bracing with progressive extension from 90º to 0º throughout an eight-week period, followed by gradual weight-bearing and physical therapy. By four months, the patient achieved full hip and knee range of motion and resumed athletic training. At 18 months, he remained asymptomatic and had returned to pre-injury sporting level.
Non-operative treatment for high-grade proximal hamstring tendon avulsions may lead to non-union, chronic pain and impaired function. Non-union proves a surgical challenge due to tissue retraction and altered anatomy. Tendon reinsertion after fragment excision is a viable option in selected cases, particularly in skeletally mature adolescents with high functional demands.

17:22 - 17:25

2529 Case Report: Our Experience In Single-Stage Surgical Treatment For Multiligament Knee Injuries

Mónica Sánchez Santiuste, Pablo Millán Antelo, Darío Guizado Elme, Joaquín García García, Valentín Calcedo Bernal, Víctor Vaquerizo García

Prince of Asturias University Hospital, Madrid, Spain

Abstract
Multiligament knee injuries (MLKIs) are complex and require a high level of surgical skill. There is controversy regarding the right timing for surgery, which ligaments to repair, in what order, and whether to perform it in one or two stages.
We present our experience in single-stage surgical treatment of two female patients sustaining MLKIs, ages 15 (A) and 52 (B).
Patient A presented a KD-IIIM Schenck injury to the PCL, posteromedial complex (PMC) and ACL due to tibial spine fracture. She was derived from abroad with significant joint stiffness due to long-leg casting which required arthrolysis five months post-operatively. In a single procedure, arthroscopic ACL and PCL reparation was performed. The tibial spine fracture was reduced first but ACL tension was the final step before open reparation of the MCL and PMC.
Patient B presented a KD-IV Schenck injury and vascular injury to the popliteal artery which was treated non-operatively. An external fixator was placed and ankle-brachial index monitored. After two weeks, she underwent final single-stage surgery: arthroscopic ACL and PCL reconstruction and posterolateral complex repair using a modified LaPrade technique.
In our experience, single-stage surgery is a viable option; it ensures no residual instability and minimised recovery time. Drawbacks include long surgical times and postoperative stiffness. The order of reparation is not clear or consistent in our case, left to surgeon preference. Good results have been achieved through both ligament reparation and ligamentoplasty, although conservation of native tissues is prefered in younger patients.

16:31 - 16:34

2664 The Coraco-Gleno-Scapular Line: A Novel Tool For Evaluating Glenoid Bone Defects In Shoulder Instability

SASEENDAR Shanmugasundaram, SAMUNDEESWARI Saseendar

Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry, India

Abstract
Introduction:
Accurate evaluation of glenoid bone loss is essential for effective surgical management of shoulder instability. This study presents the Coraco-Gleno-Scapular (CGS) line as a novel tool for assessing significant glenoid bone defects, aiming to enhance clinical decision-making.
Methodology:
We analyzed 50 normal right shoulders (ages 18-40) using 3D Computed Tomography (CT). The CGS line was established from the coracoid base to the antero-inferior glenoid pole. Two methods were used to quantify bone defects: the Best Fit Circle Area Method, which calculates the percentage of bone defect anterior to the CGS line, and the Glenoid Index Linear Method, which determines the defect percentage using a/b * 100, where a is the anterior glenoid width and b is the total glenoid width/diameter.
Results:
Interobserver reliability, measured by intraclass correlation coefficients (ICC), demonstrated high agreement (ICC = 0.87, 95% CI: 0.70-0.93) between two orthopedic surgeons with six years of experience. The mean bone defect measured by the Best Fit Circle Area Method was 21% (range: 18-31%), while the Glenoid Index Linear Method indicated a mean defect of 24% (range: 20-32%). Fourteen shoulders had less than 20% bone defect using the Best Fit Circle Method, with none below 17.5%, suggesting no sub-critical bone loss. Thirty-six shoulders exhibited more than 20% bone defect.
Conclusion:
The CGS line is an effective and user-friendly tool for evaluating glenoid bone loss, demonstrating potential for enhancing the management of shoulder instability. Its ease of use and high reliability support its further exploration and validation in clinical practice.

17:25 - 17:28

2662 Single-Stage Medial Meniscus Ramp Repair, Lateral Meniscus Root Repair And Lateral Extraarticular Tenodesis In Revision Anterior Cruciate Ligament Reconstruction - A Technique Note

SAMUNDEESWARI Saseendar[1], Dave Lee[2], Salim Al Habsi[2], Mok Ying Ren[2]

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2. NUH, Singapore, Singapore

Abstract
Revision anterior cruciate ligament reconstruction (ACLR) is being performed increasingly due to a growing number of primary ACLR failures. The combined lesions of medial meniscus ramp lesions (MMRL) and lateral meniscus posterior root tears (LMPRT) are being observed amongst many revision ACLR patients. This combination of meniscus injuries is referred to as "the new terrible triad". Various studies suggest that failing to address these meniscus injuries during primary ACLR can increase the risk of anterior cruciate ligament (ACL) graft failure. In this technique report, we present our systematic approach to manage MMRL and LMPRT in revision ACLR.

Wednesday, 3 September

Foot & Ankle 2
16:15 - 16:18

276 Radiologic Progression Of Talar Osteochondral Lesions With Subchondral Cyst: A Median 98-Month Observational Study

Jae Hyeon Seo, Hoseong Lee, Youngrak Choi, Myoungyeol Shin, Young-Kwan Moon

asan medical center, Seoul, South Korea

Abstract
Objective
Long-term outcomes of osteochondral lesion of the talus (OLT) with subchondral cyst remain unclear. We hypothesize that bony integrity affects cyst size progression, while clinical symptoms remain unchanged. This study evaluates factors influencing cyst progression and their correlation with clinical outcomes.
Design
Retrospective observational comparative study
Methods
Among 95 OLT cases with subchondral cysts, 56 non-operatively treated patients (median 98 months) were categorized into three groups: 1) increase, 2) no change, and 3) decrease in cyst size. Initial factors affecting cyst progression were analyzed, along with correlations between radiologic changes and clinical outcomes, including pain and clinical scores.
Results
In the observation group, 25% showed cyst growth, while 21.4% decreased in size. Among potential risk factors, only two related to bony integrity were statistically significant: bone marrow (BM) edema ($p = 0.0436$) and cyst wall breakage ($p = 0.0066$). Cyst progression occurred in 52.9% of cases with sidewall or subtalar wall breakage. However, cyst growth showed no correlation with clinical symptoms ($p > 0.05$). No osteoarthritis progression was observed.
Conclusion
OLT with subchondral cysts can progress or improve over time. BM edema and wall breakage are linked to cyst growth, but clinical symptoms remain unaffected.
Keywords: osteochondral lesion, talus, ankle, osteoarthritis, progression

16:18 - 16:21

281 Which Measuring Method Is Better For Reflecting Subtalar Joint Stiffness?

Young-Kwan Moon[1], Hoseong Lee[1], Youngrak Choi[1], Jaehyeon Seo[1], You-Keun Kim[2]

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2. Bupyeong Himchan Hospital, Incheon, South Korea

Abstract
ABSTRACT
Background: The standard method for the measurement of subtalar joint motion has yet to be developed. This study aimed to determine which of the two methods (AMA and modified McBride) for the measurement of subtalar joint motion better reflects subtalar joint stiffness.
Methods: We evaluated the intraobserver and interobserver reliability and validity of the two methods in the normal group (n=50) and the patient group (n=90; 30 with normal hindfoot, 30 with ankle joint pathology, and 30 with subtalar joint pathology). We assessed the intraclass correlation coefficient (ICC) and receiver operating characteristic (ROC) curve for statistical analysis.
Results: In the normal group, the intraobserver reproducibility and interobserver reliability of the AMA method were better than those of the modified McBride method. In the hindfoot patient group, both methods showed excellent interobserver reliability (ICC > 0.75). The results of the ROC curve also indicated that the modified McBride method (AUC: 0.919, 0.813) was better than the AMA method (AUC: 0.715, 0.749) in reflecting subtalar joint stiffness.
Conclusion: In patients with subtalar joint lesions, the modified McBride method had a relatively better validity and was more appropriate than the AMA method for measuring the stiffness of the subtalar joint.
Level of Evidence ; Level III-Retrospective Comparative Study
Keywords ; Physical examination, Range of motion, Subtalar joint

16:21 - 16:24

377 Comparative Study Between Lateral Column Lengthening And Subtalar Arhroereisis In Treatment Of Flexible Flatfoot In Children

Ahmed Elhalawany[1,2], Mahmoud M Elsaqa[3], Ahmed Khedr[1], Ahmed Kholeif[1]

1. Cairo University Hospitals, Cairo, Egypt
2. James Paget University Hospitals NHS, Norfolk, United Kingdom
3. 6 Octobar University Hospitals, Cairo, Egypt

Abstract

Background

Evans osteotomy and STA arthrodesisare(STA) are two popular techniques for flexible flat feet(FFF) correction, however, studies that directly compare both methods are lacking. The aim of the study is to assess and compare the functional and radiological outcomes of Evans osteotomy and STA using sinus tarsi implant for the management of painful FFF in adolescents

Methods

A single-centre, prospective randomised controlled trial compared two surgical methods for managing symptomatic FFF: Evans osteotomy(group A) and STA (group B). 20 cases for each group with 2 years of minimal follow-up.

Results

Results compare preoperative and 2y follow-up functional scores and radiological angles. Our results showed that there were no statistically significant differences between the two groups However, there was a marked improvement in the measured scores and angles 2y FU in both groups (P-value <0.05). Group A was superior in the power of correction of CPA than group B, as the change was 3.21 degrees in group A while it was 1.34 degrees in group B. The mean of AOFAS improved from 49.16 preoperative to 94.05 postoperative(groupA) and improved from 51.26 preoperative to 95.78 postoperative(groupB).

Conclusions

No significant differences were found between the outcomes of both groups. Neither procedure caused any loss of hindfoot mobility. The less-invasive nature and lower potential morbidity suggest that the use of STA implants is appropriate for some patients. However, further investigation and long-term outcome studies are warranted to demonstrate the efficacy, safety, and cost-effectiveness of STA, as compared with the more accepted method of calcaneal osteotomy.

16:34 - 16:37

962 MIPO Technique Using Locking Compression Plates For Closed And Type-1 Open Distal Tibia Fractures

Steve Fernandes[1], Santosh Somayya Jeevannavar[2], Keshav Someshwar Shenoy[2], Prasanna Baindoor[2]

1. SDM College of Medical Sciences and Hospital, Dharwad Karnataka, India
2. Shri Dharmasthala Manjunatheshwara (SDM) Medical College and Hospital, Dharwad Karnataka, India

Abstract

Introduction

Locking compression plating(LCP) for the distal tibia creates a stable, fixed angle construct. Preservation of vascularity and fracture hematoma with minimal soft tissue damage is achieved by Minimally Invasive Plate Osteosynthesis(MIPO) which is a preferred modern technique.

Materials and Methods

We conducted a prospective study on 62 patients; 38 males(61%) and 24 females(39%) with mean age of 50 years. Fibula fixation followed by distal tibial plating with 3.5 medial LCP by MIPO was performed. The clinical and radiological outcomes were calculated by AOFAS and mRUST scoring respectively.

Results

In our study, all fractures united by one year of follow-up, with 42 fractures uniting and full weight bearing by end of 5 months. The mRUST radiological scores showed maximum progression between 2 to 3 months(57.6%). The AOFAS score was excellent for 12 patients(90 – 100), good for 24 patients(80 - 89) and fair for the 26 patients at one year. A plate span ratio of 2-3 for comminuted fractures and 8-10 for simple fractures was used. The plate screw density obtained averaged 42%(ranging 41 to 44%); with 4 screws most often used in the distal fragment.

Conclusion

MIPO technique in simple and comminuted distal tibia fractures is a preferred modern method of treatment; with good radiological and clinical outcomes. This study addresses the lacunae in prior literature in defining the plate length, plate screw density ratio and number of distal screws for the tibial pilon; also describing the screw configuration and use of cortical screws in locking plates for the tibia.

16:37 - 16:40

1058 National Trends In Fibular ORIF: Plate/Screw Fixation Vs. Intramedullary Nail (2015-2022)

Matthew Charles Johnson, Chaim Miller, Mitchell Ng, Ameer Tabbaa, Kevin Kang, Amr Abdelgawad

Maimonides Medical Center, Brooklyn, United States

Abstract
Introduction: Plate and screw fixation remains the standard of care for fibular fractures. However, interest in intramedullary nailing is growing, with literature suggesting earlier weight-bearing, improved bone union rates, and fewer reoperations.
Aims & Objectives: This study aimed to evaluate U.S. national trends in fibular ORIF methods and compare clinical and surgical outcomes between fixation methods across various indications.
Study Design & Methods: A retrospective analysis was conducted on adult patients (age >18) who underwent open reduction and internal fixation (ORIF) of the fibular shaft and lateral malleolus, using a U.S. nationwide insurance claims database (2015–2022). Patients were stratified into non-unions, closed fractures, and open fractures. Statistical analysis included linear regression and multivariate logistic regression, with $\alpha = 0.05$.
Results: The use of intramedullary nailing for fibular ORIF has significantly increased over the study period. By 2022, nailing represented 10.14% of closed fracture reduction (slope: +0.53% per year, $p = 0.002$) and 21.04% of open fractures (slope: +0.848% per year, $p = 0.023$). Despite this growth, there were no significant differences in key clinical and surgical outcomes between the nailing and plate/screw groups across all subgroups. Outcomes such as deep venous thrombosis, surgical site infection, osteomyelitis, reoperation rates, and progression to nonunion were similar ($p > 0.05$).
Conclusion: The use of fibular intramedullary nail fixation for acute fractures and non-unions has steadily increased over the past seven years. Nailing demonstrates comparable bone union, reoperation rates, and medical complications to standard ORIF.

16:40 - 16:43

1129 Analysis Of Effect Of Posterior Malleolus Plate Fixation On Mechanical Stability & Functional Outcome.

Biswajit Sahu, Binaya Kumar Mishra, Baban Kumar Ojha, Diptiranjan Sahoo

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Abstract
Background: The role of posterior malleolus fixation in trimalleolar fractures remains a topic of debate. Traditional screw fixation doesn't provide sufficient stability in large fragments or fractures involving the posterolateral ridge. This study evaluates the functional and radiological outcomes of posterior malleolus fixation using a plate in trimalleolar fractures as it provides better syndesmotic stability.
Aims and Objectives:
• To assess the functional and radiological outcomes of posterior malleolus fixation using a plate.
• To evaluate the incidence of post-traumatic arthritis and implant-related issues in patients undergoing posterior malleolus plate fixation.
Methods: A prospective study was conducted for over a period of 2 years with sample size 24 with trimalleolar fractures undergoing fixation of the posterior malleolus with a plate. Fracture fixation done with posterolateral approach. Functional outcomes were assessed using the American Orthopaedic Foot & Ankle Society (AOFAS) score, while radiological outcomes were evaluated based on fracture reduction quality and joint congruity.
Results: Preliminary results indicate that plate fixation provides superior stability, particularly in fractures involving large posterior fragments (>25% of the articular surface). Improved syndesmotic stability, better control of articular step off along with higher AOFAS scores was observed. Early mobilization and reduced rates of post-traumatic arthritis were noted.
Conclusion: Posterior malleolus fixation with a plate in trimalleolar fractures offers biomechanical advantages, leading to improved functional and radiological outcome.
Keywords: Posterior malleolus, trimalleolar fracture, plate fixation, syndesmotic stability, post-traumatic arthritis.

16:31 - 16:34

895 Patient And Treatment Related Factors Associated With Prolonged Opioid Use Following Foot And Ankle Surgery: A Scoping Review

Ryan Mcwilliams, **Ibrahim Haq**

University of Cambridge, Department of Surgery, Cambridge, United Kingdom

Abstract

Background

The need for adequate analgesia postoperatively must be balanced against the risks of excessive or prolonged opioid use. This scoping review aims to identify the most common risk factors for prolonged or increased opioid use following foot and ankle surgery.

Methods

A scoping review was performed according to the PRISMA guidelines. An electronic literature search was performed in PubMed, Web of Science, Embase and CINAHL. Two reviewers independently performed title/abstract and full-text screening. English language articles describing preoperative patient or treatment related factors associated with an increased risk of prolonged opioid use or increased long-term opioid dosage were included.

Results

A total of 17 studies describing 223,532 patients undergoing foot and ankle surgery were included. The most commonly reported factors associated with a higher risk of prolonged or increased use of opioids were: preoperative opioid use (13 studies), mental health disorders (9 studies), tobacco use (7 studies), chronic pain disorders (7 studies), female sex (7 studies), older age (5 studies) and diabetes (4 studies). A similar distribution of risk factors was found in studies using multivariate statistical techniques to identify independent risk factors specifically.

Conclusions

Preoperative opioid use, mental health disorders, tobacco use, chronic pain disorders, female sex and older age are the most frequently reported risk factors for increased opioid use following foot and ankle surgery. These factors can be used to guide clinical decision making with regards to surgical selection criteria and in the development of targeted interventions aimed at reducing unnecessary or excessive opioid use.

16:50 - 16:53

1456 Can PEEK Cage Replace Bone Graft In Calcaneal Lengthening Osteotomy?

Mohamed Abdelaal Hussein

the national institute of neuromotor system, Cairo, Egypt

Abstract
Introduction: Lateral column lengthening is a gold-slandered option for treatment of symptomatic flat foot in skeletally immature patients. Various types of grafts are used:autografts, allografts, xenografts and specialized plate systems. Each of them has its advantages and disadvantages.
PEEK is a biocompatible polymer known for its strength and elastic modulus, so it can be inserted to maintain the osteotomy gap in LCL and promoting bone regeneration while providing structural support without donor side morbidity.
Patients and methods: Between July 2019 and January 2024, 41 consecutive adolescent patients with flat feet who had undergone lateral calcaneal lengthening rectangular osteotomy using rectangular PEEK cage were included in this prospective study.The mean age of the participants was 12 ± 2 years. The mean PEEK implant size was 9 ± 1 mm.

Results: The mean union time for the patients was 10 ± 2 weeks.Significant improvements were observed radiographically, (CIA) from 3° to 17°, (TFA) from 20° to 2°, TFA A-P from 22°)to 3°. After one year of follow-up, most patients showed excellent functional incorporation. Complications:cage subsidence:7.3%of cases, pseudoarthrosis:2.4%.
Conclusion:we achieved accepted functional and radiological outcomes with a considerably lower rate of complications after performing LCL osteotomies to correct Flat foot deformity by using a rectangular-shaped PEEK cage which could be explained by the fact that this graft has a larger volume medially leading to more distraction.The use of PEEK avoid donor site morbidity.
The biomechanical advantages and improved clinical outcomes associated with PEEK make it a promising alternative to traditional surgical methods.

16:56 - 16:59

1939 Arthroscopic Versus Open Repair For CLAI: An Updated Systematic Review And Meta Analysis

Alexander Ang[1], Jonathan Boey[2], Eunice Willianto[1], Ryan Loke[1], Vikaesh Moorthy[2], Rui Xiang Toh[2], Kae Sian Tay[2]

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2. Singapore General Hospital, Singapore, Singapore

Abstract
Background: The Brostrom-Gould Procedure is the gold standard for surgical management of ankle sprains involving the anterior talofibular ligament (ATFL). Multiple observational studies and controlled trials have been conducted as the arthroscopic approach gains popularity compared to the traditional open approach. This meta-analysis seeks to surmise the recent evidence to form updated conclusions on the use of arthroscopic Brostrom procedures in treating lateral ankle instability.
Methods: A meta-analysis of clinical studies comparing was performed. We searched MEDLINE, Embase, Cochrane Library and SCOPUS from inception to 19 December 2024 comparing outcomes of arthroscopic versus open Brostrom procedures for chronic lateral ankle instability.
Results: 18 studies comprising 1211 patients were included, with 628 undergoing arthroscopic and 583 undergoing open procedures. The arthroscopic technique, compared to the open technique, resulted in higher American Orthopaedic Foot and Ankle Society scores (weighted mean difference [WMD]=1.13, 95% CI: 0.16-2.11, p=0.02). No significant differences were noted between the two surgical approaches in terms of Karlsson score (WMD=0.51; 95% CI: -0.52-1.54; p=0.33), Visual Analog Scale (VAS) pain scores (WMD=-0.27; 95% CI: -0.60-0.05; p=0.10), Tegner activity scores (WMD=-0.01, 95% CI: -0.38-0.37, p=0.97), anterior drawer test (WMD=-0.21, 95% CI: -1.09-0.67, p=0.24), talar tilt (WMD=0.05; 95% CI: -0.70-0.80; p=0.90), overall complications (RR: 1.00, 95% CI: 0.68-1.48, p=0.99), wound-related complications (RR: 0.38; 95% CI: 0.15-1.00; p=0.05) and nerve-related complications (RR: 1.04; 95% CI: 0.56-1.91; p=0.91).
Conclusion: Current evidence shows that arthroscopic repairs offer comparable clinical outcomes with similarly low complication rates, compared to traditional open repairs.

17:03 - 17:06

2053 MANAGEMENT OF CHRONIC HINDFOOT DEFORMITY WITH ARTHROSCOPIC TRIPLE FUSION: SURGICAL TECHNIQUE AND RESULTS

Menelaos Papadakis, Nerantzoula Goutsiou, Paschalis Papanikolaou, Alexandros Sarafis, Savvas Kansizoglou, Alexandros Eleftheropoulos

Orthopaedic Department of Naousa General Hospital, Naousa, Greece

Abstract

Introduction: Triple arthrodesis, typically performed through an open approach, plays a crucial role in managing hindfoot osteoarthritis and deformity. This study presents a minimally invasive surgical technique as a new alternative.

Materials and Methods: Ten patients with hindfoot arthritis or deformity underwent surgery at our institution between 2023-2025. Under spinal anesthesia and with the patient in a prone position, a thigh tourniquet was applied, and both a posterolateral and a posteromedial portal to the hindfoot were established. Initially, the posterior facet of the subtalar joint was meticulously refined. Then, with the leg in external rotation, two new portals (anterolateral and lower lateral) were created, and the scope was inserted into the sinus tarsi. The hindfoot deformity was corrected using a Schanz pin through the calcaneus as a joystick. Under fluoroscopic guidance, a 7mm (partial or fully threaded) cannulated screw was placed for subtalar arthrodesis, and a similar screw was utilised retrograde (from calcaneus to cuboid) for calcaneocuboid arthrodesis. Subsequently, a 7mm retrograde (from talus to navicular) cannulated screw was inserted to fuse the talonavicular joint. Postoperatively, an ankle cast was applied for two weeks, followed by three months of using a walking boot.

Results: Clinical and radiographic fusion were achieved at three and five months, respectively. No major complications were reported, and the patient's AOFAS score showed improvement.

Conclusions: The arthroscopically assisted triple fusion technique seems to be a safe alternative, offering excellent results; however, it requires a steep learning curve and is designed for surgeons with advanced arthroscopic skills.

17:06 - 17:09

2062 Arthroscopically Assisted Percutaneous Fixation For Talar Neck Fractures: A Novel Technique With Preliminary Results.

Paschalis Papanikolaou, Nerantzoula Goutsiou, Menelaos Papadakis, Alexandros Sarafis, Savvas Kansizoglou, Alexandros Eleftheropoulos

Orthopaedic Department, Naousa's General Hospital, Naousa, Greece

Abstract

Introduction:
Talar neck fractures are relatively rare. The complex anatomy of the talus often limits optimal visualisation and fixation without open procedures, which may compromise vascular supply and increase the risk of avascular necrosis along with severe post-traumatic complications.

Aims & Objectives:
This study aims to describe the minimally invasive surgical technique of hindfoot endoscopy and percutaneous fixation for talar neck fractures, while including methods for preserving the blood supply to the talar body.

Study Design & Methods:
Between 2024 and 2025, arthroscopically assisted closed reduction and percutaneous fixation were performed on three talar neck fractures (one bilateral) in two male patients (mean age: 41 years). Both patients had closed Hawkins type I and II fractures. Under spinal anesthesia, with the patient in a prone position and an ipsilateral thigh tourniquet, hindfoot endoscopy was performed using the standard posterolateral and posteromedial portals. A 4.5mm or larger shaver cleared the deep joint capsule and removed the fracture hematoma. Under fluoroscopic guidance, closed reduction and percutaneous fixation were achieved using 5.0mm cannulated headless compression screws.

Results:
No complications, including skin infection, osteomyelitis, or avascular necrosis, were observed. Both patients reported satisfactory clinical outcomes, and radiographic assessments confirmed adequate fracture healing.

Conclusion:
Arthroscopically assisted percutaneous fixation of talar neck fractures is a reliable, minimally invasive technique that yields satisfactory outcomes. However, longer follow-up is necessary to evaluate potential complications and confirm these preliminary findings.

Keywords:
Talar neck fracture, hindfoot endoscopy, percutaneous fixation, minimally invasive surgery, Hawkins classification, cannulated screws.

17:25 - 17:28

2338 Role Of First Tarsometatarsal Joint Morphology And Instability In The Etiology Of Hallux Valgus: A Case-Control Study

Mingzhu Zhang

Foot and Ankle Surgery Center, Beijing Tongren Hospital, Capital Medical University, Beijing, China

Abstract
Background: The morphology of foot joints is widely accepted as a significant factor in the development of various foot disorders. Nevertheless, the role of the first tarsometatarsal joint (TMT1) morphology in hallux valgus (HV) remains unclear, and its impact on TMT1 instability has not been fully explored. This study aimed to investigate the TMT1 morphology and its potential correlation with HV and TMT1 instability.
Methods: Weightbearing computed tomography (WBCT) scans of 82 consecutive feet with HV and 79 controls were reviewed in this case-control study. Three-dimensional (3D) models of TMT1 were constructed using Mimics software and WBCT scans. The height of the TMT1 facet (FH) and the superior, middle, and inferior facet width (SFW, MFW, and IFW) were measured on anteroposterior view of the first metatarsal base. On the lateral view, the inferior lateral facet height and angle (ILFH and ILFA) were measured. TMT1 instability was evaluated using the TMT1 angle.
Results: Compared with the control group, the HV group had a significantly wider MFW , lower ILFH, smaller ILFA, and larger TMT1 angle (all $P<.05$). No significant differences were found between the 2 groups in FH, SFW, and IFW (all $P>.05$). The study identified 4 types of TMT1 morphology: continuous-flat, separated-flat, continuous-protruded, and separated-protruded. The continuous-flat type possessed significantly larger HVA, IMA, and TMT1 angles compared with other types (all $P<.001$).
Conclusion: This study indicates

17:12 - 17:15

2405 Return To Sport After Arthroscopic Reconstruction Of The Anterior Talofibular And Calcaneofibular Ligaments For Chronic Ankle Instability: A Multicentric Study

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Abstract

Objective: The main objective of this study was to evaluate the time of return to work and sports of patients who underwent an anatomic arthroscopic reconstruction using allograft for chronic lateral ankle instability through only two portals.

Materials and Methods: A retrospective study involving 44 patients with chronic lateral ankle instability, who underwent allograft arthroscopic reconstruction of anterior talofibular ligament and calcaneofibular ligament from 2018 to 2022 with a minimum follow-up of two years. The mean age of patients was 35.61 years (range 16-55). The surgical technique only needed two arthroscopic portals, a percutaneous incision for calcaneofibular ligament reconstruction and two knotless anchors. Time of return to work and sports was recorded.

Results: Anterior talofibular ligament and calcaneofibular ligament injuries were observed in all patients. The mean follow- up was 29.64±3.73 months. The mean time of return to work was 3.29±0.93 months, while the mean time of return to sports was 6.45±1.55 months. Patients with osteochondral defects of the talus (n=7) required slightly longer times to return to work (3.30±0.97 vs. 3.28±0.76) and sports (6.48±1.64 vs. 6.28±0.95) compared to those without osteochondral defects of the talus (n=37), with no statistical significance. Minor complications were observed in only 4 patients (9.1%).

Conclusions: Arthroscopic anatomical reconstruction of the anterior talofibular and calcaneofibular ligaments using two portals and a bifascicular allograft is a technique that provides good functional outcomes, with a rapid return to work and sports, and is associated with low rates of major complications.

17:22 - 17:25

2600 Fibular Nailing: A Minimally Invasive Alternative In Ankle Fractures

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Abstract
Introduction: Fibular intramedullary nail fixation has gained increased attention in recent years. This minimally invasive approach requires a smaller incision, reducing soft tissue dissection, therefore allowing earlier definitive fixation in patients with severe swelling and fracture blisters.
Case report: Male, 78 years, suffers a fall from two meters, resulting in a ankle fracture (trimalleolar). He had a personal history of type 2 diabetes, hypertension, dyslipidaemia, stroke and severe liver disease. At admission, he presented severe swelling of the foot and ankle, thus it was decided a delayed surgical intervention. Three days later, the patient was re-evaluated and presented multiple haemorrhagic blisters all around the foot and ankle. He was, then, admitted to hospitalization for soft tissue control and surgical intervention. Two weeks after initial trauma, there was a worsening of soft tissue conditions and was decided a percutaneous approach to reduce the risk of wound complications. The fracture was reduced and fixated with a fibular intramedullary nail, two cannulated screws in the medial malleoli and a transyndesmotic screw. Post-operatively, the patient had a favourable evolution with complete healing of soft tissues. He presented no ankle pain with minimal limitations and returned to normal daily activities.
Conclusion: In some ankle fractures, intramedullary nail fixation offers a reliable alternative to open reduction and internal fixation, particularly regarding wound complications.

17:09 - 17:12

2381 Correction Of Neuromuscular Foot Deformity By Circular Frame

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Abstract
Background: Neuropathic deformities impair foot and ankle joint mobility, often leading to abnormal stresses and impact forces. The purpose of our study was to determine use of circular frame in correction of neuromuscular foot deformity. The goal of orthopaedic surgical treatment is to obtain a painless plantigrade and stable lower limb. The use of ring fixation, with or without gradual correction may allow the patient to be more functional during the healing period because a ring fixator will typically allow partial to full weight bearing during the recovery time.
MATERIAL AND METHODS: In this study, 14 feet and ankle deformities in 10 patients were operated upon using the Ilizarov technique and fixator during the period from Jan. 2006 – April 2016.
Results: The aim of surgery in neuropathic foot is for functional
improvements and not just a cosmetically normal limb. As compared to the preoperative status, all patients were satisfied with their gait. The correction period ranged from 2 months to
3.5 months.

16:53 - 16:56

1531 Use Of Autologous Matrix-Induced Chondrogenesis As A Surgical Procedure In Patients With Osteochondral Defects Of The First Metatarsophalangeal Joint: Immediate And Medium-Term Results

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Abstract
Background: Aim of the study was to evaluate the feasibility and results of the AMIC technique, already proven of success in hip, knee and ankle joints, in the treatment of osteochondral defects of the 1st metatarsophalangeal joint (MTPJ).
Material and Methods: In a prospective consectutive study, AMIC was performed in 8 patients (age range 30-50, 6 male and 2 female) affected by osteochondral defects of MTPJ. All patients experienced a significant restriction of ROM and pain in the first MTP joint. Preoperatively the range of motion (ROM) in the first MTP joint was determined, and the following questionnaires were used: Visual Analogue Scale (VAS) of pain, American Orthopedic Foot & Ankle Society (AOFAS) score, and Functional Foot Index (FFI). Patients were followed and evaluated 3, 6,12 and 24 months.
Results: Cartilage defects were in 50% of cases located in dorsal metatarsal head, while other 30% was located in plantar metatarsal head and last 20% were both dorsal and plantar. Clinically, patients showed immediate pain relief and significative movement regain already at 3 months.
By the third month post-op, VAS of pain decreased significatively by 54% at 6 months and by 79% at 1year as AOFAS demonstrated critical functional improvement. 2-year-follow-ups confirmed maintenance of good clinical and functional results.
Conclusions: AMIC of 1st MTPJ is a safe and effective method of surgical treatment, enabling pain relief and ROM and quality of life improvement of patients affected by cartilage defects of 1st MTPJ. Comparative and longer follow-up studies are although required.

16:24 - 16:27

801 Results Of Surgery For An Ankle Fracture With A Deltoid Ligament Rupture: A Minimum Of 12 Months' Follow-Up

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Abstract

İntroduction: Deltoid ligament rupture is one of the most common and frequently overlooked injuries associated with ankle fractures.

Aims & Objectives: The aim of this study was to determine the minimum 12-month follow-up results after deltoid repair in patients with isolated ankle injury and concomitant deltoid ligament injury.

Study Design & Methods: Between 2020 January and 2023 December, 21 patients with isolated ankle fracture and associated deltoid ligament injury were included in the study. Deltoid ligament repair was performed in patients in whom intraoperative fluoroscopy showed an open medial clear space and talar tilt after lateral malleolus fixation and syndesmosis screw insertion. A mobile application (angle meter-App Store) was used to evaluate the intraoperative medial clear space (MCS) interval and talar inclination.

Results: The mean age of the patients was 39.61±11.78 years and the mean follow-up period was 17.1±5.43 months (range; 12-34). Before deltoid repair, a valgus angle of 8.69±1.43 degrees was found in the floroscopy images taken with the application, compared to a valgus angle of 1.11±0.42 degrees after fixation ($p<0.05$). The MCS distance of the ankle was 4.03±0.11 mm before deltoid repair and 2.96±0.61 mm after deltoid repair ($p<0.05$). ($p<0.05$) The patients' AOFAS scores were 69.57±5.81 (60-76) at month 3 and 81.76±5.84 (70-90) at month 12.

Conclusion: It has been observed that the syndesmosis screw does not eliminate talar tilt after lateral malleolus fixation in ankle fractures associated with deltoid injury. After deltoid ligament repair, tibiotalar alignment was observed to be achieved.

16:47 - 16:50

849 Early Weight Bearing Following Flexible Syndesmotic Fixation Is Safe, A Prospective Randomized Study

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Abstract
Purpose: Distal ankle syndesmosis injuries cause coronal instability, requiring early stabilization. Traditional fixation methods, including screws and suture buttons, often require prolonged non-weight-bearing due to screw breakage or instability. This study evaluates the Fibulink Syndesmosis Repair System, a dynamic anchor integrating a suture bridge within a screw construct.
Study Design: Interventional device trial.
Methods: A single-center randomized controlled trial enrolled patients (≥22 years) with syndesmotic instability requiring open reduction and internal fixation. Patients were randomized to early weight-bearing at four weeks in a CAM boot or standard non-weight-bearing for six weeks. Radiographic assessments included tibiofibular overlap, tibiofibular clear space, and medial clear space at intervals up to six months postoperatively. Complications, reoperations, and device failures were recorded. The study was terminated early upon demonstrating non-inferiority and the emergence of supporting literature.
Results: Thirty-seven patients (mean follow-up: 3.7 ± 2.4 months) were included: 18 in the early weight-bearing group and 19 in the standard group. Radiographic outcomes were comparable between groups: tibiofibular overlap (2.3 mm vs. 2.6 mm, p=0.8241), tibiofibular clear space (4.5 mm vs. 5.4 mm, p=0.078), and medial clear space (3.6 mm vs. 3.4 mm, p=0.555). No reoperations, late-stage revisions, or device failures occurred.
Conclusion: A hybrid syndesmotic screw anchor stabilizes the distal tibiofibular joint, enabling earlier weight-bearing without compromising fixation or increasing complications. These findings support initiating weight-bearing at four weeks for syndesmotic injuries treated with flexible fixation.

Wednesday, 3 September

Paediatrics 2
17:19 - 17:22

260 25 Years Of Paediatric Knee Arthroscopy In Our Hospital

Alba Edo Olucha, Julio Duart Clemente, Daniel Sánchez-Guardamino Sáenz, Laura Azcona Martínez De Baroja, Leyre Muñoa Oteiza, María Garralda Del Villar

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Abstract
Introduction: The aim of this article is to describe the findings of a series of knee arthroscopies performed over the last 25 years, in paediatric patients at our hospital. It is becoming increasingly common for children to practise highly demanding sports, so that in recent years there has been an increase in the number of sports injuries, especially in the knee, and also an increase in the use of arthroscopy for the diagnosis or treatment. Material and methods: Firstly, a descriptive analysis was carried out, and secondly, a comparative analysis was performed using ANOVA and chi-square statistical tests, comparing the following variables: age, main diagnosis, type of intervention and location, in different periods of time. To do this, the sample was divided into 6 groups, selecting specific years every 5 years, in this case, we chose the following years: 1998, 2003, 2008, 2013, 2018, 2023. Results: At the beginning of the series, arthroscopy was mainly used to intervene on anterior cruciate ligament tears using the bone-tendon-bone technique or to perform partial meniscectomies on meniscal tears; however, over the years we have seen that arthroscopy is increasingly used to perform more different and complex surgical techniques. The variables studied (age, main diagnosis and location) were independent of the time period in which they were performed, while the type of intervention was statistically significant. Conclusion: Knee arthroscopy in the paediatric age group is increasingly used for both diagnosis and treatment, especially in adolescent patients. Level of evidence: IV, retrospective analysis

17:03 - 17:06

1211 The Effect Of Foot And Ankle Orthosis Application Post Achilles Tenotomy In Achieving Ankle Dorsiflexion In Clubfeet Patients

Juliana Onesi, Roba Jamalallail, Caitlin Yee, Natalie Abdelmseeh, Shaima Sabar, Waleed Kishta

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Abstract
Introduction:
Clubfoot is a prevalent congenital deformity of the foot characterized by various degrees of predictable contractures. Most patients require a percutaneous Achilles tenotomy after a series of weekly manipulations and cast applications, followed by post-corrective bracing referred to as the boots and bar method. The purpose of this study is to assess the efficacy of boots and bar intervention following post-tenotomy in achieving a minimum dorsiflexion of 10 degrees in patients with clubfoot, particularly in resistant cases without the need for revision tenotomy, serial casting, or both combined.

Methods:
A retrospective review of clinical records was conducted for 21 patients undergoing routine follow-ups at clubfoot clinic. Evaluations were performed at key intervals; on the day of the tenotomy procedure, at six weeks, and at three, six, nine, and 12 months.

Results:
Preliminary findings from 21 identified cases (comprising 31 feet) revealed no predisposing factors for rigidity or comorbidities among the patients. Of the evaluated feet, 25 of them achieved a minimum of 10 degrees dorsiflexion post-tenotomy, while six feet showed neutral dorsiflexion. Remarkably, those in the former group maintained or gained an additional 10 to 20 degrees of dorsiflexion in subsequent follow-ups by consistently adhering to boots and bar usage. For the latter group, neutral outcomes post-tenotomy were overcome with subsequent improvements facilitated by boots and bar.

Conclusion:
We believe that adherence to bracing post tenotomy is essential for maintenance or even subsequent improvement in ankle dorsiflexion.

Keywords: clubfoot, congenital talipes equinovarus, boots and bar, Achilles tenotomy

17:12 - 17:15

1569 Arthroscopic Treatment Of Symptomatic Discoid Meniscus

Fábio Fernando Fernandes, João Cabral, Marcos Carvalho, Oliana Tarquini, Pedro Cardoso, Inês Balacó, Tah Pu Ling, Cristina Alves

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Abstract
Background: The discoid lateral meniscus (DLM) is a congenital abnormality often leading to meniscal tears, causing symptoms like pain, snapping, and limited knee extension, which may require surgery. This study evaluates the functional outcomes of arthroscopic treatment for symptomatic DLM in pediatric patients.

Objectives: To assess the functional outcomes of arthroscopic treatment for symptomatic DLM in pediatric patients, focusing on the effectiveness of meniscal saucerization combined with stabilization and repair of associated tears.

Methods: A retrospective analysis was performed on patients treated arthroscopically for symptomatic DLM from November 2015 to March 2024. MRI confirmed the diagnosis, and surgeries were performed by a single surgeon. Meniscal classification followed Watanabe's system. The surgical procedure included meniscal saucerization and treatment of associated tears through sutures or partial meniscectomy. Postoperative evaluation used the Lysholm score.

Results: Sixteen patients (3 males, 13 females) with a median age of 14 years (range: 7-17) were included. The median follow-up was 16.5 months (range: 6-98). Menisci were classified as type I (6), type II (4), and type III (6). Thirteen patients had meniscal tears, with 12 undergoing sutures and one partial meniscectomy. Three patients only had saucerization. One patient required revision surgery after 28 months. Preoperative median Lysholm score was 59, improving to a median of 97.5 postoperatively.

Conclusions: Arthroscopic meniscal saucerization combined with stabilization and tear repair yields excellent functional outcomes in the treatment of symptomatic DLM in pediatric patients.

17:09 - 17:12

1636 Global Pediatric Hand Surgery: A Thematic Scoping Review And Gaps In The Literature

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2. Dartmouth Hitchcock Medical Center, Lebanon, United States

Abstract
Introduction/Aims:
We conduct a scoping review of existing literature related to global pediatric hand surgery to identify the 1) types of studies available in this field, 2) gaps in the literature for future study, 3) geographic origins of projects, and 4) number of global pediatric hand surgery programs represented.

Methods:
A search was performed according to PRISMA guidelines in PubMed and Embase with a search strategy surrounding global hand surgery. A broad search was utilized, including any English-language studies discussing international hand surgery outreach that referenced pediatric patients.

Results:
After removing duplicates, 1570 title/abstracts were screened, ultimately yielding 9 studies that met criteria, published from 2014-2024. Thematically, there were 4 cost-related studies, 3 descriptive reviews outlining organizing a trip, 1 clinical outcomes study, and 2 surgeon education papers. Publications described trips to specific countries (6 distinct countries) or larger programs in many countries (2 programs). Authors on 7 studies were solely from USA, 1 study from UK/Singapore, and 1 study with co-authors from Japan, Vietnam, and USA. Cost-related studies examined absolute cost-effectiveness and direct costs. No studies examined incremental cost-effectiveness, indirect costs, or post-operative costs.

Conclusion:
Only 9 publications exist on global pediatric hand surgery outreach despite numerous programs and years of work in this field. Current gaps in the literature include analysis of indirect costs, incremental cost-effectiveness ratios, and clinical outcomes of pediatric hand surgery in low-resource settings. Only 1 study included any author based in LMICs, despite the inherent inability to conduct any of the published work without global partners.

17:06 - 17:09

1654 Application Of Novel "Wave" Cast Removal Technique In Pediatric Orthopedics

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Abstract
Background: Traditional cast removal techniques carry risks of thermal injury, mechanical trauma, and childhood fear. This study evaluates the safety and efficiency of a novel wave-like cast cutting technique in pediatric orthopedics.
Methods: Based on prior experience and model validation, a new cast removal method was designed utilizing a saw blade with a wave-like cutting path. From 2021 to 2023, 112 children aged 3-12 years with limb casts were enrolled and randomized into a traditional group (n=54) and a novel group (n=58). Operation time, pain scores (FLACC scale), skin injury rates, and parental satisfaction were recorded.
Results: The novel group showed a 42% reduction in operation time (6.3±1.2 min vs. 10.9±2.4 min, $p<0.01$) and a 67% decrease in pain scores (1.2±0.8 vs. 3.7±1.5, $p<0.001$) compared to the traditional group. No epidermal injuries occurred in the novel group, whereas three cases (5.4%) of superficial abrasions were observed in the traditional group. Parental satisfaction reached 96.4% vs. 78.6% ($p=0.007$), demonstrating effective alleviation of children's anxiety.
Conclusion: This innovative protective design significantly enhances the safety and comfort of cast removal, highlighting its critical clinical value in pediatric practice.

Keywords: Wave technique; Cast removal; Cast; Safety; Complications

16:47 - 16:50

1717 Beyond Patellar Dislocation: Early Detection Of Osteochondral Lesions In Pediatric Knees

Sergio Ruiz Blanco, Guillermo Sosa González, Alberto Álvaro Alonso, Javier Orozco Martínez, Lourdes Prats Peinado, Javier Narbona Cárceles, Borja Lara Galdón, Ángel José Villa García

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Abstract
Introduction:
Osteochondral fractures are common after acute patellar dislocation in adolescent athletes and can impact long-term joint function. However, diagnosis is often missed due to nonspecific symptoms and the limited sensitivity of radiographs. This study underscores the importance of early detection and surgical management.

Aims & Objectives:
To evaluate the role of early diagnosis and surgical treatment of osteochondral lesions following acute patellar dislocation in adolescents.

Methods:
A retrospective case series of four patients (mean age: 14 years) with first-time acute patellar dislocation during sports activity. All had spontaneous reduction. Radiographs were normal in one case, but CT scans identified osteochondral lesions (>1.5 cm) in all. Arthroscopic-assisted anatomic reduction and fixation with bioresorbable PLGA pins were performed within 24 hours. The medial patellofemoral ligament was repaired in three patients. Outcomes were assessed at 1, 6, and 12 months.

Results:
At 1 month, all patients had no pain or complications. At 6 months, they returned to pre-injury sports (mean IKDC score: 87/100). At 12 months, imaging confirmed osteochondral healing, with no recurrent dislocations or cartilage degeneration.

Conclusion:
Early detection is essential to optimize treatment and prevent complications. CT should be considered in first-time dislocations with hemarthrosis, even with normal radiographs. Anatomic reduction and stable fixation preserve joint integrity and prevent long-term instability.

Keywords:
Osteochondral fracture, patellar dislocation, pediatric knee injuries, CT diagnosis, sports trauma

16:34 - 16:37

2564 Congenital Radial Club Hands Management

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3. Mother and Child Hospital, Marrakech, Morocco

Abstract
Radial club hands is a rare congenital malformation with severe functional repercussions and includes various clinical manifestations, the common feature of which is hypoplasia or complete aplasia of the radius.
The aim of our study is to analyze the different surgical techniques practiced at the level of the pediatric trauma-orthopedics department to assess the future of the operated members, as well as to compare our results with other departments
We retrospectively studied congenital radial club hand over a 12-year period from January 2009 to
January 2022. 9 patients (12 hands) were included in our study of which 6 were boys. All of our patients were diagnosed at birth. X-Rays of the forearm confirmed the diagnosis and allowed the
classification of radial club hands. We found 8 radial club hands type IV and 4 radial club hands type III according to Bayne's classification. Associated malformations were found in 50% of patients. We observed, in our study, that the management of this malformation requires a long therapeutic follow-
up. The ultimate goal of the treatment is both aesthetic and functional. 3 patients received orthopedic treatment before surgery. 9 patients (100%) received surgical treatment. Centralization is the widely
used surgical technique. The overall result is satisfactory. The mean hand forearm angle went from 91° preoperatively to 30 ° postoperatively.
The management of congenital radial club hands is based on different aspects requiring a collaboration between the parents the surgeon and the physiotherapist while establishing goals that will improve the over all arm functions and esthetical appearance

16:31 - 16:34

2778 Patient-Specific Cutting Guides For Corrective Osteotomies In Children With Complex Lower Limb Alignment Disorders

Delphine Donzel, Mohamed Laroussi Toumia, Stéphanie Pannier, Samuel Georges, Alina Badina, Zagorka Pejin

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Abstract
Introduction: Surgical correction of complex lower limb deformities in children remains challenging when relying solely on clinical examination and standard radiography. This study evaluated the contribution of 3D computer-assisted surgical planning and patient-specific cutting guides (PSCG) in corrective osteotomies in children and adolescents.
Materials and Methods: Twenty-four patients (34 limbs), with a mean age of 14.7 years, were retrospectively included. Postoperative EOS imaging was used to measure HKA, mLDFA, and mMPTA angles. Operative time, intraoperative radiation dose, complications, and preoperative planning time were recorded.
Results: A total of 49 osteotomies were performed (9 bifocal, 2 trifocal). In 56,3% of cases, the correction was tri- or biplanar. In 3 cases, correction with PSCG was suboptimal, and conventional methods were used. All osteotomies consolidated within 3 months. Postoperative mean HKA was 182.4° (valgus 2.4°), mLDFA 87.4°, and mMPTA 89.9°. Operative time averaged 132.5 minutes. Radiation dose was 35.3 mGy/cm². Target correction was not achieved in 8.8% of cases.
Conclusion: 3D planning and PSCG improve anatomical visualization and technical reliability in complex deformity correction. Despite additional costs and planning time, this approach is a valuable tool in the management of pediatric lower limb deformities.

16:53 - 16:56

2780 Surgical Strategy For The Correction Of Valgus Flatfoot In Osteogenesis Imperfecta

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Abstract
Introduction: Flatfoot is a common deformity in osteogenesis imperfecta (OI), leading to significant functional limitations. Conservative treatment with orthotic devices often fails, emphasizing the need for an effective alternative. However, surgical management remains poorly defined, with limited literature on the subject. To date, no comprehensive surgical strategy has been described for treating flatfoot in OI. This study proposes a graduated surgical approach based on deformity severity and evaluates clinical and radiological outcomes.
Material and Methods: A retrospective review of 11 pediatric OI patients (15 operated feet) under 18 years old was conducted, with a mean follow-up of 20 months. Cases were classified according to Sillence. Radiological assessment included lateral and AP radiographs to measure the calcaneal pitch, talocalcaneal angles, talo-first metatarsal angle, and talonavicular coverage.
Surgical Technique involved hindfoot valgus correction using talocalcaneal arthroereisis with a screw (Cavalier procedure), gastrocnemius aponeurotomy, and posterior tibial tendon retention. In cases of significant midfoot laxity, a talonavicular arthrodesis was performed.
Results:
• Clinical outcomes: VAS score improved from 4.2 ± 1.1 to 1.3 ± 0.8 ($p < 0.01$), and AOFAS scores increased from 52.4 ± 8.6 to 86.7 ± 6.3 ($p < 0.01$).
• Radiological outcomes: Significant improvements were observed in calcaneal pitch (8.5° to 18.7°), lateral talocalcaneal angle (45.5° to 27.7°), talonavicular coverage (35.9° to 8.8°), and AP talocalcaneal divergence angle (36.2° to 15.8°) (all $p < 0.01$).
Conclusion: This approach offers a viable alternative to conservative treatment, contributing to optimized surgical strategies for managing foot deformities in OI.

16:15 - 16:18

2784 Graf Type I Is Not The End: Long-Term Radiographic Outcomes In DDH

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Abstract
Introduction
Developmental dysplasia of the hip (DDH) is routinely screened using the Graf classification, where Type I hips are considered normal and typically not followed further. However, emerging evidence suggests that Graf Type Ia/Ib hips may still develop residual dysplasia. This study investigates the reliability of ultrasonographic normalization in excluding future dysplasia and emphasizes the potential need for radiographic follow-up in such cases.
Materials and Methods
In this retrospective–prospective cohort study, 30,869 hip ultrasonography images from 1,857 infants (2019–2023) were screened. Patients with bilateral Graf type Ia or Ib hips at both initial and final evaluations were included; syndromic cases, Graf ≥II hips, and incomplete records were excluded. Of 565 eligible patients, 40 (7.1%) consented to radiographic follow-up. Alpha and beta angles and Graf types were documented. Standard pelvic radiographs were obtained, and acetabular index (AI) and Shenton-Ménard line continuity were assessed. Dysplasia was defined using age-, sex-, and side-specific AI normative thresholds and disrupted Shenton-Ménard lines.
Results
At a mean radiographic follow-up age of 3.63 years, 3 patients (7.5%) demonstrated residual dysplasia or dislocation despite initial bilateral Graf Type I classification. Alpha and beta angles showed no significant change over time ($p > .05$). None of the clinical or demographic variables were significantly associated with dysplasia, though trends were observed for swaddling and lower initial alpha angles.
Conclusion
Our findings highlight the potential for residual dysplasia despite apparent ultrasonographic normalization. Incorporating pelvic radiographs into follow-up protocols may improve detection and timely intervention in subtle or late-presenting cases.
Keywords: ddh, acetabular index, graf, residual dysplasia

17:22 - 17:25

805 Evaluation Of Femoral Head Blood Supply – An Observational Analysis

VISHNU Senthil Kumar

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Abstract
Background:
There were no clinical studies that looked at the contribution of the various sources of blood supply to the femoral head.
Methods:
The femoral head blood flow was assessed routinely during open surgery in a large cohort of patients. A 2 mm drill hole was made in the femoral head to assess the blood supply to the femoral head. The effect of interruption of the various sources of blood flow from experimental, surgical, and traumatic injury on the femoral head perfusion was documented.
Results:
In the experimental group, 75% percent of the hips showed impaired circulation to the femoral head while 25% showed good vascularity after acute interruption of the lateral retinacular vessels (LRV) alone. In hips that underwent surgical dislocation and complete disruption of the foveal artery, head perfusion was well maintained. In hips with open physes and hips with fracture or osteotomy of the femoral neck, poor perfusion was noted only when blood flow through the LRV was disrupted. In these hips, intact medial retinacular vessels (MRV) did not sustain good bleeding from the head.
Conclusion:
Intraoperative monitoring of femoral head flow is useful during hip surgery. Bleeding from a drill hole is a sign of perfusion of the head. The LRV alone can supply the head adequately though alternate sources can support the head in a significant number

17:25 - 17:28

884 Causes Of Damage To The Lateral Retinacular Flap During Hip Preservation Surgery

Vishnu Senthil Kumar

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Abstract
Background:
Hip preservation surgery has evolved with advanced techniques to prevent femoral head osteonecrosis while maintaining joint function. The lateral retinacular vessels (LRV), a key blood supply to the femoral head, are at risk during these procedures. Damage to the lateral retinacular flap (LRF) can lead to avascular necrosis (AVN), compromising surgical outcomes.

Objective:
This study examines patterns and causes of lateral retinacular damage in hip preservation surgery and highlights strategies to mitigate the risk of vascular injury.

Methods:
A prospective analysis was conducted on patients undergoing surgical dislocation hip preservation procedures from 2005 to 2024. The study included cases where intraoperative LRF damage was observed. Patient demographics, preoperative diagnosis, intraoperative findings, and mechanisms of injury were recorded. Standardized surgical dislocation techniques with trochanteric flip osteotomy were employed. Retinacular vessel patency was assessed using Doppler ultrasound and femoral head perfusion tests.

Results:
Fourteen patients (7 males, 7 females; mean age 14 years, range 10–23 years) were identified with LRF damage. Causes of injury included excessive internal rotation, mechanical stretch during reduction, vessel thrombosis, avulsion due to prior trauma, and physeal-level osteotomy-related interruptions. Retinacular avulsion was more frequent in cases requiring relative neck lengthening and cam osteoplasty.

Conclusion:
Meticulous surgical technique, awareness of vascular anatomy, and intraoperative vascular assessments are critical to preventing LRF damage. Proper handling of internal rotation, retractors, and trochanteric osteotomy fixation can minimize the risk of AVN, ensuring optimal surgical outcomes in hip preservation procedures.

16:56 - 16:59

876 Evaluating Nutritional And Clinical Correlates Of Ponseti Technique Success In Pediatric Clubfoot

Muhammad Muzzammil

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Abstract
Objective: Malnutrition is a critical health issue, particularly in developing countries, and a major risk factor for childhood morbidity and mortality. Clubfoot, or congenital talipes equinovarus (CTEV), is the most common congenital orthopedic abnormality, with the Ponseti method being the gold standard for treatment. This study aimed to determine the prevalence of malnutrition in clubfoot patients and its impact on Ponseti treatment outcomes at a tertiary care hospital in Karachi, Pakistan. Additionally, we explored correlations between clinical tests—including CBC, serum albumin, and serum electrolytes—and nutritional status.

Methods: A cross-sectional study was conducted from January to December 2022, involving 105 clubfoot patients. Nutritional status was assessed using the WHO weight-for-age classification. Clinical and laboratory parameters were analyzed to determine the relationship between malnutrition and Ponseti technique outcomes. Statistical significance was set at $P \leq 0.05$.

Results: Among 105 patients, 84 (80%) had good nutritional status, while 21 (20%) were malnourished. Malnourished patients required more casts (≥6 in 45.5% vs. 21.4%) and had a higher rate of Achilles tenotomy (76.4% vs. 51.8%). Clinical tests showed a direct correlation between poor nutrition and worse treatment outcomes.

Conclusion: Malnutrition significantly affects Ponseti treatment outcomes, leading to increased cast requirements and a higher risk of relapse. Assessing nutritional status through clinical tests is crucial for predicting treatment success. Addressing malnutrition may enhance outcomes in clubfoot management.
Keywords: Malnutrition, Clubfoot, Ponseti Technique, Nutritional Status, Clinical Correlates.

16:40 - 16:43

1064 Malunion Surgery For Neglected Proximal Humerus Fracture Utilising Anterior Deltoid Aponeurosis Approach In A 10 Year Old Girl

Kaunteya Ghosh[1,2]

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2. KPC Medical College & Hospital, Kolkata, India

Abstract
A 10 year old girl presented to us with malunited left sided humerus fracture . After sustaining the injury she was institutionalised for chicken pox and thus could not avail treatment at the time . Being from a socioeconomically challenged background she presented late to our hospital . On being diagnosed she was taken to the OR , and under General Anaesthesia the malunited fracture was approached by the anterior deltoid Aponeurosis split technique (innovated by our team) . The malunion was taken down by osteoclasis , the fragments were controlled surgically , the callus taken down was utilised as graft and the malunion was secured with TENS and arm sling .

16:24 - 16:27

2202 Staged Trauma Of The Pelvic Limb Of Children Requires A Specific Therapeutic Strategy To Avoid Secondary Complications And Functional Sequelae In 67 Patients.

Rabah Atia

Université Badji Mokhtar - Faculté de Médecine de Annaba - Algérie. CHU Annaba - Service d'Orthopédie - Hôpital Ibn Rochd - Annaba - Algérie., Annaba, Algérie

Abstract
Introduction: Multi-stage pelvic limb trauma in children (TEMPE) is a complex anatomopathological entity in terms of radiology, clinical aspects, and therapy.
Materials and Methods: 67 TEMPE (0.13%) out of 51,206 osteoarticular trauma patients (1996-2015); Locoregional and general radiological and clinical assessment; Classification according to diaphyseal and/or articular involvement; Orthopedic and surgical treatment; Results at 3-6 years;
Results: 53.33% 12-16 years: 73.33% boys, 66.66% right, 30% urban dwellers, 49.98% victims of road traffic accidents; 66% associated; 86.66% closed, 75% open type I; 33.33% femoral fractures associated with 54% pelvic fractures associated with 61.53% femur, 15.38% leg, 15.38% knee, ankle; 9.09% ankle fractures associated with 33.33% leg, 33.33% femur, 16.66% pelvis, 6.66% knee; 6.06% knee fractures associated with 50% pelvis, 25% ankle, 25% leg; 3.03% foot fractures associated with only a leg fracture; 69.97% are hospitalized for 2 to 6 days; 73.32% surgical treatment, 31.81% closed; 31.81% screwed plate, 22.72% pinning, 18.18% pin and plate, 1% surgical reduction;
Discussion: Surgery is the mainstay of treatment. The outcome is favorable regardless of the type of treatment. The advantage of emergency surgery is the ease of reduction. The results are good, and the long-term outcome is excellent, confirming the benignity of TEMPE.
Conclusion: TEMPE are rare and pose few problems. Regardless of the treatment undertaken, the long-term outcome is good, confirming their benignity.

16:21 - 16:24

1277 Benefit Of Surgery In Congenital Hip Dislocation (CHL) After Walking Age About 439 Cases (286 Orthopedic Treatment And 153 Surgical Treatment Cases)

Rabah Atia

Université Badji Mokhtar - Faculté de Médecine de Annaba - Algérie. CHU Annaba - Service d'Orthopédie - Hôpital Ibn Rochd - Annaba - Algérie., Annaba, Algeria

Abstract
Introduction The study condemns the failure of screening and costly surgery resulting in a prosthesis
Materials and Methods Retrospective study (1996 to 2020). 439 cases discovered after the age of walking (286 orthopedic treatment and 153 surgical treatment) compared to 1087 newborns treated at birth Treatment at birth by simple abduction swaddling Orthopedic treatment by traction followed by a cast Complete Klisix surgery; 5 years of follow-up
Results 50% discovered while walking 89% girls; 25% first child 100% pregnancy follow-up, 61% at term, 64% risk factor; 60% eutocic delivery; 39% normal birth weight; 36.11% discovered between 2 and 5 years Surgery 2 to 5 years with 38.88% at 5 years; According to Tonnis, 24% stage IV Neo-acetabulum present 41.66%; 41.66% traction before surgery; 25% Klisic; 25% lameness, 16.66% correct abduction; 8% Osteochondritis; 33.33% good results according to Severin groups I and II. According to Severin's classification, 33.32% good and very good results groups I and II. 50% good and very good results orthopedic treatment versus 33.32% surgery. Treatment at birth: almost normal coxometry; 0.22% two severe necroses; 0.22% 02 cases placed under traction; 0.34% 03 cases residual dysplasia operated on.
Discussion: Studies for screening and failure of surgery at the inveterate stage.
Conclusion: Neonatal screening remains the solution. It is our duty to establish a screening network. Train everyone. All levels.
Envoyer des commentaires

16:37 - 16:40

1377 Results Of Medial Lower Femoral Temporary Hemiepiphysiodesis Using PET Screws For Correction Of Genu Valgum

Taral Nagda, Sushant Shrivastava

Institute of Paediatric Orthopaedic disorders, Mumbai, India

Abstract
Introduction:
The current study analyses the results of PET screws for correction of genu valgum in children. We also describe a new radiological parameter Screw deviation axis (SDA) for assessing the correction of angular knee deformities near skeletal maturity.
Methods:
We analyzed retrospectively 40 patients treated with genu valgum treated with PETS. We measured mechanical axis, TFA, LDFA and MPTA before surgery and at end of correction. Intermalleolar distance clinically and Femoro tibial angle and Screw deviation angle (SDA) on x rays were used for post operative follow up.
Results:
Mean age of patients at the time of PET Screw insertion and removal were 11.94 and 12.77 years with mean screw duration of 283.22 days. Mean correction in Intermalleolar distance was 9.225±1.186 cm, with mean correction rate of 1.06cm per month. Radiological rates of correction were LDFA 0.621, TFA 0.596, SDA 0.778 per month Mean correction rate per day was highest in patients with olecranon score of 6 as per Sauvegrain system. No overcorrection / rebound phenomenon or growth arrest was noticed Post implant removal.
Discussion:
The study supports use of PET screws in children with genu valgum who are indications for correction using growth modulation. It also providess rates of correction to predict time to correction. It describes a new index Screw deviation angle to assess the correction.
Conclusion:
Growth modulation using PETS is an effective technique for management of genu valgum in children.

Wednesday, 3 September

Shoulder&Elbow 1
16:15 - 16:18

221 Outcomes Of Anatomic Total Shoulder Arthroplasty: Evaluation Of Implant-Related, Radiographic, And Demographic Factors Influencing Durability And Revision Rates

Felix Hochberger, Maximilian Rudert, Kilian List, **Thilo Lehmeyer**

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Abstract
Purpose
To assess the impact of implant-associated and radiographic factors on survival and revision rates in total shoulder arthroplasty (TSA) for primary osteoarthritis (OA).

Methods
This retrospective study analyzed 68 patients who underwent TSA between 2008 and 2015, with a minimum follow-up of 60 months. Patients with prior shoulder surgeries, perioperative infections, or revisions within 12 months were excluded. Based on implant survival, patients were categorized into Group A (Survivors) and Group B (Revisions). Radiographic parameters included critical shoulder angle (CSA), acromiohumeral distance (AHD), lateral offset (LO), humeral head-stem index (HSI), center of rotation (COR), and glenoid erosion, assessed using standard classifications.

Results
Of 68 patients, 57 were in Group A (mean age: 58.5 ± 10.1 years) and 11 in Group B (mean age: 61.4 ± 8.3 years), with mean follow-ups of 115.8 and 113.9 months, respectively. Implant survival was 84% at 115.8 ± 34.5 months. Baseline demographics, including smoking status ($p = 0.75$), and osteolysis prevalence (Group A: 47%; Group B: 45%; $p = 0.91$) were comparable. HSI was significantly higher in Group B (0.5 ± 0.1 vs. 0.4 ± 0.1; $p = 0.03$), while other radiographic differences were non-significant.

Conclusion
TSA provides favorable mid- to long-term outcomes with 84% survival and low complication rates. Osteolysis is common but rarely necessitates revision. The significance of HSI warrants further investigation.

16:21 - 16:24

501 Pectoralis Minor Syndrome

Omar Alberto Valdez López, Pedro Pelaez Damy, Victor Alfredo Orihuela Fuchs

Centro Medico ABC, Mexico, Mexico

Abstract
Background: Pectoralis minor syndrome (PMS) is a condition where the neurovascular bundle (nerves and blood vessels) that runs through the shoulder and arm is compressed by the pectoralis minor muscle and is a type of thoracic outlet syndrome (TOS). It may occur due to repetitive overhead activities, traumatic incident, structural causes, myofascial pain syndrome in the pectoralis minor muscle, as well as spasticity of the pectoralis minor muscle.

Objective: We report a 67-year-old female patient who was diagnosed with PMS after two years of the initial symptoms and being treated at the cervical level by other physicians without success.

Method: Diagnosis of PMS was confirmed by left side brachial plexus MRI. A pectoralis minor muscle tenodesis and suprascapular nerve release and neurolysis was done, all by arthroscopy of the left shoulder.

Result: She was left immobilized in a sling after surgery. At 6 weeks she showed an 80% improvement in referred pain and was following a rehabilitation plan.

Conclusion: It should be kept in mind that PMS is a rule-out diagnosis that can compress the brachial plexus and mimic other entities that can delay the diagnosis. Arthroscopic pectoralis minor and suprascapular nerve release with brachial plexus neurolysis yields high rates of success in expert hands.

16:18 - 16:21

582 Our Experience In Managing Dislocated Reverse Total Shoulder Replacements

Oubida Asaad, Hassan Raja, Parag Raval, Mark Falworth, William Rudge, Addie Majed, David Butt, Deborah Higgs

Royal national orthopaedic hospital, London, United Kingdom

Abstract
Background:

Management of dislocated reverse total shoulder replacements (rTSR) is challenging. We present our experience in managing these complex cases at our tertiary referral centre.

Methods:

We carried out a retrospective review of prospectively collected data of patients undergoing revision surgery for a dislocated rTSR between 2013-2023. We collected patient demographics, indications for their primary rTSR, classified the underlying cause of their instability as per Frankle's classification and reviewed the type of surgical interventions required to achieve stability.

Results:

Thirty-nine shoulders were included: 20 male and 18 female, with a mean age of 68 years. 29 cases were primary rTSR, and 10 cases were revision rTSR. 32 (82%) dislocations had occurred within 6 weeks of the index procedure. The mean follow up was 4.7 years.

To achieve stability 18 patients required modular exchange, 7 patients required revision to another rTSR, 6 patients required revision to a constrained implant. 2 patients were converted to a hemiarthroplasty, and 4 patients underwent excision arthroplasty. 1 patient had an open reduction and 1 patient had a closed reduction. The rate of recurrent instability requiring more than one revision was 25.6%, in comparison to 14.7%-50% reported in literature. The commonest factor leading to dislocation was loss of compression (77%), followed by loss of containment (13%) and impingement (10%).

Discussion:

Revision surgery for dislocated rTSR is challenging, and may require multiple procedures to achieve stability. Understanding the underlying cause for instability is important in achieving a successful outcome.

16:24 - 16:27

1213 Comparison Of Osseous Integration Rate At Bone-Implant Interface According To Systemic Administration Of Parathyroid Hormone

Ji Un Kim[1], Sheng Chen Han[2], Hyun Jang Jeong[2], **Joo Han Oh**[2]

1. Kangwon National University Hospital, Chuncheon, South Korea
2. Seoul National University Bundang Hospital, Seongnam, South Korea

Abstract
Introduction: Our study aims to evaluate the impact of systemic recombinant human parathyroid hormone (rhPTH) administration on implant-bone bonding around joint prostheses in the rabbit model.
Methods: Twenty-four rabbits were divided into control and recombinant human parathyroid hormone (rhPTH) groups. The treatment group received 10 micrograms per kilogram (μg/kg) of teriparatide daily for four weeks. Bone markers, including tartrate-resistant acid phosphatase (TRAP), alkaline phosphatase (ALP), and osteocalcin (OC), were measured before and after treatment using an enzyme-linked immunosorbent assay (ELISA). Afterward, six rabbits per group underwent biomechanical testing, and a radiologic study using micro-computed tomography (micro-CT) assessed bone mineral density (BMD) and bone volume (BV).
Results: Before implantation, there was no significant difference in TRAP and ALP levels ($p > 0.05$), except for OC ($p < 0.001$). After four weeks, ALP (83.6 ± 23.2 vs. 66.0 ± 14.4 IU/L, $p < 0.05$) and OC gap (0.8 ± 3.8 vs. -6.7 ± 2.8 ng/ml, $p < 0.001$) were higher in the rhPTH group, indicating increased bone formation. Load-to-failure was also higher (649.5 ± 105.7 vs. 544.1 ± 68.6 N, $p < 0.01$). However, BMD and BV showed no significant differences ($p > 0.05$)
Conclusion: In this rabbit model, rhPTH led to increased bonding at the prosthesis-bone interface in shoulder joint arthroplasty. Based on the current study, we infer that rhPTH may facilitate bone ingrowth around artificial joint replacements, which could contribute to improved long-term outcomes following shoulder arthroplasty.

17:06 - 17:09

678 Chronic Distal Biceps Rupture Reconstruction With Semitendinosus Autograft And Achilles Allograft Showed Very Good Functional Results: A Series Of Five Cases.

María Del Rocío Valverde Vázquez, Emilio Villanueva García, Juan Miguel Redin Huarte, José María Martínez Costa, **Nuria Ribera Martínez**

Hospital Arnau de Vilanova - Hospital de Llíria, Valencia, Spain

Abstract
OBJECTIVES
To describe and compare the results of two surgical techniques: the use of semitendinosus autograft and Achilles tendon allograft in the treatment of chronic distal biceps tendon ruptures.
MATERIALS AND METHODS
An observational descriptive retrospective study was conducted. Surgically treated patients with graft after chronic distal biceps rupture operated in our department from January 2016 to December 2024 (n=5) were included.
RESULTS
In three of the cases, a biceps augmentation with Achilles allograft was used by fixating the radial bicipital tuberosity with a button and interferential screw and by stressing the graft insertion to the biceps stump with a Pulver-Taft (n=1) or Krakow type suture (n=2) at a 60º flexion. In the other two cases, the same technique was used but using semitendinosus autograft.
The average age of patients was 44.2 years, all males, operated 12’4 months after distal biceps tendon rupture on average. In 80% of cases, the injury affected the non-dominant arm.
Range of motion was normal. Two patients had a loss from 10° to 20° in supination, without functional limitation.
Pain, as measured by the Visual Analogue Scale, was less than 1.
Functionality and satisfaction were excellent, as measured by the Mayo, Oxford and DASH scales.
Flexion and supination strength were assessed using dynamometry in three patients. The values were similar to those of the contralateral arm.
CONCLUSIONS
Chronic distal biceps reconstruction with semitendinosus autograft and Achilles allograft showed very good functional results in terms of range of motion, patient satisfaction, pain and strength.

16:47 - 16:50

693 Short-Term And Medium-Term Results Of Treatment Of Patients Who Underwent Open Reconstruction Of The Humeral Head For Chronic Coupled Fracture-Dislocations Of The Shoulder

IVAN Marychev, Yago Gudushauri, Evgeny Fedotov, Sergey Stoyukhin

FSBI Scientific and Medical Research Center of Traumatology and Orthopedics im. N.N. Priorova Ministry of Health of the Russian Federation, Moscow, Russia

Abstract
Purpose
Chronic interlocked fracture-dislocation of the shoulder is a rare injury that may be associated with various fracture types. The most common of these is an impression fracture of the anteromedial part of the humeral head. Treatment depends on the size of the defect. Massive defects after an impression fracture of the humeral head should be treated with total or partial arthroplasty. Treatment of an anteromedial defect that involves less than 50% of the humeral head but is unstable is a complex problem. A wide range of operations has been described, such as transposition of the subscapularis tendon or lesser tuberosity of the humerus into the defect, reconstruction with osteochondral allograft, partial arthroplasty with a custom polished augment. Treatment should restore stability and function of the shoulder joint by restoring the normal anatomical sphericity of the humeral head. This makes osteochondral autoplasty a logical option. However, in some cases we used individual augmentation of the head defect.
Materials and methods
Since October 2022, 97 open humeral head reconstructions have been performed by one surgeon. 71 cases were tracked. Of these, the following were performed: bone autografting - 51 cases, individual polished titanium augmentation - 20 cases. Shoulder joint function, upper limb function and quality of life were assessed using the DASH, UCLA and Constant-Murley scales before surgery, 6 months, 12 months and 24 months after surgery.
Results and discussion
Control examinations 1 year after the operation revealed an improvement in function by an average of 36.98 (±14.16) points according to DASH, by

17:12 - 17:15

1667 The Clinical And Radiological Outcome Of Posterior Shoulder Fracture-Dislocation: A Case Series

Parash Bhandari[1], Kashif Memon[1], Tahreem Fatima[2], Majid Ali[3]

1. University hospital Birmingham NHS foundation trust, Birmingham, United Kingdom
2. University hospital Birmingham NHS foundation Trust, Birmingham, United Kingdom
3. University Birmingham NHS Foundation Trust, Birmingham, United Kingdom

Abstract
Background:

Posterior shoulder fracture-dislocation is a rare and often misdiagnosed condition, lacking standardised treatment guidelines. Both conservative and operative approaches are used, but long-term stability outcomes remain unclear. This study evaluates functional and stability outcomes in patients treated for posterior shoulder fracture-dislocation, using the Oxford Shoulder Instability Score (OSIS) and range of motion (ROM).

Method:

This case series includes 22 patients (26 shoulders) diagnosed with posterior shoulder fracture-dislocation at University Hospitals, Birmingham, from January 2020 to December 2024. We retrospectively analysed patients treated either conservatively or operatively based on fracture severity and surgeon preference.

Results:

A total of 26 shoulders were treated. Nine patients underwent closed relocation followed by physiotherapy, while 17 required surgical intervention, including open reduction internal fixation (3 cases), arthroplasty (5 cases), and the modified McLaughlin procedure (9 cases). Outcomes were assessed using the OSIS and ROM at follow-up visits and via telephone consultations. The average OSIS score was 35.69 (range: 10-48). ROM assessments showed an average abduction of 91.82° (range: 20-180°), flexion of 100.91° (range: 20-180°), and external rotation of 35.68° (range: 10-60°).

Conclusion: Both conservative and operative treatments led to improved functional outcomes, with the modified McLaughlin procedure showing particularly promising results in maintaining shoulder stability and function. The OSIS provided valuable insight into recovery. Despite variability in ROM, overall outcomes were favourable. These findings support individualized treatment approaches, although further studies with larger cohorts are needed to refine treatment guidelines.

17:19 - 17:22

1679 A Treatment Strategy Using Intraosseous Wiring For Comminuted Olecranon Fracture-Dislocations

Sadaaki Tsutsui

Showa university hospital, Tokyo, Japan

Abstract
Background

Olecranon fracture-dislocations involve complex injuries affecting bones, joints, ligaments, and tendons. Anatomical reduction and stable fixation are essential for successful treatment. We utilized Intraosseous Wiring (IOW) with soft stainless steel wire for preliminary fixation of small fragments, followed by plate fixation of the ulna. This study evaluates the clinical outcomes of this approach.

Materials & Methods

A retrospective review of seven patients was conducted. The cohort included five males and two females (mean age: 53.4 years; mean follow-up: 16.7 months). The dislocations consisted of four posterior and three anterior cases. Three patients had associated fractures, including one distal humerus intra-articular fracture and two capitellar fractures. Two cases involved open fractures.

Surgical Technique:
A posterior universal approach was used. Comminuted fragments were anatomically reduced and stabilized with IOW and cerclage wiring, followed by plate fixation of the ulna. Ligament repair was performed as necessary. Postoperatively, the elbow was immobilized for one week, followed by early range-of-motion exercises.

Evaluations:
Clinical outcomes included bone union, elbow range of motion (ROM), Mayo Elbow Performance Score (MEPS), and complications.

Results

All fractures achieved bone union. The mean ROM was 137° flexion and -12° extension, with a mean MEPS of 97.9. One case of mild heterotopic ossification was observed but remained asymptomatic. No major complications were noted.

Conclusion

IOW effectively stabilizes small bone fragments in comminuted olecranon fracture-dislocations, allowing for anatomical reconstruction and stable fixation. This approach provides a versatile and reliable method for restoring elbow function in complex injuries.

16:40 - 16:43

2986 Glenoid Reconstruction Using Bone Graft In Reverse Total Shoulder Arthroplasty: A 10 Year Review

Maya Nelson, William Aldridge, David Thyagarajan

Sheffield Teaching Hospitals NHS Trust, Sheffield, United Kingdom

Abstract

Introduction

Glenoid bone deficiency in reverse total shoulder arthroplasty (rTSA) presents a significant surgical challenge. Addressing glenoid bone loss during rTSA is critical to ensure stability and restore shoulder function. Bone grafting (using autografts or allografts) helps restore the glenoid anatomy and bone stock, which is essential for long-term success. This study aims to assess the durability and functional outcomes following this technique.

Aims

To report medium to long-term outcomes following glenoid reconstruction using bone grafting in rTSA.

Study Design & Methods

In a single centre, patients who had undergone rTSA with glenoid graft since 2014 were retrospectively analysed. Patient demographics, Walch classification, pre-operative Oxford Shoulder Score (OSS) and indication for surgery was recorded. The primary outcome measure was implant survival. Post-operative OSS, radiological outcomes and complications were also assessed.

Results

42 patients underwent rTSA with glenoid grafting. Autologous humeral head graft was the commonest source. Mean follow up duration was 53 months (SD: 32).

Overall implant survival was 100%, however 3 patients (7.1%) had complications that necessitated revision but were unfit for surgery. This was for infection (2) and dislocation (1). No glenoid component loosening was seen in the patient group.

Mean pre-op shoulder score was 15.5, which increased to 35 at 1-year post-op, 34 at 5 years and 32 at 10 years.

Conclusion

This study supports the use of bone graft for rTSA in patients with glenoid bone loss, with excellent implant stability and patient reported outcomes.

16:53 - 16:56

3047 Surgical Management Of Primary Malignant Bone Tumors Of The Proximal Humerus: A 20-Year Experience From A Referral Center.

Amine Siouid, Mohamed Sadok Chtai, Ibrahim Najjar, Mourad Mtaoumi, Mahmoud Ben Maitigue, Karim Bouattour

orthopedic department sahloul hospital, Sousse, Tunisia

Abstract
Introduction:
The proximal humerus is a rare site for primary malignant bone tumors. The goal of conservative treatment is to achieve oncologic resection of the tumor while preserving limb function.
This study aims to discuss the indications for conservative surgical treatment based on the involvement of anatomical structures.

Materials and Methods:
We conducted a 12-year study including patients who underwent conservative surgical treatment for a primary malignant bone tumor of the proximal humerus. 13 operated patients were evaluated.
results:
The mean age of the study population was 41.7 years, with an average follow-up of 58.6 months. The histological types included 6 chondrosarcomas, 3 Ewing's sarcomas, and 4 osteosarcomas. Reconstruction methods included a cemented nail in two cases, a shoulder prosthesis in two case, six cases of arthrodesis, and two cases of suspensionplasty. Functional and radiological outcomes were assessed using the MSTS functional score and Enneking radiological criteria. At the last follow-up, the mean MSTS functional scores were 85% for total shoulder prosthesis, 75% for humeral reconstructions with a nail, and 71% for scapulohumeral arthrodesis.
Discussion:
Advances in adjuvant therapies have expanded the treatment options for bone tumors. Proximal humerus reconstruction following tumor resection remains a surgical challenge, aiming to restore a functional brachial segment with a stable and mobile shoulder. The choice of surgical approach depends on preoperative planning, the status of the soft tissues, and the remaining bone segment after resection.
conclusion : Success depends on careful preoperative planning, precise surgical technique, and intraoperative assessment.

17:22 - 17:25

2694 Outcome Evaluation Of Complex Fracture Dislocations Of Elbow After Surgical Intervention

Shivam Sinha, Saurabh K Sharma, Ajit Singh

Institute of Medical Sciences, Banares Hindu University, Varanasi, India

Abstract
Background : Complex elbow fracture dislocations (CEFD) are difficult injuries to tackle . Operative protocols are different based on type of osseoligamentous injury identified.
Methods : 40 patients of complex elbow frature dislocations were prospectively followed over a period of 5 years after early surgical intervention based on the pattern of injury. Frequency of different injury patterns were identified including terrible triad, transolecranon fracture dislocation and Monteggia variants etc. At final follow up , Patients were evaluated for MEPI, Q- DASH scoring, Range of movements and complications if any.
Results : Average follow up was about 2.5 years, With most common fractures being transolecranon fracture dislocation and terrible triad injuries. Instabilty was more in patients with radial head loss or excision. LCL reconstruction/ repair had improved MEPI /DASH scoring. Complications like infections required implant removal.
Conclusion : Protocol based and timely intervention lead to satisfactory outcomes in CEFDs over mid term. Stabilty must be addressed simultaneously with Osseous reconstruction. Radial length must be preserved by preserving the head or replacing it.

17:09 - 17:12

1446 Periprosthetic Fractures After Total Elbow Arthroplasty In The Context Of Aseptic Loosening

Igor Arsenev, Gurgen Kesyan, Rashid Urazgil'deev

National Medical Research Center for Traumatology and Orthopedics named after N.N. Priorov, Moscow, Russia

Abstract
Introduction. One of the main causes of the revision elbow arthroplasty is periprosthetic fractures. More than 13.5% of patients require repeat operations after primary one due to poor bone quality and extensive bone loss.
The purposes of our study were to characterize the periprosthetic fractures in the context of aseptic loosening.
Materials and methods. We have performed 135 primary total elbow arthroplasties (TEA). The average age of patient – 54 years, standard TEA indications were utilized. We used the Mayo Elbow Performance Score and Range of Motion to evaluate the elbow function. Eventually 34 patients have had periprosthetic fractures in 4-6 years after primary TEA (33 – around the humeral stem, 1 - periprosthetic fracture of ulna). We used plates and long bone allografts fixed with cerclage wirings. Loose components have been replaced.
Results. Only 2 cases were due to trauma. Other fractures were associated with aseptic loosening. A five-year follow-up of patients showed good outcomes in 33 cases. Elbow function was rated as excellent or good in 68%. In 1 case (fracture of ulna) the patient had an infection 1 year after revision arthroplasty.
Discussion. The aseptic loosening and periprosthetic fractures occur as parts of a single process. In our opinion, aseptic loosening can flow with periprosthetic fracture, or without one. In all cases, we should recreate bone stock using a bone allograft with different methods of implantation (side-to-side or into the bone canal). The next step is correct osteosynthesis.

16:50 - 16:53

2325 Innovative Surgical Approach For Pectoralis Major Tendon Repair: Unicortical Button Fixation With DX Reinforcement Matrix Augmentation

Athanasios Kalogeropoulos, Timnit Tekie, Al Acraf Khoriati, Tony Antonios, Ali Narvani, Mohamed Imam

Ashford And St Peter's Hospitals, Chertsey, United Kingdom

Abstract

Introduction

Pectoralis major tendon (PMT) ruptures are increasingly reported, especially in high-performance athletes. While surgical intervention remains the gold standard, conventional techniques often face biomechanical challenges, particularly in cases with tendon retraction or poor tissue quality. This study introduces a novel approach incorporating unicortical button fixation and DX Reinforcement Matrix augmentation to enhance tendon healing, mechanical stability, and functional recovery.

Methods

A case study was conducted on a competitive weightlifter with a complete PMT rupture. The procedure involved preoperative MRI assessment, unicortical button fixation for secure humeral anchorage, and DX Reinforcement Matrix augmentation to improve load distribution and biological integration. A Krackow whipstitch technique with high-strength sutures ensured robust fixation. Postoperative rehabilitation followed a structured protocol with a six-month progression to full activity. Clinical outcomes were assessed using the Oxford Shoulder Score (OSS) and postoperative MRI.

Results

At 12 months, MRI confirmed complete tendon healing. The OSS improved to 48 at six months, indicating excellent functional recovery. The patient resumed competitive weightlifting without restrictions, and no complications, including re-rupture or implant failure, were observed.

Conclusion

This novel surgical technique provides a biomechanically sound and clinically effective solution for PMT repair. It enhances tendon-to-bone healing, reduces repair tension, and facilitates early return to sports. Future research should explore its long-term efficacy and comparative benefits over traditional techniques.

16:31 - 16:34

2647 Patient-Specific Landmark-Based Suprascapular Nerve Blockade: A Cadaveric Study

Dave Duru[1], Salma Chaudhury[2], Niel Kang[2], Cecilia Brassett[1]

1. University of Cambridge, Cambridge, United Kingdom
2. Cambridge University Hospitals NHS Foundation Trust, Cambridge, United Kingdom

Abstract
Introduction: Suprascapular nerve (SSN) blockade is increasingly used to manage chronic shoulder pain in rotator cuff tears, glenohumeral arthritis, and frozen shoulder. Landmark-based approaches are quicker and more accessible than ultrasound-guided injections, but lack precision and risk neurovascular injury. Aim: To introduce novel, landmark-based approaches to localising the SSN at the suprascapular notch using patient scapular dimensions (height, spine length, and width). Methods: Twenty cadaveric shoulder specimens were dissected. Scapular dimensions were recorded. Distances from four palpable landmarks—root of scapular spine, deltoid tubercle, acromioclavicular (AC) joint, and lateral acromion—to SSN were measured in two axes: X (medial-lateral) and Y (anterior-posterior). Linear regression was performed to correlate scapular dimensions with distances from SSN to landmarks. Results: When factoring variable patient scapular dimensions, root of scapular spine best predicted lateral distance to SSN ($R = 0.69–0.80$; $p < 0.05$), while deltoid tubercle best predicted anterior distance to SSN ($R = 0.54–0.60$; $p < 0.05$). AC joint and lateral acromion predicted medial localisation of SSN when factoring scapular spine length and width ($R = 0.48–0.67$; $p < 0.05$). Using generated dual-landmark based approaches (for medial-lateral and anterior localisation) consistently placed the needle tip <1 cm from SSN, outperforming conventional techniques (one-way-Anova; $p < 0.0001$). Conclusion: This technique enables accurate, landmark-based SSN localization for nerve injections, using patient-specific scapular dimension measurements. It is well-suited to outpatient and low-resource orthopaedic settings.

Keywords: Injection; suprascapular nerve; landmark-based; cadaver; scapular dimensions

16:34 - 16:37

2782 Humeral Reconstruction Prosthesis Vs. Allograft Prosthetic Composite In Revision Reverse Total Shoulder Arthroplasty: A Retrospective Comparative Analysis

Alberto R Rivera[1], Victor J Cardona-Pérez[2], Umasuthan Srikumaran[2]

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Abstract
Background:
Revision reverse total shoulder arthroplasty (RTSA) is technically challenging. The PHAROS classification helps predict the complexity of humeral reconstruction. Common reconstructive options include allograft prosthetic composites (APC) and humeral reconstruction prostheses (HRP). APC supports soft tissue integration but is associated with higher nonunion and graft resorption rates. HRP offers modularity and immediate stability, though soft tissue integration into its porous surface is less understood. This study compares outcomes between APC and HRP in revision RTSA.
Methods:
We retrospectively reviewed 30 patients (22 females, 8 males) who underwent revision RTSA using HRP (n = 20) or APC (n = 10), with a minimum follow-up of 12 months and a median of 3 years [1–6 years]. We analyzed range of motion, Constant-Murley Score (CMS), Simple Shoulder Test (SST), Visual Analog Scale (VAS), and complication rates.
Results:
The mean age was 74 years. Mean CMS was 60, SST was 60, VAS was 1, FF was 105°, external rotation ER was 20°, and IR to the sacrum. HRP group achieved FF of 110°, ER of 22°, IR to the sacrum, CMS of 60, SST of 63, VAS of 1, and 2 complications. APC group had FF of 92°, ER of 12°, IR to the buttock, CMS of 56, SST of 50, VAS of 2, and 7 complications. HRP had significantly higher SST scores ($p = 0.002$) and fewer complications ($p = 0.0017$; OR = 0.048).
Conclusion:
HRP and APC are viable, though HRP showed fewer complications and better SST scores.

17:25 - 17:28

2375 Analysis Of Surgical Treatment Of Gunshot Fractures Of The Scapula And Clavicle

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Abstract
Introduction. Russo-Ukrainian war is associated with the application of high-energy weapons, that causing severe multifragmental injuries to the scapular and clavicular bones and associated with severe bone defects.
Aims. The aim of the study was to improve the results of orthopaedic treatment of patients with gunshot injury the clavicule and scapular bone with various variants of their damage.
Study Design & Methods. A retrospective analysis of 733 patients with combat surgical trauma of the limbs was carried out, including 378 patients (51.6%) with upper and 355 (48.4%) with lower limb trauma.
Results. 63 patients with combat surgical trauma of the scapula and clavicle were surgically treated, accounting for 8.6% of limb injuries and 16.7% of upper limb injuries. Depending on the type of damaging factor, gunshot wounds were in 35 patients (55.6%), mine-explosive injuries in 13 patients (20.6%), shrapnel wounds – 4 patients (6.3%), road accidents – 3 patients (4.8%). According to the location of fractures, patients were divided into 3 groups: fractures and dislocations of the acromioclavicular joints – 28 patients (44.4%), fractures of the scapula – 17 patients (27.0%) and combined fractures of the clavicle and scapula – 18 patients (28.6%). The functional result on the Constant-Murley scale was 89.4±11.6 points in the clavicle group, 74.6±8.4 points in the scapula group, and 68.9±12.4 points in the combined group at the end of treatment.
Conclusion. Gunshot fractures of the scapula and clavicle is a severe injury with often unsatisfactory treatment results.
Keywords: scapular. clavicular, gunshot, multifragmental.

17:03 - 17:06

2793 Implementation Of An Outpatient Shoulder Replacement Program In Colombia: Experience At A High-Complexity Academic Hospital

Guido Alfonso Fierro, Corina Elena Salas, Mercedes Elena Salas, Gabriela Gómez, Jorge Luis Rojas, Juan Carlos González

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Abstract
Introduction:
The increasing demand for shoulder arthroplasties has driven the shift toward outpatient procedures in selected patients. This study describes the experience of implementing an outpatient shoulder replacement program in Colombia, assessing implementation frequency, complications, patient satisfaction, and perceived barriers among surgeons.

Materials and Methods:
A descriptive, retrospective study was conducted at a high-complexity academic hospital in Colombia. A total of 41 patients who underwent shoulder arthroplasty between January 2023 and June 2024 were included and divided into outpatient and inpatient groups. Complications and readmissions within the first 30 days were evaluated, along with patient satisfaction and perceived barriers to implementing this model from the surgeons' perspective.

Results:
Of the total patients, 46% (n=19) were managed on an outpatient basis. Among these, 86% (n=12) reported satisfaction, and 79% (n=11) would choose this approach again. There were three readmissions in the outpatient group (16%), of which only one was considered a surgical complication and not directly attributable to outpatient management. No major medical complications were reported. The main barriers identified were patient refusal and non-modifiable factors such as advanced age and significant comorbidities.

Conclusion:
Outpatient shoulder replacement is a viable and safe alternative under a strict protocol, with high satisfaction rates and low complication rates. However, overcoming barriers such as patient refusal and appropriately managing non-modifiable factors will be key to optimizing the implementation of this model in the local context.

Keywords: Shoulder replacement, Perioperative care, Outpatient surgical procedures, Patient satisfaction.

16:56 - 16:59

1216 Arthroscopic Assisted Lower Trapezius Tendon Transfer Using Peroneus Longus As Intercalary Graft For Irreparable Posterosuperior Cuff Tears

Terence Dsouza, Sundararajan S R, Rajagopalakrishnan Ramakanth, Pushpa B T, Palanisamy Arumugam, Shanmuganathan Rajasekeran

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Abstract

Introduction:
Arthroscopic assisted Lower trapezius tendon (ALTT) transfer has gained a lot of momentum in the recent years for managing irreparable posterosuperior cuff tears (IPCT). Limited studies on this subject have used Achilles tendon allograft or hamstring autograft as the intercalary graft to increase tendon excursion upto greater tuberosity. Peroneus longus tendon (PLT) autograft is a promising alternative to hamstring autograft given its diameter, length and ease of harvest. This study aims to analyze the improvements in ROM, functional and structural outcomes and retear rates of ALTT using PL autograft as the intercalary graft.

Methodology:
This was a retrospective analysis of patients undergoing ALTT for IPCT with between 2022-2024. Improvement in Range of Motion (ROM), ER strength (MRC grading), ER lag sign, pain (VAS scores), functional score (ASES, Constant Murley) and patient satisfaction score(PSS) were assessed. Repair integrity was analyzed using a 3T MRI at final follow-up.

Results:
Thirteen patients at a mean follow-up of 24.8 months showed statistically significant improvement in ROM($P<0.001$), a negative ER lag sign in 10/13 patients and a mean ER strength of 3.8($p<0.001$). There was statistically significant improvement of VAS scores, ASES, Constant-Murley and PSS scores($P<0.01$). 3/13 patients had a retear on follow-up MRI(retear rate-23.3%). Patients did not complain of donor site morbidity with a mean AOFAS score of 97.3. We did not encounter any superficial/deep infections.

Conclusion:
With significant improvements in pain, ROM, ER strength, functional outcomes and acceptable retear rate with minimal donor site morbidity, ALTT with PLT autograft is a good choice for managing IPCT.

Wednesday, 3 September

Spine 2
16:15 - 16:18

205 Assessment Of Urgent Investigative Images Transfer Effectiveness From Trauma And Orthopaedic To Neurosurgery Department: A Quality Improvement Project.

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Abstract
Background:
Neurosurgical emergencies, including cauda equina syndrome (CES), traumatic spinal cord injuries (TSCI), and traumatic brain injuries (TBI), require rapid diagnosis and intervention to prevent severe morbidity and mortality. Delays often arise from inefficiencies in transferring investigational images to external neurosurgery units, particularly in district hospitals without in-house neurosurgical services.

Aims:
This quality improvement project aimed to reduce image transfer times from Sandwell and West Birmingham Hospitals Trust (SWBH) to the neurosurgery unit at Queen Elizabeth Hospital Birmingham (QEHB) and enhance the timeliness of neurosurgical input. The initiative empowered Trauma and Orthopaedics (T&O) doctors to independently use image transfer software (ITS), reducing reliance on the PACS team.

Methods:
The project was conducted over three Plan-Do-Study-Act (PDSA) cycles between February and September 2024. Initially, T&O registrars were trained in ITS use. Following low compliance, training was expanded to junior doctors, with additional instructional resources provided. Data on image transfer and neurosurgical response times were collected and compared pre- and post-intervention.

Results:
The intervention significantly reduced referral-to-transfer time from 18 to 3.5 hours by the third cycle. The proportion of images transferred within 1 hour increased from 36% to 59%, and 87% of images were reviewed within 6 hours. The initiative likely contributed to operational cost savings by easing IT and radiographer workloads and reducing length of stay.

Conclusion:
This project improved image transfer efficiency for neurosurgical emergencies. While ITS proved effective locally, broader implementation requires further research to optimize national image-sharing systems.

16:18 - 16:21

433 Satisfactory Mid-Term Outcomes Justified The Application Of Dynesys Dynamic Stabilization System In Treating Lumbosacral Segments Needing Stabilization Without Fusion

Chien-Jen Hsu

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Abstract
Introduction:
Although Dynesys Dynamic Stabilization System was used to treat lumbosacral disc degeneration with/without hypermobility, no consensus was achieved regarding its role in preventing adjacent instability by providing flexibility.
Methods:
We collected 21 patients undergoing Dynesys Dynamic Stabilization that had radiographic follow-up at least 5 years postoperatively. we assessed MRI and spinal flexion/extension radiographs preoperatively and postoperatively. The
medication regarding pain relief at out-patient clinic was compared with pre-operative medication as improved, remained, and worse. We defined primary outcome as medication status and re-operation related to Dynesys Dynamic Stabilization System as secondary outcome.
Results:
Among 21 patients, 4 patients continued to take pain medication postoperatively. Their follow-up radiographs did reveal further development of adjacent instability or mal-placed pedicle screws. Two patients underwent revision operation eventually. The other 15 patients reported satisfactory outcomes with improvement of SF-36 score from 58 to 81 in the final follow-up. Two patients even demonstrated re-hydration of degenerated disc on MRI.
Conclusions:
Dynesys Dynamic Stabilization System provides stabilization of spinal segments as an adjunct or provisional substitute to fusion in treating lumbosacral spine needing stabilization but without confirmed prevention of adjacent instability. Besides, almost 20% of patients continued to suffer from back pain requiring pain medication.

16:34 - 16:37

487 Modified Hybrid MIS-TLIF, What We Do?

Md. Shah Alam, Md. Ziaul Hasan

Bangladesh Spine and Orthopedic Hospital, Dhaka, Bangladesh

Abstract
Introduction:
MIS-TLIF is a common surgical procedure to treat lumbar spondylolisthesis. However, we introduced and practice our own method of doing the surgery. We have invented our own Hybrid MIS-TLIF and documented the long-term results of Our own surgical strategy.
Objective:
To determine the clinical and radiologic outcomes of the long-term results of instrumented minimally invasive spinal-transforaminal lumbar interbody fusion (MIS-TLIF) by our own modified technique in unstable, single-level, low-grade, isthmic spondylolisthesis (IS) or degenerative spondylosis (DS) including degenerative spondylolisthesis, foraminal stenosis with central stenosis, degenerative disk disease, and recurrent disk herniation.
Methods:
Eighty-four patients who had undergone instrumented Modified Hybrid MIS-TLIF between July 2021 and September 2024 were retrospectively reviewed. Here we used MIS Screw system with a midline mini open Incision to put the cage for fusion. The visual analog scale, Oswestry Disability Index, patient satisfaction rate, and the patient's return-to-work status were used to assess clinical and functional outcomes. Radiologic follow-up were carried out in patients to check for adjacent segmental degeneration (ASD). The plain radiographs, computed tomography were used in all patients in last follow-up period.
Results:
The mean visual analog scale scores for back and leg pain decreased from 5.9 and 7.1 to 3.5 and 3.7, respectively, in the DS group (n=49) and from 6.7 and 6.8 to 1.8 and 2.0, respectively, in the IS group (n=35) ($P<0.001$). The mean Oswestry Disability Index scores improved from 60.7% to 23.5% in the DS group and from 63.9% to 19% in the IS group ($P<0.001$). Patient satisfaction rate was 80%

16:50 - 16:53

513 Adipocyte-Derived Stem Cells In The Treatment Of Spinal Cord Injuries In Animal Models: A Systematic Review.

Faraz Jamil, Taha Ahmed, Hamzah Iqbal, Antonia Vogt, Wasim Khan

Cambridge University, Cambridge, United Kingdom

Abstract
Introduction: Spinal cord injury (SCI) represents a burdensome and currently incurable condition that affects over 20 million patients globally. Adipocyte-derived mesenchymal stem cell (ADSC) therapy may constitute a valuable strategy in treating this condition, but the evidence that supports this is partially established.

Aims/Objectives: The primary objective of this study is to establish whether ADSC therapy is a viable strategy for treating SCI in animal models.

Methods: This study is a PRISMA systematic review. PubMed, Web of Science, Scopus and Medline were searched systematically. Duplicate studies were removed and inclusion and exclusion criteria were applied. The primary outcome investigated was locomotor recovery following SCI. Other outcomes examined included the following: general characteristics of studies, results of stem cell characterisation, SCI induction protocols and bladder function following SCI. Data were extracted using a Python coding module and presented in Excel.

Results: Sixteen articles met our criteria; these were reviewed, assessed and reported in our study. Studies investigated a range of ADSC therapies in various SCI models. Fifteen of the studies provided evidence that ADSC therapy has a beneficial effect on locomotor recovery following SCI. The evidence supporting the use of adjuvant therapies alongside ADSCs was more varied.

Conclusion: ADSC therapy appears to be beneficial in enhancing functional recovery following SCI. Further investigations into the mechanisms that underly recovery following ADSC therapy should follow the outcomes of this systematic review. In turn, this would help expand our understanding of SCI and potential therapeutic avenues therein.

Keywords: SCI, ADSC, adjuvant therapy.

16:56 - 16:59

624 The Application Of Uni-Portal Non-Coaxial Spinal Endoscopy Surgery(UNS)/Arthroscopic-Assisted Uni-Portal Spinal Endoscopy (AUSS) In Lumbar Interbody Fusion.

Jizheng Li

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Abstract
Objective:Explore the efficacy of the UNS/AUSS technique in single-segment lumbar interbody fusion.
Method:Retrospective analysis of 93 single-level lumbar fusion cases in our hospital from 2021 to 2024. 39 in Group A had unilateral decompression then fusion; 54 in Group B had unilateral approach bilateral decompression of the whole spinal canal then fusion. Operative time, blood loss, complications and postoperative stay were recorded. VAS and ODI evaluated pain and function improvement pre-op, immediately post-op, and at 1, 3, 6, 12months post-op.
Result:Group A's average operative time was 89.2±7.3 minutes, Group B's 106.3±5.6 minutes. No intraoperative nerve root injury or dural sac rupture. Postoperatively, back pain VAS, ODI, and SF-36 scores improved significantly ($p<0.05$). Immediate postoperative VAS scores had no significant difference from those at 1, 3, 6, 12 months post-op ($P>0.05$), but ODI and SF-36 scores did ($P<0.05$). No significant differences in ODI and SF-36 scores among 1, 3, 6 months post-op ($P>0.05$). Group A's average blood loss was 20.8±3.4 mL less than Group B's. Average post-op hospital stay was 4.1±1.3 days for Group A and 4.5±1.1 days for Group B, with no significant difference between the two groups.
Conclusion:The UNS/AUSS technique has notable advantages such as larger operative space, extensive decompression, and minimal tissue disruption, and is worthy of clinical promotion. For bilateral nerve root compression, the 30-degree arthroscope enables broader visualization of the contralateral nerve root for targeted decompression. Also, the approach side allows screw placement under endoscopic guidance to reduce fluoroscopy.
Key words:UNS/AUSS; Lumbar interbody fusion;Minimally invasive

17:03 - 17:06

1004 A Cross-Sectional And Longitudinal Study Of The Relationship Between Radiographic Spinopelvic Alignment And Physical Function In A Community-Based Female Cohort In Japan

HISASHI Chiba[1], Tetsuya Kobayashi[2], Issei Senoo[2], Mutsuya Shimizu[3], Mitsuru Imai[2], Hiroyuki Sugisawa[4], Toshinobu Sugawara[5], Hibiki Yokohama[4]

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2. Department of Orthopaedic Surgery, Asahikawa Medical University, Hokkaido, Japan
3. Department of Orthopaedic Surgery, Kaisei Hospital, Hokkaido, Japan
4. Department of rehabilitation, Furano Kyokai Hospital, Hokkaido, Japan
5. Department of rehabilitation, Biei Hospital, Hokkaido, Japan

Abstract
[Purpose]
Adult spinal deformity has been elaborated radiographically, however, clinical data about physical function has not been well-documented. The purpose of this study was to investigate the relationship between radiographic spinopelvic alignment and physical function in a community-based female cohort in Japan.
[Methods]
Female participants of public spinal screening program were included. After written informed consent, standard radiographic spinopelvic parameters including thoracic kyphosis, lumbar lordosis (LL), sagittal vertical axis (SVA), pelvic incidence, pelvic tilt (PT), and sacral slope (SS) were measured, as well as physical function parameters including muscle strengths of trunk and lower extremity using an isometric device, active back extension test (BET), functional reach test (FRT) and the difference of trunk inclination angle (TIA) between walking and standing (dTIA=TIA at walking -TIA at standing).
[Results]
A total of 476 female volunteers, with a mean age of 68.0 years, were studied cross-sectionally, and 120 volunteers studied longitudinally with a mean follow-up period of 6.3 years. Cross-sectional analyses showed that BET was significantly associated with LL, SS, and SVA; dTIA was significantly associated with PT. Longitudinal BET change showed significant association with changes in LL , SVA, FRT , and knee extensor strength.
[Conclusions]
Clinical data from this study showed BET and ambulatory kyphosis were constantly associated with sagittal spinopelvic parameters. The volunteers with worsening BET from longitudinal data had worsening sagittal spinopelvic alignment and decreased muscle strength and balance. BET was suggested as a useful physical performance test for a clinical marker of aggravation to the sagittal spinopelvic alignment.

16:24 - 16:27

1017 Cerebrovascular Complications After Spine Surgery—Association With Antithrombotic DrugDiscontinuation—

Shun Ohmori, Satoshi Kato, Noriaki Yokogawa, Takaki Shimizu, Takaaki Uto, Yuji Ishino, Kazuhiro Nanpo, Megumu Kawai, Satoru Demura

Kanazawa University, Kanazawa, Japan

Abstract
Background
As the population ages, more patients undergo spine surgery while receiving antithrombotic therapy. Although balancing perioperative hemorrhage and thrombotic risks is crucial, the impact of discontinuing antithrombotic medications on cerebrovascular complications remains unclear.
Objective
To determine whether perioperative discontinuation of antithrombotic therapy is associated with an increased risk of postoperative cerebrovascular complications in patients undergoing spine surgery.
Methods
We conducted a single-center, retrospective review of spine surgeries performed from 2020 to 2024. Patients under 20 years of age, those with traumatic injuries, or those with incomplete records were excluded. Data on postoperative cerebrovascular complications and preoperative antithrombotic use were collected. In patients with atrial fibrillation (AF), stroke risk was evaluated using the CHADS2 score.
Results
A total of 753 patients were included, of whom 93 (12.4%) were on antiplatelet therapy and 43 (5.7%) were on anticoagulants. Postoperative cerebral infarction occurred in four patients (0.53%), all of whom were 80 years or older, had atrial fibrillation (AF), and had been receiving anticoagulant therapy. Although all of these patients had their anticoagulants discontinued preoperatively in accordance with cardiology recommendations and promptly restarted after drain removal. Among the 23 patients with AF, four (17.4%) experienced cerebral infarction, rising to 40% for CHADS2 scores of 4 or higher.
Conclusion
Perioperative discontinuation of anticoagulants in high-risk patients, particularly those with AF and higher CHADS2 scores (≥4), appears to increase the risk of postoperative cerebral infarction. Careful risk assessment, individualized management, and surgical modifications may help reduce cerebrovascular complications.

Keywords: spine surgery; anticoagulants; cerebral infarction; atrial fibrillation; CHADS2 score

17:06 - 17:09

1105 Anterior Spinal Cord Decompression Via A Posterolateral Approach For The Treatment Of Ossification Of The Posterior Longitudinal Ligament In The Thoracic Spine

Satoshi Kato, Noriaki Yokogawa, Takaki Shimizu, Takaaki Uto, Yuji Ishino, Kazuhiro Nampo, Satoru Demura

Kanazawa University, Kanazawa, Japan

Abstract
Introduction: We developed a novel procedure to remove or float the OPLL in the thoracic spine via a posterolateral approach. In this study, we describe this surgical procedure and report the clinical outcomes according to our surgical strategy for thoracic OPLL.
Methods: For a beak-type OPLL occupying more than 50% of the spinal canal diameter, we applied this surgery. We performed total resection of the posterior elements, and cut and lifted the thoracic nerves at the levels of anterior decompression to improve the view of the OPLL and the anterolateral aspect of the dural sac with controlled bleeding. Anterior decompression was then performed postero-laterally. For other types of OPLL, posterior decompression with instrumented fusion was indicated. Between 2011 and 2022, using this surgical strategy, we operated on 44 patients with myelopathy due to thoracic OPLL. 17 underwent anterior decompression via a posterolateral approach. We prospectively analyzed clinical outcomes over a minimum 2-year follow-up period.
Results: The recovery rate, according to the Japanese Orthopedic Association score, was 65% in the anterior decompression group and 52% in the posterior decompression group. In all patients in the anterior decompression group, adequate OPLL removal or floating was achieved without any significant complications. Of the 11 patients in the anterior decompression group who had been non-ambulatory preoperatively due to severe myelopathy, all recovered ambulatory status.
Conclusion: Anterior decompression is appropriate for patients with a large beak-type OPLL, who generally have severe neurological symptoms. Anterior decompression using our technique appears to be safe and effective.

16:37 - 16:43

1119 Computed Tomography-Guided Intraoperative Navigation In Children With Congenital Scoliosis Versus Fluoroscopy Methods

Daniyar Yestay[1,2], Seidali Abdaliyev[1], Olzhas Bekarisov[1]

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2. Karaganda Medical University, Karaganda, Kazakhstan

Abstract
Congenital spinal deformities in children require precise pedicle screw placement to ensure optimal surgical outcomes. Freehand and fluoroscopic methods have limitations, while CT-guided intraoperative navigation enhances accuracy and reduces complications.
Objective: To compare pedicle screw placement accuracy, adverse events, blood loss, and surgical duration using CT-guided navigation versus fluoroscopy in pediatric scoliosis surgery.
Materials and Methods. A prospective study (2019–2022) at the National Scientific Center of Traumatology and Orthopedics. Forty-two patients (aged 3–18 years) with congenital kyphoscoliosis were divided into two groups: O-Arm Nav. (CT-guided navigation) and C-Arm (fluoroscopy). Screw placement accuracy was assessed using the Gertzbein-Robbins classification, and intraoperative parameters were recorded.
Results. A total of 364 pedicle screws were placed (189 in O-Arm Nav., 175 in C-Arm). Correct placement (Grades A and B) was higher in the O-Arm Nav. group (98.41%) than in C-Arm (89.15%) ($p \leq 0.005$). Misplaced screws (Grades C, D, and E) were lower in O-Arm Nav. (1.49%) than in C-Arm (10.37%). No severe neurological complications or infections occurred. CT navigation did not extend surgery time or increase blood loss.
Conclusion. CT-guided navigation significantly improves screw placement accuracy without increasing surgical time or blood loss, making it a valuable technique for pediatric scoliosis correction. Further research is required to confirm long-term outcomes.

17:24 - 17:27

1124 Does The Shape Of The Cervical Spine Affect Long –term Changes In Cervical Sagittal Alignment ?

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2. Asahikawa Medical University, Asahikawa, Japan
3. Furano Geriatric Health Services Facility, Furano, Japan

Abstract
Introduction: Degenerative spinal deformities worsen with age and may be compensated with cervical lordosis. The shape of cervical alignment varies, and no studies have investigated long-term longitudinal changes in cervical spinal shape. This study aimed to investigate 23-year longitudinal changes in sagittal spinal alignment (SSA) parameters and clarify the effects of different cervical shapes.
Methods: This study is part of our ongoing cohort study since 1992, and a final total of 85 community-dwelling female volunteers were studied. Inclusion criteria required no major spinal or joint surgery, the ability to walk independently at the final follow-up, and participation in at least twice between 1992-1997 and 2015-2023. Participants had upright full spine radiographs at each visit, with standardized measurements of cervical lordosis (CL), thoracic kyphosis (TK), lumbar lordosis (LL), pelvic tilt (PT), sacral slope (SS), pelvic incidence (PI), and sagittal vertical axis (SVA). Baseline cervical alignment was classified into three categories: lordosis (L), kyphosis (K), and sigmoid (S). The study examined changes in these parameters within each alignment group.
Results: The mean age of participants was 49.3 years at baseline and 73.0 years at follow-up, with a mean follow-up period of 23.2 years. Longitudinal radiographic changes in all three groups showed decreases in TK, LL, and SS, and increases in PT and SVA. CL increased in groups K and S but remained unchanged in group L (CL -7.5°→4.4° in K, 0.2°→5.0° in S, 14.7°→15.3° in L).
Discussion: The study demonstrated differences in longitudinal changes in cervical alignment depending on the cervical shape.

17:09 - 17:12

916 Is Preserving Inferior Half Of The Spinous Process Effective In Decompression Lumbar Surgery?

Naoki Igata[1], Akihiro Nagamachi[1], Katsutosi Miyatake[1], Tomoya Takasago[1], Hitoshi Goto[1], Hiroki Iguchi[1], Toshinori Sakai[2]

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2. Tokushima University, Tokushima, Japan

Abstract
INTRODUCTION: Low back pain (LBP) due to bursitis between the kissing spinous processes is often observed in degenerative lumbar spine of the elderly. On the other hand, contact of adjacent spinous processes may function as a posterior load-bearing element in degenerative lumbar spine. We have been performing partial laminectomy with resecting inferior half of the spinous process (LRSP) and laminoplasty with preserving supraspinous ligament and inferior half of the spinous process (LPSP). Although resection of inferior half of the spinous process can avoid the spinous processes contact, it may lose its role as a posterior supporting structure. The purpose of this study is to clarify whether preserving inferior half of the spinous process is effective in lumbar decompression surgery.

MATERIALS AND METHODS: Eighteen patients who underwent LRSP and 37 patients who underwent LPSP participated in this study. All patients were assessed preoperatively and 3, 6 and 12 months postoperatively using Visual Analog Scale (VAS) and Japanese Orthopaedic Association Back Pain Evaluation Questionnaire (JOABPEQ).

RESULTS: There was no significant difference in LBP VAS scores at 3 and 6 months after the surgery between both groups. However, significant lower score was observed in LBP VAS score at 12 months postoperatively in LPSP compared with LRSP. There was no significant difference in JOABPEQ between both groups during the observation period.

CONCLUSION: LBP VAS score was significantly lower in LPSP. Preserving inferior half of the spinous process may be effective in lumbar decompression surgery.

17:21 - 17:24

1254 Lumbopelvic Congruity, Pelvic Compensation, Or PI-LL Mismatch; A 7.7-Year Longitudinal Cohort Study Of Their Impact On ASD

Tetsuya Kobayashi, Issei Senoo, Hiroki Okayasu, Kozaburo Mizutani, Hiroshi Ito

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Abstract
Introduction:
SRS-Schwab adult spinal deformity (ASD) classification in 2012 heralded the era of prolific ASD research, indicating 'normal' sagittal alignment such as lumbar lordosis (LL) within 10° of pelvic incidence (PI), and PI-LL mismatch has been linked to poorer clinical outcomes. Lumbopelvic congruity, the ratio of LL to sacral slope (LL/SS), and pelvic compensation ratio, pelvic tilt (PT) divided by PI (PT/PI), have also been clinically validated. The purpose of this study is to investigate the impact of these pelvis-based parameters longitudinally.
Methods:
Community-based female volunteers were recruited for upright whole spine radiographs. Standardized radiographic measurements included thoracic kyphosis (TK), LL, PI, PT, SS, and sagittal vertical axis (SVA). Statistical analyses included analysis of variance, paired t-tests for longitudinal differences, and a significance level of $p<0.05$. This study is part of our ongoing cohort study approved by the institutional review board.
Results:
A total of 141 female volunteers, 64.6±5.2 years at baseline and a mean follow-up period of 7.7±3.4 years, were included. Significant longitudinal changes were found in LL (40.3±15.1°to 36.5±16.9°, p=0.0024), along with PT, SS, SVA. Baseline PI-LL showed no significance, but robust pelvic compensation (PT/PI<0.42) and robust lumbopelvic congruity (LL/SS=0.8-1.5) were associated with the least change in LL (robust vs. counterpart; PT/PI -1.7±10.6°vs -5.7±12.9°, p=0.044; LL/SS -2.6±10.1°vs -7.6±14.9°, p=0.029).
Conclusions:
After an average 7.7-year follow-up, longitudinal changes in LL were related not to baseline PI-LL but to lumbopelvic congruity and pelvic compensation. These findings underscore the importance of targeting sustainable spinopelvic alignment from a long-term perspective.

17:15 - 17:18

2941 Transforaminal Injections Of Platelet-Rich Plasma Compared With Steroid In Lumbar Disc Herniation With Radiculopathy: A Systematic Review And Meta-Analysis Of Randomized Control Trials

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3. University of Arizona, Arizona, United States
4. Jordan University of Science & Technology, Irbid, Jordan
5. The University of Jordan, Amman, Jordan

Abstract

Introduction

Lumbar disc herniation (LDH) is a common cause of back pain and radiculopathy, particularly in individuals aged 30 to 50. Initial treatment often involves non-surgical options such as medication, physical therapy, and epidural steroid injections (ESIs), with surgery reserved for severe or refractory cases. ESIs are widely used to reduce inflammation and alleviate radicular pain. Platelet-rich plasma (PRP), derived from a patient's blood, has shown potential in orthopedic applications due to its anti-inflammatory and healing properties. PRP is gaining attention as a possible alternative to steroids for lumbar radicular pain, though its effectiveness in LDH remains unclear. This study aims to compare the efficacy of PRP and ESIs in treating radicular pain caused by LDH.

Methods

We performed a systematic review and meta-analysis according to PRISMA guidelines, including randomized controlled trials (RCTs) comparing PRP and steroid treatments in adult patients with LDH-related radiculopathy. Databases searched included PubMed, Google Scholar, and Cochrane, with manual reference checks through November 2023. A fixed-effect model was applied using Comprehensive Meta-analysis Software version 3.3 (Biostat Inc., NJ, USA).

Results

Four RCTs involving 256 patients were included: 126 received PRP, and 130 received steroids. Both groups showed significant improvements in VAS and ODI scores. PRP yielded a mean VAS improvement of -4.387 and ODI of -22.49; steroid group improvements were -2.49 and -13.06, respectively ($p < 0.001$). However, the difference between groups was not statistically significant ($p > 0.05$).

Conclusion

PRP and steroid injections are similarly effective for LDH-related radiculopathy. Further studies are needed to refine techniques and assess long-term cost-effectiveness.

16:31 - 16:34

461 Range Of Motion And Spine Muscles Activity Assessment After Idiopathic Scoliosis Correction Using Fusion Or Dynamic Fixation With The Aid Biologically Active Communication Device

Vladimir Pereverzev, **Arkadii Kazmin**, Natalia Morozova, Samir Bagirov, Vladimir Shvetc, Mikhail Raspopov, Ivan Domrachev, Sergey Kolesov

N.N. Priorov Central Scientific Research Institute of Traumatology and Orthopedics, Moscow, Russia

Abstract
Purpose
To investigate the differences in range of motion and spinal muscle strength after surgical correction of AIS with the aid of an intelligent biofeedback system.
Methods
A retrospective study of 48 of patients: GP1 - PSF, GP2 - bilateral ADSC, GP3 - thoracic fusion with lumbar ADSC. To assess the flexion, extension, and strength of the back muscles, we used Tergumed Pegasus 3D system.
Results
The highest indices for torso turns to the right and left differed significantly in groups GP2 and GP3. An intergroup comparison revealed that the torso turn to the right was higher in GP2 and GP3. The torso turn to the left was higher in GP2 and GP3. The highest rates of abdominal flexion, back extension, and lateral flexion to the right/left were observed in GP3. The highest indicators for tests for maximum force when leaning forward were found in the GP2, the muscle strength in bending backwards in GP1 was less than in GP2 and GP3. Intergroup analysis in GP1 and 2, show a significant advantage in indicators above the norm was noted in patients with a fully dynamic approach. A comparison between GP1 and 3 demonstrated both higher indices in the volume of movements and in muscle strength. In GP2 and 3, there were no significant differences in the volume of movements and muscle strength.
Conclusion
When using ADSC, the amount of spinal movement is greater, compared PSF. Muscle strength is also significantly higher during extension. Therefore, further research is needed.

16:47 - 16:50

722 Anterior Scoliosis Correction (ASC) In Patients Over 40 Years Old: Results And Prognosis

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Abstract

Purpose

To evaluate the outcomes of anterior scoliosis correction (ASC) in patients over 40 years and identify risk factors for subsidence and/or curve progression.

Methods

This retrospective study included 29 patients aged 40–69 years (mean age 46.6 ± 8.8 years) with idiopathic and degenerative scoliosis who underwent ASC. The procedures performed were: single-stage ASC (69%), two-stage ASC (21%), and hybrid techniques (10%). The mean follow-up period was 3.5 ± 0.87 years (range 2–5 years). Pre- and postoperative Cobb angles and quality of life were assessed using the ODI, SRS-22, and SF-36 questionnaires. Risk factors for subsidence, such as age over 50 years and Cobb angle greater than 50°, were analyzed.

Results

The mean preoperative Cobb angle was 52.5 ± 18.3°, reduced to 21.3 ± 11.9° postoperatively, with an average correction of 31.2°. Rod subsidence was detected in 5 patients (17%) with a range of 8°–15°, most commonly in those over 50 years old with severe deformities. After 24 months, the predicted average Cobb angle was 24.0 ± 13.5° due to subsidence and partial loss of correction. Quality of life improved and remained stable: ODI 32 ± 11%, SRS-22 3.7 ± 0.4, SF-36 65 ± 9.

Conclusions

ASC is an effective method for scoliosis correction in patients over 40 years old, providing significant and lasting improvement in spinal alignment and quality of life. However, curve subsidence remains the primary complication, particularly in patients over 50 years old with greater preoperative curves.

16:53 - 16:56

534 A Decision-Support Tool (DST) AJMI Grading System For Cervical Myelopathy.

Qasim Silman Ajmi[1], Tony Tannoury[2], Chadi Tannoury[2], Harinder Gakhar[3], Poornanand Goru[3], Rajendra Bommireddy[3]

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2. Boston Medical Center, Boston, United States
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Abstract
Cervical myelopathy frequently presents with gait dysfunction, hyperreflexia, pathological reflexes, upper limb paraesthesia, and pain. Existing classification systems often focus on limited aspects of these symptoms, while treatment decisions rely on patient history and clinical findings, supplemented by MRI.
Methods:
This study retrospectively analyzed 215 patients with cervical myelopathy over six years (2015–2021), using established scoring systems (JOA, EMS, Cooper, and Nurick's) and correlating them with the AJMI system. The AJMI score is based on five parameters: Ambulation, Jerks, MRC grading, Incontinence, and Imaging, with scores classified as 1–3 for likely radiculopathy, 4–6 for mild to moderate myelopathy, and 7 and above for severe myelopathy. Surgical intervention was advised for scores of 6 and above.

Results showed a mean preoperative AJMI score of 7.33 for myelopathy patients, with significant negative correlations between the AJMI score and both the EMS ($r = -0.61$, $p < .001$) and modified JOA scores ($r = -0.67$, $p < .001$). These findings indicate that the AJMI system aligns well with existing tools while offering a more streamlined approach. However, further validation through multicenter studies is necessary before routine clinical adoption.
Conclusion:
Our findings suggest that the AJMI scoring system aligns closely with existing scoring systems in terms of efficacy, demonstrating a similar pattern of negative correlations (higher AJMI scores indicate greater severity, while higher EMS/JOA scores indicate less severity).

17:18 - 17:21

1217 Predicate The Development Of Cauda Equina Syndrome Using AJMI Score.

QASIM Silman Ajmi, POOTNANAND Goru, Siddarth Shah, Ahmed Al Naseri

NEW CROSS HOSPITAL, Wolverhampton, United Kingdom

Abstract
Introduction:
Cauda Equina Syndrome (CES) is a neurosurgical emergency requiring urgent decompression to prevent irreversible neurological deficits. Hospitals receive an average of 15–20 suspected CES cases per week, with 10–15 requiring MRI scans. .
Methods:
We retrospectively analysed 2,700 patients who presented with suspected CES-like symptoms. MRI scans were assessed for disc degeneration severity (Pfirrmann grading system) and spinal stenosis (Schizas and Lee classification systems). Additional predictive variables included Age, Jender, and Insensate Incontinence, forming the basis of the AJMI scoring method.
Study Design:
A retrospective cohort study was conducted to identify MRI-based features predictive of CES development.
Data Collection:
Exclusion criteria included prior CES, spinal trauma, tumours, or infections.
Results:
Among the 2,700 cases reviewed, MRI scans were performed primarily to exclude CES. The highest-risk patient profile included individuals aged 30–39, female, with Grade 1 degenerative disc changes, and experiencing insensate incontinence or incomplete bladder emptying. Patients exhibiting all four characteristics demonstrated a significant risk of developing CES. Key findings include:
• 67% of patients underwent repeat MRI scans.
• 87% had L4-5 or L5-S1 disc involvement.
Conclusion:
The AJMI score (Age, Gender, MRI findings, Insensate Incontinence) offers a systematic approach to stratify CES risk using pre-existing MRI data. This tool has the potential to reduce unnecessary imaging, prioritize urgent cases, and optimize clinical workflows. While our retrospective findings demonstrate high predictive accuracy

16:21 - 16:24

1562 Range Of Horizontal Gaze Following Multilevel Posterior Cervical Fusion Across The Cervicothoracic Junction

Christina Khat[1], **Evalina Burger**[1], Vikas Patel[1], Andriy Noshchenko[1], Christopher Kleck[1], David Ou-Yang[1], Clayton Hoffman[1], Shahbaaz Sabri[2]

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2. Carolion Clinic, Roanoke, United States

Abstract
Introduction: Debate surrounds whether multilevel posterior cervical fusion (PCF) should cross
the cervical thoracic junction (CTJ). Studies show minimal change in
typical spinal parameters between PSFs above versus across the CTJ, but impacts
on horizontal gaze remain uncertain. The purpose of this study is to determine if
extending PCFs across the CTJ affects range of horizontal gaze and assess how
this impacts surgical decision-making.

Methods: This retrospective chart review included patients aged 18-100 who underwent primary PCF involving ≥3 segments with caudal endpoints of C7-T3, excluding cases involving revision, cancer, trauma, or infection. Pre- and post-operative measurements of McGregor's Slope (MGS), C0-C2 and C7-T1 Cobb angles, cervical lordosis (CL), T1 slope, and cervical sagittal vertical axis (cSVA) were evaluated using lateral cervical x-rays in neutral, flexion, and extension. Patients were divided into two groups (C7 vs. T1-T3 fusion termination).

Results: Among 188 patients, MGS decreased on average 17.3° ($P<0.0001$). C0-C2 cobb angle increased by an average of 4.1° ($P<0.0001$). C0-C2 motion increased by 3.5° more in Group 2 versus Group 1 ($P=0.034$). Group 1 gained 0.3° of motion at C7-T1 while Group 2 lost 3.2° ($P<0.0001$). Neutral T1 slope increased by 3.3° more in Group 2 ($P=0.006$). There were no differences between groups in cSVA or CL.

CONCLUSIONS: Multilevel PCF significantly decreases MGS. This is offset by increased motion at C0-C2, which is more pronounced when PCF crosses the CTJ. This compensatory mechanism increases strain across the C0-C2 junction and should factor into surgical decision making.

KEYWORDS
Cervicothoracic Junction

Thursday, 4 September

Shoulder & Elbow 2
08:49 - 08:52

106 Comparing Mid-Term Clinical Outcomes And Costs Of Arthroscopic Versus Mini-Open Rotator Cuff Repair: A Minimum 2-Year Follow-Up Study

Gerald Joseph Zeng, Andrew Hwee Chye Tan

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Abstract
Objective
Mini-open and arthroscopic rotator cuff repair (RCR) are both validated forms of treatment for rotator cuff tears. In recent decades, there has been gradual shift favouring arthroscopic rotator cuff surgery. This study investigates the outcome differences between mini-open versus arthroscopic rotator cuff repair, preoperatively and at 1 and 2 years postoperatively, and evaluates cost differences between the 2 interventions.

Methods
A retrospective analysis of 159 patients undergoing either arthroscopic or mini-open rotator cuff repair was performed. Range of motion, as well as clinical outcome measures such as Constant Shoulder Score (CSS), Oxford Shoulder Score (OXF), University of California at Los Angeles (UCLASS) Shoulder Rating Scale and visual analog scale (VAS) for pain, was evaluated preoperatively, and at 1 and 2 years postoperatively. Cost of surgery was also compared between both interventions.

Results
Both arthroscopic (n=97) and mini-open rotator cuff repair (n=62) showed significant improvements in range of motion (forward flexion and abduction) as well as all clinical outcome measures. There was no statistically significant difference in absolute outcomes, or degree of change in outcomes, between both groups. Cost of arthroscopic RCR was estimated to be higher by 2500 USD, compared to mini-open RCR, after factoring in consumables, equipment, and anchors.

Conclusion
Arthroscopic and mini-open rotator cuff repairs provide similar clinical outcomes. The choice of technique should consider institutional volume, cost-effectiveness, and surgeon experience.

08:30 - 08:33

220 Short-Term Clinical And Functional Outcomes Of Distal Biceps Tendon Refixation: All-Suture Vs. Titanium Anchors

Felix Hochberger, Maximilian Rudert, Kilian List, **Thilo Lehmeyer**

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Abstract

Background

This study aimed to compare the clinical and functional outcomes of distal biceps tendon refixation using intramedullary all-suture anchors (ASA) versus titanium anchors (TA). We hypothesized that ASA would result in lower rates of heterotopic ossification.

Methods

A retrospective case series was conducted on patients treated with either TA (Mitek Sports Medicine, USA) or ASA (Arthrex, USA). Clinical outcomes were assessed at a mean follow-up of 24 months using the Mayo Elbow Performance Score (MEPS), Quick Disabilities of the Arm, Shoulder and Hand Questionnaire (QuickDASH), and Visual Analog Scale (VAS). Secondary analyses included isometric strength testing and assessment of heterotopic ossification.

Results

A total of 53 patients (23 ASA, 30 TA) were analyzed. The ASA group was younger (55.2 ± 9.8 vs. 63.2 ± 7.7 years, $p < 0.05$) and included female patients ($n = 4$), while the TA group consisted exclusively of males. The mean follow-up was 33.8 ± 9.3 months (ASA) and 45.4 ± 11.1 months (TA). Heterotopic ossification was significantly lower in the ASA group (17.2% vs. 37.5%, $p < 0.05$). MEPS, QuickDASH, and strength recovery ratios were comparable, but ASA patients exhibited superior isometric strength at certain flexion angles ($p < 0.05$).

Conclusion

Both techniques provided excellent outcomes with low complication rates. ASA was associated with significantly less heterotopic ossification, suggesting a potential advantage in reducing postoperative complications.

08:33 - 08:36

475 Surgical Stabilisation Of Chronic Traumatic Anterior Sternoclavicular Joint Instability Based On Structural Anatomic MRI Findings

Graham Tytherleigh-Strong, **Lara Abraham**, Cameron Dott

Addenbrooke's Hospital, Cambridge, United Kingdom

Abstract
Background: Standard imaging for chronic traumatic anterior sternoclavicular joint instability (CASCJI) is a CT scan. However, this provides minimal information regarding the soft-tissue structures.

We used MRI scans to diagnose soft-tissue damage in patients with CASCJI. The decision to operate and procedure undertaken was based on these findings.

Materials & Methods: Between 2008 and 2022 patients that underwent a CASCJI stabilisation diagnosed by MRI were reviewed. Patients with repairable capsular tissue underwent an augmented capsular repair (ACR), with irreparable tissue a vertical figure-of-eight reconstruction (VFE) and with posterior involvement a horizontal figure-of-eight reconstruction (HFE).

Patient reported outcomes were assessed by Rockwood SCJ, OSIS and Quick-DASH scores.

Results: 51 patients were included at final follow-up. The mean age at surgery was 26.2 years (15-39) and mean follow-up 84.7 months (36–188). The pre-operative MRI scan suggested 21 patients required an ACR (19 underwent ACR and 2 VFE), 23 required a VFE (5 underwent ACR, 17 VFE and 1 HFE) and 7 required an HFE (7 underwent HFE).

At final follow-up the mean Rockwood score rose from 7.8 (6–11) to 14.9 (14–15sd 0.36), the Quick-DASH score dropped from 31.2 (40.9-19.8) to 0.8 (0–4.5) and the mean OSIS score rose from 25.8 (18–35) to 47.4 (46–48) for the whole cohort. These all reached statistical significance. The repair/construct survivorship was 98%.

Conclusion: MRI scans are a good predictor of the structural damage of patients with CASCJI. Undertaking a specific operative procedure based on these findings provides a satisfactory outcome with regards to joint stability and clinical outcomes.

09:18 - 09:21

476 Sternoclavicular Joint Osteoarthritis With Associated Anterior Instability Treated With Open Excision Arthroplasty And An Augmented Anterior Capsular Plication

Graham Tytherleigh-Strong, Cameron Dott, Lara Abraham

Addenbrooke's Hospital, Cambridge, United Kingdom

Abstract
Background: The majority of patients with symptomatic Sternoclavicular Joint (SCJ) osteoarthritis (OA) can be successfully treated non-operatively. For patients that remain symptomatic an arthroscopic or open SCJ excision arthroplasty is usually successful. However, a standard SCJ excision arthroplasty is contra-indicated in patients with associated instability.

We have developed an open intracapsular excision arthroplasty and augmented capsular plication (ACP) technique to treat patients with SCJ OA and associated instability.

Materials & Methods: Between 2018 and 2022 patients that underwent an open excision arthroplasty and ACP for symptomatic SCJ OA with associated instability were reviewed.

Patient reported outcomes were assessed by: Rockwood SCJ, OSIS and Quick-DASH scores. Survivorship was defined as no instability or ongoing pain and no revision surgery.

Results: A total 30 patients were available at final follow-up. The mean age at surgery was 53.4 years (30-76) and mean follow-up of 45.8 months (25–79).

At final follow-up the mean Rockwood score had rose 7.2 (6–9) to 14.1 (10–15 sd1.2), the Quick-DASH score dropped from 33.2 (45.0-18.2) to 4.3 (0–12.2) and the mean OSIS score rose from 21.7 (18–37) to 45.3 (36–48). These all reached statistical significance. The repair/construct survivorship was 98%. All of the patients, apart from 2, were satisfied with the results of their procedure.

Conclusion: Undertaking an open excision arthroplasty and ACP for patients with symptomatic SCJ OA and associated instability refractory to non-operative treatment provides a satisfactory outcome with regards to joint instability, pain and clinical outcomes

09:02 - 09:05

903 Development And Validation Of A New Shoulder Scoring System-The Mumbai Shoulder Score

Shaikh Sana Mohammed Aamir

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Abstract
Introduction: The existing shoulder scoring systems may not be appropriate for use in the Indian population because of their unique activities of daily living. Methods: A new shoulder scoring questionnaire was developed after interviewing 50 patients and then refined after testing in 20 additional patients. The final Mumbai Shoulder Score (MSS) was developed in both English and Hindi, comprising 10 questions, each scored from 0 to 3, allowing for a maximum total score of 30. The MSS was validated by comparing it with the Oxford Shoulder Score (OSS), a validated scoring system. Both the MSS and OSS were administered to 114 patients (Age 57.1 ± 10.89 years, 46 males and 68 females) diagnosed with shoulder pathologies such as rotator cuff tear and adhesive capsulitis. Statistical analyses were conducted to evaluate internal consistency, validity, and sensitivity to change in relation to the OSS. Results: The score was validated by measuring the internal consistency using Cronbach's alpha, the construct validity using Pearson’s regression coefficient and the sensitivity to change. Measurement of Cronbach's alpha yielded a value of 0.77, indicating a strong internal consistency. The Pearson’s regression coefficient (r) comparing the MSS to the OSS was found to be 0.86 ($p < 0.00001$). Conclusion: The Mumbai Shoulder Score (MSS) is a newly validated scoring system for assessing the shoulder function, available in both English and Hindi versions. It is specifically designed to evaluate the function and pain related to various shoulder activities and pertinent to the Indian population.

09:21 - 09:24

990 Synergistic Effects Of N-Acetylcysteine And Adipose-Derived Stem Cells On Tendon Healing In Chronic Rotator Cuff Tears: A Rabbit Model Study

Anil Aydin[1], Burak Çakar[2], Zeynep Burçin Gönen[2], Arzu Hanim Yay[2], Mehmet Fatih Uzun[3], **Erdal Uzun**[2]

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2. Erciyes University, Kayseri, Türkiye
3. Ceylanpinar State Hospital, sanliurfa, Türkiye

Abstract
Aim: To evaluate the individual and combined effects of adipose-derived stem cells (ADSCs) and N-acetylcysteine (NAC) on tendon healing in a rabbit model of chronic rotator cuff (RC) tears.
Methods: Thirty-two male New Zealand white rabbits underwent bilateral supraspinatus tendon injuries to create a chronic RC tear model. The rabbits were divided into four groups: Group A (control, saline-treated), Group B (NAC-treated), Group C (ADSC-treated), and Group D (combined ADSC and NAC-treated). Chronic RC tear repairs were conducted after six weeks. Histological, immunohistochemical, and biomechanical assessments were performed 12 weeks post-repair. Key outcomes included collagen organization, fatty infiltration, type I collagen expression, and tensile strength.
Results: Macroscopic evaluation showed that scar tissue formation was minimal in Group D compared to other groups. Histopathological analysis revealed significantly improved collagen fiber alignment, reduced fatty infiltration, and decreased inflammation in Group C and Group D compared to Groups A and B ($p < 0.001$). Immunohistochemical analysis demonstrated higher Type I collagen reactivity in Groups C and D, with Group D exhibiting the highest reactivity ($p < 0.001$). Biomechanical testing confirmed significantly increased tendon strength in Groups C and D, with Group D achieving the highest tensile strength ($p < 0.001$).
Conclusion: ADSCs and NAC independently promote tendon healing, with ADSCs showing superior effects on collagen organization and fatty infiltration reduction. Combined treatment with ADSCs and NAC demonstrated synergistic effects, resulting in optimal tendon regeneration and strength. These findings support the potential of ADSCs and NAC as complementary therapies for chronic RC injuries.

08:52 - 08:55

1373 Evaluation Of Clinically Meaningful Outcomes And Patient Characteristics In Arthroscopic Bony Bankart Repairs

Cem Ismail Güngör[1], Muhammed Furkan Tosun[2], Ethem Burak Oklaz[3], Asim Ahmadoz[3], Mehmet Ali Tokgoz[3], Ibrahim Kaya[4], Mustafa Melik Can[5], Ulunay Kanati[3]

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3. Gazi University Faculty of Medicine, Ankara, Türkiye
4. Dr. Abdurrahman Yurtaslan Ankara Oncology Training and Research Hospital, Ankara, Türkiye
5. Kulu State Hospital, Konya, Türkiye

Abstract

Purpose

To evaluate the minimal clinically important difference (MCID), significant clinical benefit (SCB), and patient acceptable symptomatic status (PASS) in patients who underwent arthroscopic repair of bony Bankart lesions, and to analyze the effect of patient characteristics on these parameters.

Results

A total of 76 patients (mean age 32.2 ± 12.3 years; mean follow-up 57.5 ± 25.4) were included in the study. MCID, PASS, and SCB thresholds were calculated, respectively, for Rowe (9.9, 77.5, 32.5), ASES (9.7, 76.5, 36.5), SANE (11, 82.5, 27.5) and VAS (1.04, 3.5, 5.5). The rates of patients achieving MCID, PASS, and SCB were determined, respectively, Rowe (97%, 84%, 80%), ASES (98%, 79%, 71%), SANE (94%, 77%, 72%), and VAS (96%, 83%, 74%). Increased odds of achieving PASS and SCB were associated acute presentation. Reduced odds of achieving PASS and SCB were associated with dominant extremity involvement and off-track lesions.

Conclusions

This study provides a valuable contribution to the literature by defining MCID, PASS and SCB thresholds for specific PROMs in arthroscopic repair of bony

09:05 - 09:08

1674 THE FEASIBILITY AND REPRODUCIBILITY OF CARTILAGE THICKNESS MAPPING FOLLOWING SHOULDER DISLOCATIONS

Rajapriyian Murugaiyan[1], Jed Smith[2], Andrew Grainger[2,3], Dimitri Kessler[3,4], Graham Tytherleigh-Strong[1], Joshua Kaggie[2,6], Salma Chaudhury[2]

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5. Facultat de Matemátiques i Informática
6. Universitat de Barcelona, Cambridge, United Kingdom

Abstract
Background

Anterior shoulder dislocations (ASDs) before age 25 increase the risk of glenohumeral osteoarthritis (OA), with 61% developing OA within 25 years. Treatment options for irreversible end-stage OA remain limited. Quantitative MRI has demonstrated the potential to detect early degenerative damage in the knee. This study assessed the feasibility and reproducibility of 3D Cartilage Surface Mapping for producing quantitative cartilage maps of the shoulder joint, given the challenges of thinner cartilage. We employed this imaging technique to evaluate the early identification of cartilage damage in patients who sustained ASDs.

Methods

23 patients aged 16-40 years with ASDs underwent additional MRI sequences for cartilage mapping. A 3D visualisation software (Stradview v7.3), enabled the segmentation of humeral head and glenoid cartilages independently by two experienced readers, and their thicknesses were measured to assess inter-rater reliability.

Results

The mean humeral head and glenoid cartilage thicknesses were 1.59mm and 2.42mm, with mean bias of 0.04mm and-0.06mm and 95% limits of agreement from -0.11 to 0.20mm and -0.31 to 0.20mm, respectively. The Intraclass Correlation Coefficients (ICC) between readers had excellent reproducibility, measured at 0.92 for the humeral head and 0.94 for the glenoid.

Conclusions

This study illustrates the feasibility and reproducibility of using cartilage thickness mapping techniques. Quantitative MRI can identify and quantify early arthritic changes following shoulder dislocations, overcoming the limitations of qualitative MRI.

Further investigation of rapid, non-invasive indicators of cartilage damage has the potential to aid information-based treatment decision-making, improve long-term functional outcomes, and reduce severe disease progression.

08:39 - 08:42

2321 Bone Tunnel Widening Of Tissue Anchors In Rotator Cuff Repair: Comparison Between Single-Row And Double-Row Constructs.

Paulo Morgado Pinto, Patricia Silva, Isabel Morais, Bernardo Nunes, Manuel Gutierres, Francisco Serdoura

Hospital São João, Porto, Portugal

Abstract

Introduction

Rotator cuff tear (RCT) is a common musculoskeletal condition, and tendon repair is increasingly performed arthroscopically. Tissue anchors (TA) have been widely used despite controversy regarding their mechanical stability. This study aims to evaluate the widening of the bone tunnel caused by TA placement and its correlation with the tendon healing rate.

Methods

Retrospective cohort study including patients with supraspinatus tears who underwent arthroscopic repair using TA (Y-knot – 2.8mm; or FiberTak – 2.6mm) applied in either a single-row or medial-row configuration between January 2021 and November 2023, with follow-up MRI at 6 months postoperatively. Demographic variables, preoperative MRI rupture characteristics, maximum diameter of the TA bone tunnels, and tendon healing (Sugaya Classification) in postoperative MRI (6 months) were analyzed. Functional outcome variables—including the Visual Analogue Scale (VAS) and Subjective Shoulder Value (SSV)—were recorded preoperatively and at 6 months postoperatively.

Discussion

The mean TA bone tunnel diameter at 6 months postoperatively was larger than the initial measurement (2.7mm vs. 5.3 mm ± 0.8). However, both anchors predict a final diameter of 4-5mm due to suture impaction on the cortical bone as the primary fixation mechanism. Despite being a biomechanically less rigid fixation method for RCT, tissue anchors did not show a significant increase in bone tunnel diameter beyond the expected initial expansion. The healing rate did not correlate with tunnel diameter.

Conclusion

The use of tissue anchors did not lead to bone tunnel widening or mechanical failures, appearing to be a safe method for RCT repair.

08:55 - 08:58

3071 Electromyographic And Kinematic Study Of Reverse Total Shoulder Replacement For Trauma – An Observational Prospective Cohort Study

Xander Van Heerden

University hospital Waterford, Waterford, Ireland

Abstract
Introduction: Reverse shoulder replacement (RSR) has transformed the management of complex shoulder fractures. Despite its success, limited data exist on post-surgical kinematics and muscle activation in trauma cases. Understanding these changes is crucial for optimizing surgical techniques, rehabilitation, and long-term outcomes.

Methods: A prospective observational cohort study will be conducted over five years with a minimum one-year follow-up. Patients undergoing RSR for trauma at University Hospital Waterford, with no pre-injury shoulder deficits, will be included. Kinematic analysis using 3D electromagnetic tracking and surface EMG will be performed at 3, 6, and 12 months post-surgery. Ultrasound will evaluate rotator cuff activity, while X-ray and CT scans will assess implant positioning, deltoid volumetrics, and acromiohumeral distance. Pain and disability will be evaluated using VAS and DASH scores. Data will be analyzed using generalized mixed-effects models.

Results: Preliminary findings suggest altered scapulohumeral rhythm and compensatory muscle activation post-RSR. Quantitative data will provide correlations between functional outcomes and imaging/EMG assessments.

Conclusion: This study aims to enhance understanding of post-RSR kinematics and muscle function, guiding surgical and rehabilitation strategies for improved patient outcomes. Ethical approval has been obtained, and data management follows FAIR principles for transparency and reproducibility.

09:24 - 09:27

2549 Heterotopic Ossification About The Elbow

Gurgen Kesyan, **Igor Arsenev**, Rashid Urazgil'deev, Ovsep Kesyan

National Medical Research Center for Traumatology and Orthopedics named after N.N. Priorov, Moscow, Russia

Abstract
Introduction. An average of 65.1% of the elbow is prone to heterotopic ossification (HO) due to trauma, surgery, and other interventions. Though, the most frequently reason is severe brain and spinal cord injury with spastic syndrome.
Aim. To evaluate the results of treatment for various types of HO on the elbow.
Materials and methods. The study involved 25 individuals with HO on the elbow, aged between 18 and 66. In 50%, HO coursed by severe brain and spinal injury, in 50% - after trauma and surgery. X-ray, CT, ultra sound, laser Doppler flowmetry (LDF), blood tests of alkaline phosphatase (AP) and bone matrix formation marker (P1NP) used for definitions of topography and maturity of HO. All patients were operated if they have a normal level of AH and P1NP and a mature HO on CT and LDF.
Results. The HO, coursed by brain and spinal injury is located on the back of the elbow. The HO had a homogeneous structure with a smooth surface without any injury to the ulnar nerve. The HO, caused by trauma ore surgery, had a wide range of form, size, and location. HO has never resulted in an injury to the ulnar nerve. Good outcomes (good range of motion without pain) were achieved in 22 cases. Two patients had a recurrence of HO. One patient had a fracture of the distal humerus during rehabilitation, which required a total arthroplasty.
Conclusion: Treatment of heterotopic ossification on the elbow gave good results in conditions of proven maturity.

09:11 - 09:14

2369 Atypical Imaging Patterns Of Rotator Cuff Calcifications: Image Analysis Of A Series Of 100 Consecutive Cases And Classification Proposal

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2. Hospital Privado Guipuzkoa Asuncion Klinika, Tolosa, Spain

Abstract
Abstract
Background:
Rotator cuff calcifications have been considered an enthesopathy in which calcium deposits can appear in the distal insertion of the four muscles of this functional unit. However, in many patients the location and shape of these deposits may vary from the typical location in the enthesis.
There is currently no widely accepted classification that includes all image patterns of calcium deposits located in the rotator cuff.

Methods:
The study identified all patients diagnosed with calcific tendinopathy of the rotator cuff in the primary author's records through a retrospective search of archived files spanning from 2005 to 2020. Image analysis included X-rays, MRI, and CT scans when available.

Results:
In 67% of the cases, calcifications were limited to the area of the enthesis (type I). In 14 cases, calcium spread to the neighboring soft tissues (type II), extending into the subacromial-subdeltoid bursa (type II-a), or towards the myotendinous junction (type II-b).
Bone involvement was observed in 19 patients (type III). Among them, 12 patients (63.1%) exhibited cortical erosion without significant progression of calcium deposits into the epiphysis (type III-a), in six cases (31.6%) calcium deposit spillage into the epiphysis (type III-b), and one case (5.3%) showed progression into the intramedullary canal (type III-c).

Conclusion:

In one third of the cases in this series, the location of the calcium deposits did not comply with the typical patterns of location restricted to the enthesis. Recognizing these atypical presentations may prevent unnecessary biopsies and interventional procedures.

08:36 - 08:39

2421
Platelet-Rich Plasma For Supraspinatus Partial Tear: A Promising Alternative

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2. Gandhi medical college, Bhopal, India

Abstract
Evaluation of Clinico-Radiological Outcomes of Platelet-Rich Plasma on Supraspinatus Partial Tear

Introduction

Supraspinatus partial tears and tendinosis common causes of shoulder pain and dysfunction. Conservative treatments such as physiotherapy and analgesics may not always provide adequate relief, necessitating alternative approaches.PRP has gained attention for its regenerative potential, promoting tendon healing through growth factor release. This study evaluates the effectiveness of PRP in improving radiological and clinical outcomes in patients with supraspinatus partial tears or tendinosis.

Aims & Objectives
1. To assess the radiological response of PRP therapy using gray-scale ultrasound, shear wave elastography at 6 and 12 weeks, and MRI at 12 weeks.
2. To evaluate the clinical improvement in pain and function using the Visual Analog Scale (VAS), American Shoulder and Elbow Surgeons (ASES) score, and Western Ontario Rotator Cuff (WORC) index.

Study Design & Methods
• Study Design: Prospective interventional study
• Duration: One year
• Participants: Adults (≥18 years) with MRI-confirmed symptomatic supraspinatus partial tears unresponsive to 3 months of conservative treatment.
• Exclusion Criteria: Full-thickness tears, prior surgery, steroid injections, pregnancy, low hemoglobin (<11 g/dL), or platelet count (<1 lakh/µL).
• Intervention: Patients received a standardized PRP injection and were followed up at 6 and 12 weeks for imaging and clinical assessment.

Results
Radiological findings: Significant improvements in tendon integrity, reduced degenerative changes, and enhanced elasticity were observed on ultrasound, shear wave elastography, and MRI
Clinical outcomes: Marked reduction in VAS pain scores and significant improvements in ASES and WORC functional scores, indicating better shoulder mobility and reduced discomfort.

Conclusion
PRP injection is an effective, minimally invasive treatment.

09:08 - 09:11

1923 Superior Capsular Reconstruction Of The Shoulder With Biceps Autograft Vs. Achilles Allograft: A 2-Year Comparative Study

Santiago Avila Posada[1], Diego Gómez[1], Gonzalo Viollaz[1], Nadia Gabotto[1], Christopher Bermeo[1], Sofia Ayala[1], **Fabricio Martin Bergese**[2]

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2. Hospital Británico de Buenos Aires, Buenos Aires Caba, Argentina

Abstract
Purpose: To retrospectively evaluate the clinical---functional outcomes, healing rates, complications, and surgical time in patients treated with superior capsular reconstruction (SCR) using long head of the biceps autograft (LHB) and Achilles allograft (AA).
Materials and methods: This retrospective study included 24 patients with irreparable rotator cuff tears of the supraspinatus and infraspinatus, treated with SCR. Two treatment groups were formed: one with 12 cases using AA and another with 12 cases using LHB. All patients were followed for a minimum of 2 years.
Results: The SSV was 73.7 ± 25.3 vs. 86.0 ± 8.7 ($p = 0.26$), the Constant score was 76.8 ± 20.1
vs. 83.7 ± 4.6 ($p = 0.12$), and the VAS was 1.6 ± 2.3 vs. 1.7 ± 0.5 ($p = 0.9$) for the LHB and AA groups, respectively. Tendon healing was 66.7% in AA and 100% in LHB ($p = 0.001$).
Complications: were 50% in AA and 0% in LHB. The average surgical time was 127.7 ± 37.6 minutes for AA and 84.3 ± 14.3 min for LHB ($p = 0.01$).
Conclusions: SCR with LHB showed better results in terms of tendon healing, fewer complications, and reduced surgical time compared to the use of AA.

08:46 - 08:49

386 Clinical Outcomes Of Distal Clavicle Auto Graft In Patients With Recurrent Anterior Shoulder Dislocation.

Maysra Abdelhalim Bayoumy, Hossam Elsayed Abd-Elzaher, Mohamed Mosa Mohamed, Mostafa Khalaf Mahmoud

Al-Azhar university, faculty of medicine, Assiut, Assiut, Egypt

Abstract
Introduction Glenoid bone loss has emerged as one of the most significant risk factors for failure of arthroscopic Bankart repair. There are Many Bony augmentation procedures to reconstruct glenoid bone loss which include: Coracoid transfer (Latarjet and its modifications), Eden-Hybbinette procedure) using Iliac crest bone grafting , and Osteochondral allograft. High incidence of shoulder arthropathy of Latarjet procedure, donor site morbidity of iliac autograft and cost, availability, and questionable allograft incorporation remain issues of concern of these procedures. Tokish et al. 2014, published a Technical Note describing the arthroscopic reconstruction of a deficient glenoid using a distal clavicular autograft (DCA).
Aim and objectives: to evaluate the clinical and radiological outcome of Distal Clavicle Autograft in patients in significant glenoid bone loss. Study design and method: Patients undergoing mini-open distal clavicle autograft for reconstruction of glenoid bone loss between January 2023 and February 2024 were enrolled. Data were collected at baseline, 3 months, 6 months, and every year after surgery. the surgery results and patient-reported outcome measures (PROMs) were assessed using the Rowe and Constant shoulder scores.Results: the mean follow up was 12 months , the mean constant score was 87.1, the mean Rowe score was 90,with no case of recurrent instability .Conclusion : our results showed that distal clavicle auto graft is an effective surgical option for patients with recurrent anterior shoulder dislocation as there was marked increase in shoulder function
Keywords: DCA , glenoid bone loss

Thursday, 4 September

Hip 3
09:43 - 09:46

37 Accuracy Of Digital Templating In Uncemented Bipolar Hip Hemiarthroplasty

Muhammad Muneeb Umar, Tiarnán O'Doinn, James Toale, Bridget Melley, Paul Curtin, Kieran O'Shea

St Vincents University hospital, Dublin, Ireland

Abstract
Background
Hip hemiarthroplasty is the most commonly performed surgery for intracapsular neck of femur fractures in those above the age 65 years. Uncemented hip hemiarthroplasty may circumvent adverse events associated with cementation among the multimorbid trauma patient. Currently, the literature is scarce regarding the role of digital templating in hip hemiarthroplasty in the trauma setting.

Objectives
This study aims to evaluate the efficacy of digital templating in hip hemiarthroplasty for stem-femur compatibility and head size in uncemented hip hemiarthroplasty.

Study Design & Methods
A retrospective cohort study was carried out following review of a prospectively collected database at a single institution. Pre-operative digital templated radiographs were reviewed and compared with actual implant size

Results
115 patient were identified who had undergone uncemented hip hemiarthroplasty with pre-operative templating between September 2023 to September 2024. Templated radiographs correctly identified the implanted stem size in 30% of cases, with 70% of cases being within +/- 1 stem size. Templated radiographs correctly identified the implanted head size in 10% (11/115) of cases, with 27% (31/115) of cases were within +/- 1 head size. There was good correlation between templated stem and head size and implanted stem (r=0.74) and head size (r=0.72) respectively

Conclusions
Digital templating is a useful adjunct in pre-operative planning of uncemented hip hemiarthroplasty with good correlation with implanted components. However, the reduced accuracy of templating in predicting head size as compared to stem size may limits utility, emphasising the importance of accurate intraoperative determination of final head size.

08:45 - 08:48

63 CAN VESSEL SPARING BIKINI ANTERIOR APPROACH REDUCE POST THA HETEROTROPIC OSSIFICATION? A SINGLE SURGEON EXPERIENCE OF 486 CASES.

Ikram Nizam

Mulgrave Private Hospital, Melbourne, Australia

Abstract
Abstract

Background:
. This Study Aimed To Evaluate The Effectiveness Of The Bikini Incision Vessel-Sparing Direct Anterior Approach (DAA) Using A Standard Operating Table In Reducing The Incidence Of Both Symptomatic And Asymptomatic HO.

Methodology:
We Retrospectively Analyzed 486 Patients Who Underwent Elective Bikini Anterior THA Performed By A Single Surgeon Between May 2019 And December 2022. All Procedures Were Performed Utilizing A Vessel-Sparing Bikini Anterior Approach On A Standard Operating Table. Anteroposterior And Lateral Radiographs Were Evaluated At 3 And 12 Months Postoperatively To Assess The Presence And Severity Of HO, Using The Brooker Classification System.

Results:
Of The 486 Patients Included In The Study, 42.2% Were Male (N=205) And 57.8% Were Female (N=281), With A Mean Age Of 70.77 ± 10.2 Years And An Average Body Mass Index (BMI) Of 28.04 ± 5.5 Kg/M².
The Minimum Follow-Up Period Was 12 Months, With A Maximum Of 3.4 Years (Mean F/U: 1.8 Years).
The Incidence Of HO Was : Grade 0 In 93.6% At 12 Weeks And 91.2% At 52 Weeks; Grade 1 In 6% At 12 Weeks And 7.4% At 52 Weeks ; Grade 3 In 0.4% At 52 Weeks And No Cases Of Grade 4 Were Observed In The Study. BMI Did Not Appear To Influence The Incidence Of HO In This Study.
Conclusion:
The bikini incision direct anterior approach (DAA) for hip replacement surgery is associated with a significantly lower incidence of HO at the most recent follow-up, regardless of patient age, gender, or BMI.

08:48 - 08:51

147 One-Stage Revision Total Hip Arthroplasty For Polymicrobial Periprosthetic Joint Infection Leads To High Reinfection Rates By The Same Organisms At Mean 5 Year Follow-Up

Markus Neumann[1], Mustafa Citak[1], Graham Goh[2], Thorsten Gehrke[1], Salber Jochen[3]

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Abstract
Periprosthetic joint infection (PJI) is a significant cause of failure following total hip arthroplasty (THA), with polymicrobial infections representing a particularly challenging subset. This study evaluates the midterm outcomes of one-stage revision THA for polymicrobial PJI, with a focus on infection eradication rates, microbial profiles, and the risk of septic failure. We retrospectively reviewed 65 patients who underwent one-stage septic revision from 2016 to 2022, with a mean follow-up of 4.7 years. The primary endpoint was septic failure, defined as repeat surgery due to persistent or recurrent infection. Secondary endpoints included reoperation rates, all-cause re-revision rates, and patient-reported outcomes, including pain levels and health-related quality of life. The infection-free survival rate was 66.9%, with septic failure occurring in 17 patients. Notably, 92.3% of septic failures were caused by the same combination of organisms present in the initial infection. The most frequently identified pathogens were Staphylococcus epidermidis and Cutibacterium acnes, which were responsible for 23.5% of septic failures. Our findings suggest that one-stage revision THA for polymicrobial PJI can achieve reasonable infection control outcomes, although these rates are lower compared to monomicrobial infections. No significant differences in septic failure were observed between subgroups based on demographic or clinical characteristics such as age, body mass index, or comorbidities. Given the recurrence of infection with the same pathogens, further research is needed to refine treatment protocols and optimize adjunctive therapies. This study contributes to the growing body of evidence supporting the potential of one-stage revision for managing polymicrobial PJI.

09:30 - 09:33

365 Dislocation Rates In Total Hip Replacements Carried Out Through A Posterior Approach Using Small Heads

Amit Kumar Yadav, **Ishmita Paul**

wrightington hospital, Wigan, United Kingdom

Abstract
Background
One of the complications after total hip arthroplasty is dislocation, which poses a problem for both patients and surgeons. It is one of the common causes of revision surgery. The incidence of dislocation varies from 0.5% to 10% in the literature and is multifactorial. There is an increasing trend of using large femoral heads to prevent dislocation; however, increasing the femoral head size is not the only method to reduce the dislocation rate. Optimal alignment of the components and repair of the posterior capsule can achieve a similar effect. This study aimed to assess the dislocation rate in primary total hip replacements (THRs) using a small-diameter femoral head, performed through a posterior approach, supplemented with the alignment of the acetabular component using the transverse acetabular ligament and a strong posterior capsular repair.
Methods
This is a retrospective analysis of data from 2005-2021 of all unilateral primary cemented total hips operated through a posterior approach with capsular repair, using the transverse acetabular ligament (TAL) to guide the alignment of the acetabular component. All operations were carried out by the senior surgeon (MVH) or under his supervision.
Results
There were 1,384 patients (Male: Female 684:700) with a mean follow-up of 9.7 years and a mean age of 62.3 years. In 656 cases, 22 mm heads were used, 28 mm heads in 724 cases, and 32 mm in four patients. The dislocation rate was 0.57% (8 cases), with seven dislocations occurring among the 22 mm heads (1.06%) and one among the 28 mm

09:10 - 09:13

434 The Impact Of ASA Classification And Hemodynamic Instability On Causing Post-Operative Complications In Patients Undergoing Hip Fracture Surgeries

Chien-Jen Hsu

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Abstract

Introduction：The postoperative medical complications of patients sustaining hip fractures were mainly attributed to anesthetic course. Therefore, we intended to explore the impact of ASA classification and hemodynamic instability on causing post-operative complications.

Methods：Patients undergoing hip surgeries from January 1, 2020 to December 31, 2021 were investigated retrospectively by extracting data from clinical database. The parameters included demographic characteristics, pre-operative ASA classification, anesthetic method, intraoperative hemodynamic stability, and postoperative complications.

Results：Among the 602 patients undergoing hip surgery, 15.61% of the patients developed medical complications that interfered function of brain, lung, heart, liver, and kidney. The postoperative complications were significantly correlated with the number of comorbidities and ASA classification (AOR=3.72, $P<0.05$; AOR= 3.27, $P<0.05$). However, no significant association between hemodynamic change and postoperative complications was disclosed.

Discussion：Except higher ASA classification, the number of co-morbidities positively increased the occurrence of complication in this study. Intra-operative hemodynamic instability did not cause significant increase of postoperative complications. Proper management of hemodynamic instability in time should be the reason.

Conclusions：Co-morbidities inevitably affected the determining of ASA classification unfavorably. The number of co-morbidities and the ASA classification synergistically increased postoperative complication for patients undergoing hip fracture surgeries.

09:13 - 09:16

711 THE EFFECT OF SUBCUTANEOUS FAT THICKNESS ON POSTOPERATIVE WOUND INFECTION IN PATIENTS UNDERGOING HEMIARTHROPLASTY FOR FEMORAL NECK FRACTURE

Mehmet Önüt[1], Güzelali Özdemir[1], Olgun Bingöl[1], Mehmet Fatih Savas[1], Baris Yagbasan[1], Enver Kiliç[2]

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2. Ankara Bilkent City Hospital, Ankara, Türkiye

Abstract

Introduction: Wound infection complications are known to be increased in obese patients after hip fracture arthroplasty. The main aim is to determine the risk of wound infection prior to surgery. Studies have been associated with surgical site infection after knee and lumbar spine surgery. Radiographic and computed tomography (CT) measurements of subcutaneous fat length have been performed after hip fracture. Our aim in this study was to determine the length of subcutaneous adipose tissue, which varies depending on many factors, and the volume of subcutaneous adipose tissue removed from muscle tissue, which is more directly related to infection.

Methods: Using a prospective case-control study, we analysed 87 patients with hemiarthroplasty performed in our hospital between 2024 and 2025. Patients diagnosed with wound infection within 90 days postoperatively (n=17) were compared with patients with clean wounds (n=70) in terms of body mass index (BMI), Charlson comorbidity index (CKI), monocyte/lymphocyte, neutrophil/lymphocyte, neutrophil/albumin, albumin levels, preoperative waiting time and wound incision length. Measurements of subcutaneous adipose tissue volume were taken at two levels of the unoperated hip; spina iliaca anterior superior (SIAS) and tuberculum majus (TM). The subcutaneous adipose tissue length of the patients on the radiograph was measured from the lateral projection of the acetabulum, trochanter majus, lateral trochlear process.

Conclusion:

Subcutaneous adipose tissue volume is associated with a significant increase in wound site complications in patients undergoing CT for treatment planning.

09:59 - 10:02

1079 Are Total Hip Arthroplasty Outcomes Worse In Patients With Ehlers-Danlos Syndrome? A Systematic Review And Subgroup Analysis

Liam Dervey[1], Richard Westerman[2]

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2. University Hospitals Coventry and Warwickshire, Coventry, United Kingdom

Abstract
Objectives
To compare total hip arthroplasty outcomes between patients with Ehlers-Danlos syndrome and those without
Methods
A systematic review was conducted in line with the PRISMA guidelines. Data for the following outcomes was extracted: dislocation, readmission, revision, venous thromboembolism and surgical site infection. This data was converted to odds ratios. Subgroup analysis was performed where the data was sufficiently homogenous. The remainder of the data was synthesised in a narrative fashion, grouped by outcome and ordered by time point.
Results
6 studies were included for review, measuring 7 outcomes at time points ranging from 90 days to 10 years. It was found that the Ehlers-Danlos cohort were more at risk of dislocations at 90 days and 2 years. The Ehlers-Danlos cohort were at greater risk of revision arthroplasty at 12 months, 2 years and 10 years. There was no statistically significant difference in readmissions, venous thromboembolism or surgical site infection.
Conclusions
This is the first review to synthesise outcome data for total hip replacement in Ehlers-Danlos syndrome. It has been shown that patients with Ehlers-Danlos are more at risk of dislocation and revision arthroplasty than those without, but at no greater risk of readmission, venous thromboembolism or surgical site infection. This should prompt surgeons to consider ways of reducing these risks. The heterogeneity of Ehlers-Danlos syndrome and confounding factors such as surgeon experience are limiting factors. Future research should focus on using other databases, stratifying outcomes by Ehlers-Danlos type, and analysing factors such as surgeon experience.
Keywords: Ehlers-Danlos, Arthroplasty, Hip

10:02 - 10:05

1187 Total Hip Arthroplasty After Curved Intertrochanteric Varus Osteotomy For Osteonecrosis Of The Femoral Head

Kimihiro Oono[1,2], Yusuke Osawa[1], Hiroyuki Yokoi[1], Takamune Asamoto[1], Hiroaki Ido[1], Hiroto Funahashi[1]

1. Nagoya University Graduate School of Medicine,, Nagoya City,aichi Prefecture, Japan
2. Hamamatsu Medical Center, Hamamatsu city, Japan

Abstract
Background: The objective of the present study was to investigate clinical outcomes and radiographic outcomes of patients who underwent THA after curved intertrochanteric varus osteotomy (CVO) for osteonecrosis of the femoral head.
Methods: We performed two groups case-control study. The participants were 20 patients (22
hips) who underwent THA after CVO (CVO group); these patients had a mean age at 44.2 years
and underwent postoperative follow-up for a mean period of 5.8 years. For the control group, we included 40 patients (44 joints) who underwent primary THA for osteonecrosis of the femoral head matching age, sex, and time of surgery. Assessment tools included operative times, blood loss, preoperative and last follow-up Harris Hip Scores (HHS), postoperative complications, and implant alignment between the groups.
Results: Operative times were significantly longer in the CVO group compare to the primary group. Pre and postoperative HHS were no significantly difference the CVO group compare with Primary group. Intraoperative blood loss, complication and revision rate were no significantly difference in the two groups. Considering postoperative leg-length discrepancy and
stem malalignment, CVO group were higher than Primary group.
Conclusion: Clinical outcomes of THA after CVO was similar to those of primary THA. Morphological changes of the proximal femoral affected stem malalignment and leg-length discrepancy.

09:37 - 09:40

1375 REVISIÓN TOTAL HIP ARTHROPLASTY SURGERY WITH MODULAR FEMORAL STEMS. OUR CENTER'S EXPERIENCE

Alba Hernandez Ruiz, Javier Suarez Perez, Alfonso lajara Heredia, Ivan Ramos Godos, Laura Paniagua Andres, Eva Vico Martinez, Francisco Arias Martín, Carlos Lozano Alvarez

Complejo Asistencial Universitario de León, Leon, Spain

Abstract

INTRODUCTION

Revisión total hip arthroplasty (rTHA) are complex procedures that involve a significant technical challenge and carry higher risk for the patient. Modular femoral stems are an alternative that provides stability and versatility in these surgeries.

AIM

To evaluate our results in the use of modular femoral stems in revision total hip arthroplasty surgeries.

METHODS

A retrospective study was conducted on a consecutive series of 37 patients who underwent revision total hip arthroplasty with tapered modular stems (ARCOS) between 2017 and 2023.

RESULTS

The average age was 69 years old (36-87). There were 4 cases in which the follow-up was lost (10,81%). The average follow-up time was 2,56 years (0,45-5,54) since surgery.

The most common reasons of revision were aseptic loosening (37,83%), prosthetic infection (29,72%) and periprosthetic fracture (27,02%).

There were 4 cases of intreoperative fractures during the removal of the primary femoral stem. Two cases requiered extended femoral osteotomy for removal of the previous implant.

There were no postoperative complications in 62,16% of the patients, the most common being infection (13,51%), dislocation (10,81%) and loosening (5,40%). Two were reoperated and another is pending femoral component revision. There were no cases of implant breakage or corrosion between components.

Postoperative functional evaluation using the Merle d'Aubigné scale yielded average scores of 4,8(SD1,3)-4,9(SD1,3)-4,4(1,1).

CONCLUSIONS

Modular femoral stems appear to offer an effective solution in revision surgeries, especially in cases of deficient proximal femoral bone stock. Their advantages include early axial and rotational stability, intraoperatory versatility, good functionality and hight short-term patient satisfaction.

10:09 - 10:12

1419 Conversion To Total Hip Arthroplasty After Acetabular Fracture Fixation: Comparing The Direct Anterior Approach To Conventional Approaches

Patrick Brooks, Mohamed Kareem Shaath, Matthew Williamson, Bader A. Nasir, Frank R. Avilucea, Elizabeth Jacobs, Joshua R. Langford, George J. Haidukewych, **Brendan Page**

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Abstract
Introduction:
Post-traumatic arthritis and avascular necrosis often follow acetabular fractures, leading to the need for total hip arthroplasty (THA). Traditional approaches to THA conversion—posterior or direct lateral—navigate through scar tissue and previous implants. The direct anterior approach (DAA) is increasingly used, offering access to a 'virgin' surgical plane that may reduce the risk of infection and neurovascular injury. This study compares the clinical outcomes and complication rates between the DAA and traditional approaches in conversion THA after acetabular fracture fixation.

Materials and Methods:
We conducted a retrospective review of acetabular fractures treated at a Level-I trauma center between 2008 and 2021. Patients were grouped by surgical approach: direct anterior (DA), posterior (P), or direct lateral (DL). The study included patients with at least one year of follow-up. Measured outcomes included Harris Hip Score (HHS), complications requiring reoperation, infections, blood loss, surgical time, and transfusions.

Results:
Seventy-one patients were included: 30 in the DA group, 28 in the P group, and 13 in the DL group. The DA group had significantly higher HHS (90.1) compared to the P (70.5) and DL (84.8) groups ($p<0.001$). Blood loss was significantly lower in the DA and DL groups compared to the P group ($p=0.04$). Infection rates were lower in the DA group (none) compared to the P group (4) and DL group (1), though not statistically significant ($p=0.10$).

Conclusion:
DAA conversion THA offers superior functional outcomes and lower complication rates compared to traditional approaches. It is a safe option for less complex cases.

08:54 - 08:57

1311 DAIR With Absorbable Calcium Sulphate Beads Supplementation For Prosthetic Joint Infection: The Cumbrian Experience

Rohit Ravindran Nair, Reginald Chinweze, Muhammed Ehsan Nazeer, Ansaba Naseer, Piyush Upadhyay, Jayadeep Jayachandran Saraswathy, Ramasubramanian Dharmarajan

North Cumbria Integrated Care NHS Foundation Trust, Carlisle, United Kingdom

Abstract

Introduction
Debridement, Antibiotics and Implant Retention (DAIR) with antibiotic-impregnated absorbable calcium sulphate beads (ACSB) supplementation is one of the most effective treatment strategies to eradicate prosthetic joint infection (PJI) in the immediate post-operative period after arthroplasty. This study retrospectively looks at the outcomes of 48 patients with periprosthetic infections treated with DAIR and ACSB.

Aims and Objectives
To assess the primary outcome of resolution of infection and secondary outcomes of post-operative calcium levels, duration of wound ooze and evidence of heterotopic ossification, after DAIR and ACSB for PJI.

Methods
48 patients(27 males and 21 females), who underwent DAIR supplemented with ACSB(Stimulan) for infections following hip and knee arthroplasties between June 2014 and September 2020, were followed up for at least 48 months. ACSB were impregnated with Vancomycin(95%) and Meropenem(2%) as the primary antibiotics and Gentamicin as the secondary antibiotic(52%).

Results
The mean age of patients was 70 years(50-92 years). The American Society of Anesthesiologists (ASA) grades were as follows: 1(2%), 2(8%), 3(58%) and 4(31%). Mean length of hospital stay post-operatively was 21 days(7-120 days). The infection resolved in 44(92%) patients with 4(8%) requiring further washouts. In the immediate post-operative period, 12(25%) patients had a persistent wound ooze and 6(12.5%) had hypercalcemia. On long term follow-up, 6(12.5%) patients developed heterotopic ossification.

Conclusion
DAIR and ACSB is an effective treatment for PJI in the immediate post-operative period as 92% patients did not require further treatment when followed up for 48 months.

Keywords: DAIR, absorbable calcium sulphate beads, prosthetic joint infection

09:07 - 09:10

1693 Mortality Rates And Risk Factors For Mortality - In Patients Undergoing Surgery For Vancouver B Type Periprosthetic Fractures: Insights From A Single High-Volume Centre

Kamran Hafeez, Ali Bharmal, James Lewis, James Hutchinson, Mark Andrew Sohatee

Royal Derby Hospital, Derby, United Kingdom

Abstract

Aims

This study aimed to evaluate mortality rates and risk factors associated with 1-year and 5-year mortality in patients undergoing surgical management of Vancouver B periprosthetic fractures at a single university hospital.

Methods

A retrospective cohort study was conducted on 109 consecutive cases between 2015 and 2021. Patients were classified based on fracture subtype and surgical management (fixation vs. revision). Data on patient demographics, comorbidities, and perioperative factors were analysed using binary logistic regression to identify predictors of mortality.

Results

Mean follow-up was 44.02 months, and mean age was 78.3 years. At study completion, 58/109 (53.2%) patients had died, including 23 within 1 year and 51 within 5 years. Age was a significant predictor of mortality at both 1 (OR=1.18, 95%CI: 1.06–1.31, p=0.002) and 5 years (OR=1.13, 95%CI: 1.05–1.20, p<0.001). A higher ASA grade was a significant factor associated with 1 year mortality, (OR=22.96, 95%CI: 1.90–277.27, p=0.012). Revision arthroplasty (vs fracture fixation) (OR=0.06, 95%CI: 0.008–0.44, p=0.006) was a protective factor at 1 year, contrary to results previously reported in the literature, as was patients being admitted from their own home (OR=0.11, 95%CI: 0.02–0.79, p=0.028). Sex and starting Haemoglobin were not significant predictors.

Conclusion

Higher ASA classification and advanced age significantly increase mortality risk following surgery for periprosthetic fractures. Revision surgery and admission from home were associated with improved survival at 1 year. Some of these protective factors lose significance at 5 years. These findings highlight key risk factors that may guide decision-making as well as patient an family counselling.

09:40 - 09:43

1806 Revision Total Hip Arthroplasty For Treating Periprosthetic Fractures Of The Hip With A Modular Tapered Stem

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1. University of Toronto, Toronto, Canada
2. McMaster University, Hamilton, Canada

Abstract
Introduction: The increase in total hip arthroplasty (THA) has led to a corresponding rise in periprosthetic fractures (PPFs) of the hip. Modular tapered stems are often used for femoral PPFs. This study evaluates the long-term outcomes of revision THA using the ZMR® Hip System for PPF treatment of the hip.

Methods: Our retrospective review from January 2001 to December 2022 included 78 patients with ≥2 years of follow-up (mean: 7.1 ± 4.2 years). The cohort included 54 women (69.2%) and the mean age was 73.1 ± 11.8 years. Among available cases, 53.06% (26/49) were Vancouver B2 fractures, 86.3% (63/73) involved only the femur, and 44.3% (31/70) required an extended trochanteric osteotomy. Kaplan-Meier survivorship was analyzed, defining failure as revision for any reason.

Results: Kaplan-Meier survivorship due to all-cause failure was 95.3% (95% CI [confidence interval]: 90.0 to 100) at 15 years, with 51 hips at risk. The overall rate of revision of the index surgery was 3/78 (3.85%). These complications included aseptic loosening, dislocation, and infection. The mean LLD improved from a preoperative value of 1.4 cm (SD 1.08) to a postoperative value of 0.91 cm (SD 1.05) ($P < 0.001$). The mean vertical hip center improved from 2.29 cm (SD 1.23) to 1.85 cm (SD 0.93) ($P = 0.002$).

Conclusion: Our study suggests revision THA for PPF using a modular tapered stem is a viable treatment option, providing excellent mid- to long-term survivorship, clinical, and radiographic outcomes with a low complication rate.

Keywords: revision hip arthroplasty, periprosthetic fracture

10:27 - 10:30

2361 Long Term Outcomes Of Primary Total Hip Arthroplasty In Patients With Legg-Calvé-Perthes Disease (LCPD)

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Abstract
Background:Total hip arthroplasty (THA) in patients with childhood Legg-Calvé-Perthes disease (LCPD) can be challenging due to multi planar deformities and multiple procedures on the proximal femur.
Objectives:To study the survivorship, functional outcomes, complications and revision rate of primary THA in Perthes disease.
Study Design & Methods:Retrospective study of patients who underwent primary THA due to sequelae of LCPD at our hospital between 1965 and 2015 with a minimum of 2 years follow up. Outcomes assessed were survivorship, functional outcome, post-operative complications and revision rate.
Results Total of 146 patients (169 hips) with a mean follow up of 14.1 years (range: 2 to 43.57) and mean age at surgery of 50 years (17 to 79). Fourteen patients (17 hips) died during follow up and mean age at follow up was 64 years (20 to 89). Kaplan-Meier survival rate was 92.2% at 14 years and 77.14% at 20 years. Charnley hip scores available for 66 patients (77 hips) showed significant improvement in pain, function and movement at 1 year follow up. Post-operative complications (18.3%, n=31) included 28 cases of aseptic loosening (16 cup, 8 stem, 4 both) and one each of fracture femur, dislocation and deep infection. Twenty-two hips (13%) were revised at a mean follow up of 16.7 years (6.8 to 43.5) and were mostly due to aseptic loosening (n=20).
Conclusions:Patients with LCPD undergo THA at a younger age. THA in Perthes is an effective treatment with good functional outcome but an implant survival lower than that of adult THA.

10:12 - 10:15

2384 EVALUATION OF FUNCTIONAL OUTCOME OF TOTAL HIP REPLACEMENT IN TUBERCULAR ARTHRITIS HIP—A PROSPECTIVE COHORT STUDY

Narendra Singh Kushwaha

King George's Medical University, Lucknow, India

Abstract
Introduction: Total Hip Arthroplasty (THA) can offer a painless, stable joint with a normal gait and is a viable treatment option in tubercular arthritis hip. However, the timing of surgery, type of prosthesis, duration, and regimen of pre-operative antitubercular chemotherapy, along with the long-term survival of the reconstruction, remain concerns associated with THA.
Aims and objectives: To evaluate the functional outcome in patients of tubercular arthritis hip managed by total hip arthroplasty with antitubercular drug therapy in terms of the Harris hip score, range of motion at the hip joint and limb length discrepancy preoperatively and postoperatively.
Material and methods: This cohort prospective open-ended study involved 22 patients with monoarticular arthritis. Clinical, radiological, and laboratory investigations were performed. A four-drug regimen of antitubercular chemotherapy was administered for a minimum of six weeks, followed by total hip arthroplasty. Chemotherapy continued for one year. Follow-ups were conducted at six weeks, three months, and six months. The Harris hip score and clinical and radiological evaluations assessed functional outcomes and were measured alongside ESR and CRP levels.
Results: Significant improvements in Harris Hip scores and range of motion were observed. The mean ESR and CRP values showed a progressive decline. One patient exhibited implant loosening (acetabular component) during the follow-up period. No cases showed reactivation of tuberculosis throughout the follow-up.
Conclusion: THA substantially improves functional outcomes. A thorough preoperative workup combined with pre and post-operative antitubercular chemotherapy leads to effective disease control, significantly enhancing the overall treatment outcome.

09:04 - 09:07

2613 Results Of De-Escalation In Femoral Stem Revisions

Adnene Benammou, Roufeida Neffati, **Seddik Akremi**, Souha Bennour, Cherif Kammoun, Mohamed Ben Salah

Charles Nicole Hospital, Tunis, Tunisia

Abstract
The growing incidence of total hip arthroplasties (THA) is accompanied by a parallel increase of femoral revisions. Femoral reconstruction with long stems is the most commonly adopted technique in THA revisions. However, the use of these implants presents technical challenges and may compromise the femoral bone stock. This study aims to evaluate the clinical and radiological outcomes of using primary femoral stems in femoral revision procedures.
We conducted a retrospective study involving patients who underwent femoral revision THA with primary femoral stems between 2020 and 2024. Demographic and clinical data were collected preoperatively, including the assessment of functional impairment using the Postel-Merle d'Aubigné (PMA) score. Intraoperative parameters included surgical time, blood loss, intraoperative incidents, and classification of bone lesions according to Paprosky. Postoperatively, the evolution of the PMA score and the occurrence of complications were analyzed.
20 patients were included with mean age of 62 years. All implants were replaced through a posterolateral approach, without femoral osteotomy. One case required using a primary stem after the removal of a prior revision implant. A peroperative fracture occurred in one case. The average hemoglobin decrease was 1.6 g/dl. At a mean follow-up of 24 months, the PMA score improved from 9 to 15. Radiologically, no progressive radiolucency or secondary subsidence was observed. Two cases of implant sepsis were reported, and one patient required reoperation for recurrent dislocations.
The use of primary femoral stems in femoral revisions represents a promising alternative to long stems. Careful preoperative planning and thorough intraoperative evaluation are needed.

09:21 - 09:24

3008 The Growing Burden Of Periprosthetic Fractures After Total Hip Arthroplasty: Identifying Overall Trends And At-Risk Groups

Amy Y. Zhao[1], Anthony Chiu[2], Amil R. Agarwal[1], Andrew B. Harris[1], Shyam Kurian[1], Gregory J. Golladay[3], **Savyasachi C. Thakkar**[1]

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3. Virginia Commonwealth University, Richmond, United States

Abstract
Introduction: Periprosthetic fractures (PPFs) are a serious complication of total hip arthroplasty (THA), associated with increased morbidity, mortality, and economic burden. As THA becomes more common among aging and younger, active populations, PPF rates may be rising. This study examined trends in 2-year PPF incidence after primary THA and identified high-risk subpopulations.

Methods: Patients who underwent primary THA during the years 2010-2019 were identified in a national administrative claims database. Incidence rates of PPF and a compounded annual growth rate (CAGR) was calculated. A sub-analysis was conducted to stratify baseline characteristics including age, biological sex, and high-risk comorbidities. Logistic regression was performed to compare rates in subsequent years to the initial (2010) value and adjust for the effects of age, biological sex, and comorbidities.

Results: Among 500,078 THA patients, 2-year PPF rates increased from 0.65% in 2010 to 1.2% in 2019, reflecting +7.05% annual growth. The most pronounced increases occurred in patients under 50 years (CAGR = +9.24%, $p=0.005$), those with osteoporosis (CAGR = +13.7%, $p=0.001$), vitamin D deficiency (CAGR = +12.2%, $p=0.002$), and Medicaid insurance (CAGR = +7.19%, $p<0.001$).

Conclusions: Two-year rates of PPF after primary THA have nearly doubled since 2010. The groups with the greatest increase in rates are patients less than 50 years old, patients with Medicaid insurance, and most notably, patients with comorbid osteoporosis. These findings suggest that PPFs after primary THA are an increasingly important public health problem, and further work must be done to implement prevention strategies and mitigate the rise in PPF after THA

10:21 - 10:24

423 Complication Rates And Functional Outcomes Of Primary Total Hip Arthroplasty In Patients With A History Of Prior Spinal Fusion Surgery: An Updated Systematic Review And Meta-Analysis

Francisco Soler[1], Antonio Murcia[1], Gonzalo Mariscal[2]

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2. Valencia Catholic University, Valencia, Spain

Abstract
Purpose: This study aimed to compare the complication rates and functional outcomes between patients with and without a history of spinal fusion undergoing THA.
Methods: A systematic search was conducted across PubMed, EMBASE, Scopus, and Cochrane databases. Studies that compared adults with and without a history of spinal fusion after primary THA were included. The methodological quality of the studies was evaluated using MINORS criteria. Meta-analyses were performed utilizing mean differences (MD), standardized mean differences (SMD), and odds ratios (OR), along with 95% confidence intervals (CI).
Results: Seventeen studies involving 1,789,356 patients (31,786 in the SF group and 1,757,570 in the Non-SF group) were analyzed. The spinal fusion group exhibited significantly higher rates of dislocation (OR 2.50, 95% CI 1.78-3.52), periprosthetic fracture (OR 1.96, 95% CI 1.39-2.77), overall complications (OR 1.73, 95% CI 1.10-2.71), and revision rates (OR 1.86, 95% CI 1.74-1.99). Furthermore, within the first three months, there was an increased risk of dislocation (OR 4.38, 95% CI 1.36-14.14) and revisions (OR 3.87, 95% CI 1.63-9.18). Longer spinal fusions were significantly associated with a higher risk of dislocations (OR 0.62, 95% CI 0.53-0.71). Additionally, prior spinal fusion was linked to higher levels of pain (SMD 0.11, 95% CI 0.02-0.19) and poorer functional outcomes (MD -0.09, 95% CI -0.18 to -0.00).
Conclusion: Patients with a history of spinal fusion undergoing THA exhibit increased complication rates, higher levels of pain, and greater functional limitations than those without prior fusion. These findings have significant clinical implications for optimizing perioperative care in high-risk patient populations.

10:24 - 10:27

1434 The Impact Of Bilateral Total Hip Arthroplasty On Lower Extremity Biomechanics In Bilateral Developmental Dysplasia Of The Hip-Associated Secondary Coxarthrosis: Medium-To-Long-Term Valgus Alignment In The Knee Joint

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2. Istanbul University-Cerrahpasa, Institute of Graduate Studies, Department of Anatomy, Istanbul, Türkiye

Abstract
Aim: This study aimed to evaluate the impact of THA on lower extremity biomechanics, coronal plane alignment, and knee joint changes during medium-to-long-term follow-up in patients with bilateral THA at different time points for DDH-associated secondary coxarthrosis.
Methods: A total of 17 patients (1 male, 16 female) with 34 hips who underwent staged bilateral THA were included in the study. The mean age was 44.7 years, with an average follow-up period of 49.6 months. Patients were categorized based on the Crowe classification, and the types of femoral stems. Standardized measurements were performed on preoperative and final follow-up leg-length radiographs and clinical assesment with universal scores were completed.
Results: Among the hips, 26 were classified as Crowe 3-4. Femoral stem types included conical in 9, wedge in 7, and rectangular in 18 hips. The type of femoral stem did not significantly affect postoperative measurement outcomes. Significant increases were found in postoperative mMPTA ($p = 0.015$), JLCA (joint line congruency angle) ($p = 0.009$), MAD (mechanical axis deviation) ratio ($p = 0.007$). Postoperative comparisons indicated a valgus tendency in the measurements relative to preoperative values in the same-sided knees. In hips classified as Crowe 3-4, differences in measurements between pre- and postoperative evaluations were significantly greater compared to Crowe 1-2 hips. The postoperative hip-knee scores were significantly higher than the preoperative scores.
Conclusion: These findings indicate a medium-to-long-term valgus tendency in the lower extremity and knee joint following THA but without clinical implication. This valgus tendency was particularly pronounced in Crowe 3-4 hips.

09:01 - 09:04

2669 Short-Term Intervals In Treatment Of The Hip Periprosthetic Infection

Yaroslav Rukin[1,2], Karen Egiazaryan[1], Ivan Sirotin[1]

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2. National Medical Research Center for Phthisiopulmonology and Infectious Diseases, Moscow, Russia

Abstract
Introduction: periprosthetic infection is the most frustrating complication of the total hip arthroplasty, which can lead to disability and even death of the patient. Double stage revision hip arthroplasty remains the gold standard for treating chronic hip periprosthetic infection. However, there is still no consensus on what interval should be observed between stages.
Methods: since 2020 we began to use short (2-3 week) intervals in double-stage treatment of the hip periprosthetic infection. We compared the results of treatment in 35 patients who were treated with short intervals (mean 14.8±2.8 days) with the results of treatment of 54 patients in whom intervals were longer (mean 155±65,3 days). We evaluated the treatment outcomes in terms of reinfection and reoperation rates after second stage of revision hip arthroplasty.
Results: mean time to evaluate patient results after the second stage of hip revision arthroplasty was 35.7±9.1 months (minimum 12 months). We did not obtain a statistically significant difference in terms of infection recurrence (8.57 % (3 patients) in the short interval group and 12.96 % (7 patients) in the long interval group (p=0.89)) and reoperation rates (11.43 % (4 patients) in the short interval group and 16.67 % (9 patients) in the long interval group (p=0.51)).
Conclusion: reducing the interval between two stages of treatment of chronic hip periprosthetic infection to 14.8 days does not increase the rate of recurrent infection and reoperations at least 12 months after the second stage.

10:15 - 10:18

2677 Total Hip Arthroplasty In Patients With Hip Dysplasia (Crowe Type II – III) By Individual Titanium Acetabular Augments: Midterm Results

Yaroslav Rukin[1,2], Karen Egiazaryan[1], Ivan Sirotin[1], Valeriy Murylev[3]

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2. National Medical Research Center for Phthisiopulmonology and Infectious Diseases, Moscow, Russia
3. Sechenov University, Moscow, Russia

Abstract
Introduction: One of the most important goals of surgery in patients with hip dysplasia is to restore the anatomic center of rotation, but the anatomic position of the hemispherical acetabular component results in under-covering it with bone. To fill the bone defect, we used customized titanium augments created using 3D printing technology.
Methods: we reviewed 15 total hip arthroplasties (13 women with hip dysplastic arthritis (Crowe II or III)) with use of individual titanium acetabular augments. The mean age at the time of surgery was 52.7 ± 14.9 years (23 to 69). The mean follow up was 45.9 ± 6.1 months (min 38 months). Patients were evaluated using the following criteria: complication rate, visual analogue scale (VAS), Harris Hip Score (HHS).
Results: there was one case of periprosthetic infection in this group, which was treated with preservation of stable femoral and acetabular components of the endoprosthesis. No recurrence of infection was noted in this patient within 2 years. No other cases of reoperation, component loosening, infection, or dislocation were noted. There were a decrease in pain and quality of life improvement by VAS from 6.98 ± 1.42 before surgery to 1.53 ± 1.09 at follow-up ($p < 0.05$), HHS increase from 30.5 ± 18.1 to 88.53 ± 12.63 ($p < 0.05$).
Conclusion: the use of customized augments in total hip arthroplasty in 13 patients with dysplasia shows good midterm results (mean follow up 45.9 ± 6.1) months on the VAS, HHS, and indications for revision hip arthroplasty.

09:56 - 09:59

2414 Recurrence Risk In Joint Retention And Replacement Treatments For Giant Cell Tumors Of Bone In The Proximal Femur - A Systematic Review With Meta-Analysis

Somok Banerjee, Alok Chandra Agrawal, Sandeep Nema

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Abstract
Introduction- Giant cell tumor of bone(GCTB) affecting proximal femur has a recurrence rate of 20 to 50 %. This study examined the risk of recurrence associated with two different treatment methods: Joint retention methods(Group 1: Curettage with or without adjuvants) and Joint replacement methods(Group 2: Total hip arthroplasty(THA), Hemiarthroplasty(HA) and Endoprosthesis replacement(EPR)) for GCTB of the proximal femur.
Methods- A search of electronic databases was conducted to find studies on GCTB of the proximal femur. The included studies were evaluated for joint functionality, oncological outcomes(recurrence), and non-oncological complications. A risk of bias assessment was not performed for the studies included in this review.
Results- A total of 62 cases of GCTB of the proximal femur from these studies were pooled for this review, with 33 cases in group 1 and 29 cases in group 2. There were 4 pathological fractures in group 1 and 19 in group 2. The estimated relative risk of recurrence between the two groups was 1.79[0.22, 14.44]. The mean difference in Musculoskeletal Tumor Society (MSTS) Scores between the groups was 3.90[-9.42, 17.23]. All the included studies were retrospective chart reviews.
Conclusion- The relative risk of recurrence between the two treatment approaches remains inconclusive, particularly due to the higher recurrence rates observed with THA and HA compared to EPR in group 2.

09:53 - 09:56

503 Evaluation Of Femoral, Acetabular, And Global Offset Restoration Following Hip Spacer Implantation In Staged Total Hip Arthroplasty Revision

Emilio Ferrari, Luca Cavagnaro, Valentina Providenti

MIOS - Santa Maria di Misericordia Hospital, Albenga, Italy

Abstract
Introduction: Hip spacer implantation in two-stage revision for prosthetic joint infection (PJI) aims to control infection and maintain limb stability, length, and offset, which are crucial for functional outcomes.
Aims & Objectives: This study assesses the restoration of femoral offset (FO), acetabular offset (AO), and global offset (GO) after articulating hip spacer implantation in patients with chronic PJI.

Methods: A retrospective analysis was conducted on patients undergoing two-stage revision for chronic hip PJI. Demographic, clinical, and radiographic data were collected prospectively. Offset measurements were taken from standardized pelvic radiographs preoperatively and post-spacer implantation. Functional outcomes were evaluated using the Harris Hip Score (HHS) and Oxford Hip Score (OHS) during the interstage period. Complications were recorded throughout treatment.

Results: The study included 40 patients (mean age: 63.7 years; mean follow-up: 26.7 months). After spacer implantation, mean FO, AO, and GO were 48.1 mm, 36.1 mm, and 84.2 mm, respectively, showing no significant differences from preoperative values. Improved offset restoration correlated with better functional scores, though complete restoration was rarely achieved, particularly in cases with severe bone loss or varus hip morphology.

Conclusion: Hip spacers effectively control infection and provide mechanical stability, but offset restoration remains challenging, especially in complex cases. Acetabular spacer implantation and thorough preoperative planning are crucial to optimizing global offset and biomechanical function.

Keywords: Prosthetic joint infection, hip spacer, femoral offset, acetabular offset, global offset, two-stage revision.

09:46 - 09:49

2905 Dorr A Failure, Is It Septic? Or Aseptic? Hip Joint Revision

Kalaivanan Kanniyan, Manideep Reddy R, Vijay C Bose, Ashok Kumar P S, Suryanaryan P

Asian Orthopedic Institute @ SIMS Hospitals, Chennai, India

Abstract
Background:
Total Hip Replacement is one of the best surgical procedures of the century. Uncemented is now well established with excellent long-term results. Fully Hydroxyapatite coated stems with double tapered straight design with quadrangular cross section and a flared metaphyseal structure in the sagittal and coronal planes. Corail, Corin, Accolade, Lattitue are prone to DorrAfailure.

Material and Methods:
These stems aim at initial fixation however a certain portion of the patients land up in a unique failure mode. "Dorr A
failure". Patients who presented with Dorr A failure from january 2010 to march 2025 were studied. a total of 20 patients presented with typical radiological finding of cortical hypertrophy. Group A included 8 presented with elevated infection blood markers (ESR, CRP) and planned for 2 stage revision and Group B included 12, were planned for one stage aseptic revision.

Results:
Group A, 7/8 grew bug and 1/8 was culture negative. Group B, 8/12 grew bug and 4/12 were culture negative. Frozen section was suggestive of infection in all 5/8 group A and 5/12 in group B

Conclusion: Dorr A failure is due to mechanical reasons of under sizing the femoral stem in comparison with acetabular cup size or more due to potting (getting distal fit before proximal fit). however, the inclination of Dorr A towards septic revision was noted in our study, hence Dorr A revision to considered unique all septic revision protocols to be followed for better results.

Keywords: Dorr A failure, one stage revision, two stage revision, total

08:51 - 08:54

360 What Are The Best Serum And Synovial Markers Combinations For PJI Examination Before Revision Hip Arthroplasty?

VALERIY Murylev[1,2], Aleksandr Rudnev[1,2], Grigorii Kukovenko[1,2], Semion Alekseev[1]

1. S.P. Botkin Moscow Multidisciplinary Scientific Clinical Center, Moscow, Russia
2. I M Sechenov The First Moscow State Medical University, Moscow, Russia

Abstract
Background. A lot of studies are conducted to determine the most effective serum and synovial diagnostic markers for PJI but none of them are single right. The aim was to determine the most effective diagnostic PJI biomarkers before the revision hip arthroplasty. Materials. The prospective study conducted in 2021-2024 and 475 patients were examined for PJI before revision hip arthroplasty. The patients were divided into 2 groups – hip prosthesis loosening group (#1 – 301 patients) and a spacer group(# 2 – 174 patients). Patients underwent blood tests to determine the leukocytes count, ESR, CRP, Interleukin-6, Fibrinogen and D-dimer. Joint aspiration was performed for cytological and microbiological examination. The threshold values of the PJI biomarkers were based on the ICM 2018 criteria. A statistical ROC and AUC analysis was performed. Results. Serum biomarkers were obtained in 475 patients. "Dry tap" during puncture was noted in 23.9% in group 1 and 28.7% among patients in group 2. Repeated examination was required in 21.4% and 51.7% in groups 1 and 2, respectively. PJI was detected in 32.2% among group 1 patients. A recurrence of PJI/reinfection was diagnosed in 27.1% among group 2 patients. Based on the results of the ROC analysis, indicators of diagnostic significance for the biomarkers used were obtained. The most effective for group 1 were ESR,CRP, IL-6, synovial fluid cell count and for group 2 were CRP, IL-6, Fibrinogen, synovial fluid PMN. Conclusion. The effectiveness of diagnostic markers of PJI before the 2d stage and single-stage (aseptic) RHA.

09:24 - 09:27

1075 Perioperative Carbohydrate Supplementation Reduces Postoperative Wound Infections, Pressure Ulcers And Mean Length Of Stay For Adult Hip Fracture Patients: A Systematic Review And Meta-Analysis.

Amelia Rose Hutton, Jia Hui Ling, Alan Norrish

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Abstract

Introduction: Hip fractures are the most common serious injury in older people leading to emergency surgery, with a 19.2 day average length of hospital stay (LoHS) in England. Carbohydrate Supplementation (CS) is a simple, well tolerated and low-cost intervention with potential to improve postoperative outcomes.

Aims: This systematic review and meta-analysis (PROSPERO ID: CRD42025637954) aims to assess the impact of perioperative CS on odds of individual/cumulative postoperative complications, LoHS, and longer-term mortality of adult hip fracture patients.

Methods: AMED, Embase, Medline, Web of Science, and SCOPUS databases were searched in January 2025. Two blinded reviewers screened 450 identified studies using pre-specified eligibility criteria, with 10 randomised and 3 non-randomised studies (2069 patients) included in systematic review. Risk of Bias assessments were conducted using Cochrane RoB-2 and ROBINS-I tools, and meta-analysis was undertaken for clinical outcomes.

Results: Meta-analysis showed statistically significant reduction in odds of; postoperative wound infections (LogOR -1.26, p-value: 0.04, OR 0.28), pressure ulcers (LogOR -0.72, p-value: 0.03, OR 0.49.), and reduced mean LoHS (Cohen's d -0.35, p-value: 0.002) with CS. There was an insignificant reduction in odds of ≥1 complication/s (LogOR -0.71, p-value: 0.06, OR 0.49), pulmonary infections (LogOR -0.74, p-value: 0.24, OR 0.48), infectious complications (LogOR -0.75, p-value: 0.12, OR 0.47) or UTIs (LogOR -0.37, p-value: 0.28, OR 0.69), and no reduction in delirium/confusion (p-value: 0.59) or mortality at 3-6 months (p-value: 0.89).

Conclusion: This study's findings support perioperative Carbohydrate Supplementation for Hip Fracture patients, however further research is needed to confirm the improved postoperative outcomes observed.

Thursday, 4 September

Sports Medicine 3
09:57 - 10:00

53 Novel Arthroscopic Tension Band Fixation Of Posterior Cruciate Ligament (PCL) Avulsion Fractures Using Double-Suture Tape Loops.

Joseph Wan, Grace Tan, James Sir-Young Loh, Siti Mastura Rahim

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Abstract
Introduction
Posterior cruciate ligament (PCL) avulsion fractures are rare injuries that will require surgical management to stabilise the knee and prevent further injuries. Since the first documented arthroscopic fixation in 2001, many variations of the technique had been reported. Yet there has been no large scale study evaluating the efficacy and complications of these techniques. The authors describe their technique for the arthroscopic fixation of PCL avulsion fractures using two suture loops with endobutton, to create a tension band construct, allowing early ROM exercises.

Methods
Single-centre, single-surgeon successive case series of 5 patients with isolated PCL avulsion fractures who underwent surgical fixation by above-mentioned technique. Surgical duration, intra-operative and post-operative complications are also reported. 6-month post-operative follow-up examination findings are also reported.

Results
All patients underwent delayed arthroscopic fixation, ranging 6 days to 1 month. No intra-operative and post-operative complications were recorded. At 6 months follow-up post-operatively, all had returned to full weightbearing, achieving knee flexion past 90° and had returned to baseline activity levels.

Conclusion
Our novel 'M technique' of arthroscopic PCL avulsion fracture fixation had demonstrated reproducible and positive outcomes at 6-months follow-up. This tension band construct confers the advantage of immediate post-operative range of motion exercises, which have not been reported with previous techniques. More studies and longer-term follow-up are required to validate this technique and study its cost-effectiveness.

08:45 - 08:48

75 Correlation Of Cerclage Suture With Graft Strength In Quadrupled Soft Tissue Graft Construct In All-Inside Anterior Cruciate Ligament Reconstruction – A Cadaveric Biomechanic Study

Hui-Shan Angela Lim[1], Binte Rahim Siti Mastura[1], Binte Mohamad Redwan Athirah Nurunnisa[2], Kinjal Mehta[1], Sir-Young James Loh[1]

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2. Singapore University of Technology and Design, Singapore, Singapore

Abstract
Background: The all-inside anterior cruciate ligament (ACL) reconstruction technique involves a graft with two adjustable loop devices at each end of a closed loop graft, made from folded tendon(s) with cerclage sutures along its length to enhance graft strength. To the authors' knowledge, there is no consensus on the optimal number of cerclage suture to be used. The current study aims to evaluate the effect of the number of cerclage sutures on graft strength. Methodology: A controlled cadaveric study of 27 graft specimens, standardized to length 60mm and diameter 10mm. The specimens were divided into three groups – 2-cerclage, 3-cerclage and 4-cerclage. All specimens were tested with the Instron tensile tester 5943 machine and data on stiffness, ultimate load-to-failure (uLTF), and mode of failure were recorded. Results: The 3- and 4-cerclage groups showed no significant difference in stiffness and uLTF ($p=0.953$; $p=0.812$), but both were significantly stiffer with higher uLTF than the 2-cerclage group ($p=0.002$, $p=0.005$). The double tendon 3-cerclage specimens were significantly stiffer ($p=0.014$) than single tendon 3-cerclage specimens, but this was not seen in the 4- and 2-cerclage groups. No significant difference in mode of failure was found across the groups. Conclusion: It is postulated that a double tendon 3-cerclage graft achieves similar stiffness and uLTF as a 4-cerclage graft for a graft diameter of 10mm or more, and a 2-cerclage graft is not recommended. This finding contributes to the existing literature of all-inside ACL graft technique.

09:09 - 09:12

120 Biomedical Technologies In The Treatment Of Osteochondral Lesions Of The Talus

Meruyert Makhmetova[1,2], Dina Saginova[2], Yerik Raimagambetov[2], Bagdat Balbossynov[2], Arman Batpen[2], Birzhan Suiindik[3]

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2. National Scientific Center of Traumatology and Orthopedics named after academician Batpenov N.D., Astana, Kazakhstan
3. Karaganda Medical University, Astana, Kazakhstan

Abstract
Introduction
Osteochondral lesions of the talus (OLT) pose challenges due to damage to both cartilage and subchondral bone, often resulting from trauma or degeneration. Traditional treatments like microfracture and grafting have limited success due to cartilage's avascularity. Tissue engineering, particularly fibrin-based hydrogels with mesenchymal stem cells (MSCs) and growth factors (TGF-β, BMPs), offers a promising regenerative approach.
Clinical Case Series
Patient R (22-year-old female) sustained a right ankle injury during tennis, diagnosed with OLT and talofibular ligament damage. Patient M had an ankle injury from a parachuting accident, with MRI revealing defect progression over two years. Both enrolled in a clinical study (Ethics Committee approved, 2022). Adipose-derived MSCs were isolated, and a heparin-conjugated fibrin hydrogel (HCFH) with TGF-β and BMP-4 was synthesized. Patients underwent ankle arthroscopy with defect debridement, tunneling, and hydrogel application. Patient R also received a Broström procedure.
Results and Conclusion
Both patients had uneventful wound healing, with transient swelling and inflammation resolving by week two. VAS pain scores improved from 65/71 to 31/46, and AOFAS scores increased from 61/57 to 75/69 at six months. MRI confirmed defect regeneration. The HCFH-MSC combination likely enhanced chondrogenesis and reduced inflammation. These findings support bioengineered hydrogels as a potential treatment for OLT, warranting further research.
Keywords: ankle joint, talus, osteochondral lesion, cell technologies, mesenchymal stem cells.

08:51 - 08:54

126 MEDIAL PATELLOFEMORAL LIGAMENT RECONSTRUCTION: A NON – IMPLANT TECHNIQUE

CLAUDIA Arias

Hospital Nacional Edgardo Rebagliati Martins, Lima, Peru

Abstract
ABSTRACT
Background: Medial patellofemoral ligament reconstruction is a common procedure and one of the treatments of choice for patellofemoral instability, although there is no surgical consensus regarding graft choice, surgical technique and methods of fixation. Different techniques are described, most of them using different kind of implants, anchors, interference screws with an increase of stiffness after surgery and elevated cost of the implants. In some developing countries the cost of implants makes surgery impossible.
Purpose: We present an MPFL reconstruction technique free of implants, using autograft with a modified Fithian's technique at the patellar attach and a loop around the adductor tendon (adductor sling) for the femoral fixation.
Study Design: Cases report.
Results: We report 32 cases, 26 isolated MPFL and 6 combined procedures, BPII 78 (0-100), 3 failures reported.
Conclusion: This is a reproducible, effective, and LOW-COST surgery for patellofemoral instability. Socioeconomic factors should be considered for the selection of the surgical technique for the MPFL reconstruction.

10:00 - 10:03

158 Quadriceps Tendon Autograft Offers A Significantly Larger Diameter Compared To Hamstring Tendon Autograft For Primary ACL Reconstruction In The Asian Population

Hongzhi Zhu[1], Fan Shuen Tseng[2], Lester Teong Jin Tan[1], Sean Wei Loong Ho[1], Jegathesan T[1]

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2. Hospital Services Division, Ministry of Health Singapore, Singapore, Singapore

Abstract
Quadriceps tendon (QT) autograft is an increasingly popular choice for primary ACL reconstruction (ACLR). The primary aim of this study is to determine if QT autografts yielded larger autograft diameters intraoperatively compared to hamstring tendon (HS) autografts after adjusting for height and weight in the Asian population, with a secondary aim to provide recommendations for autograft choice in primary ACLR.
This is a retrospective study of patients undergoing primary ACLR at a single tertiary centre. All patients with QT autografts were included with HS autograft patients included from 1-August-2022 to 31-December-2024. ACLR in the setting of revision surgeries were excluded. Patients' physical parameters and intraoperative autograft diameters were collected, and autograft diameters of QT group were compared with the HS group, after adjusting for age, gender, height and weight.
A total of 151 patients were included, 111 in HS group and 40 in QT group. The mean intraoperative autograft diameter for HS group was 8.15mm ± 0.60mm and 9.14mm ± 0.61mm for QT group. QT intraoperative autograft diameter was significantly larger than HS autograft by 0.99mm ($p = 0.000$). To obtain a HS autograft width of at least 8mm, the patient's height should ideally be >167cm or weight >65kg.
QT autograft provides a significantly larger autograft size compared to HT autograft in the Asian population after adjusting for height and weight. To obtain an autograft diameter of 8mm in the Asian population in patients of height ≤167cm or weight ≤65kg, harvesting the QT over HS autograft should be strongly considered.

08:57 - 09:00

739 Outcome Of A Modified LaPrade Reconstruction Of Chronic Posterolateral Corner Instability Of The Knee.

Soutrik Mukherjee

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Abstract
Background: Posterolateral Corner (PLC) of knee is an area that does not receive adequate research recognition, despite its functionality and contribution to the overall stability of the knee. Isolated PLC injuries are rare, and are mostly associated with cruciate injuries. Chronic posterolateral instability increases forces on the cruciate ligaments, and thus cause graft failure in cruciate reconstructions. Materials and methods: Ten patients of age 31.3 ± 5.2 years, with failed previous cruciate reconstruction and a chronic PLC instability were included in the study. A modified LaPrade technique, with a single femoral tunnel was used for PLC reconstruction. The functional outcome was analysed by calculating pre and post - operative International Knee Documentation Committee (IKDC) scores along with pre and post - operative clinical and radiographic evaluation. Results: Clinically all the patients were found to have a negative dial and varus stress test both immediately after PLC reconstruction and at six months follow up. The patients improved on their IKDC score from a mean preoperative score of 39.53, SD 3.42 to a mean post-operative score of 81.39, SD 3.42 at six months follow up. All patients had a correction of the increased lateral gapping on Varus stress radiographs. Conclusion: With all these patients having one or more episodes of graft failure in the setting of previous cruciate reconstruction due to a missed PLC injury, the use of this modified LaPrade technique with a single femoral tunnel appears to be a viable approach for PLC reconstruction in these patients.

09:06 - 09:09

615 Treatment Of Lumbar Disc Herniation With Multiple Annulus Fibrosus Suture Methods Under Arthroscopic-Assisted Uni-Portal Spinal Surgery (AUSS)

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Abstract
Objective:This study is designed to delve into the distinct advantages of AUSS technique.
Method:A retrospective analysis was done on 366 patients (aged 20-50) with lumbar disc herniation and radiculopathy (single segment) in our hospital from 2021 to 2024. They were divided into two groups by semi-randomized controlled method based on inpatient ID numbers: 199 in group A had annulus fibrosus suture under AUSS, and 167 in group B didn't. 359 patients were observed in 12-month follow-up(7 dropped out). VAS scores for back and leg pain, ODI, and recurrence rate were evaluated. Subgroup analysis in group A was also conducted by using single-needle, multi-needle and special suture methods to observe VAS scores, ODI, and recurrence rate.
Results:All surgeries were successful. VAS scores for lumbar and leg pain in both groups improved significantly ($P<0.05$). At 1, 3, 6 months and 1 year after surgeries, differences in VAS scores for lower limb pain and ODI scores were significant ($P<0.05$). During follow-up, 8 in Group B relapsed(5% recurrence rate), 2 in Group A relapsed(1% recurrence rate). In subgroup analysis, all relapsed cases were single-needle suture ones; no recurrence in multi-needle suture cases. Further research showed multi-needle suture evenly distributed annulus fibrosus' surface tension mechanically, reducing re-rupture risk.
Conclusion:Compared with traditional surgeries, AUSS has a wider view and free operating space, enabling new annulus fibrosus suture methods, handling complex disc herniations, improving post-surgery annulus fibrosus retraction, potentially reducing reoperation rates from annulus fibrosus rupture and nucleus pulposus prolapse recurrence.
Key words:AUSS;Annulus Fibrosus Suture;Lumbar Disc Herniation

10:12 - 10:15

929 Long-Term Comparative Analysis Of Functional Outcomes Of Isolated Posterior Cruciate Ligament (PCL) Reconstruction Using Hamstring Graft Versus Peroneus Longus Graft

Ajeet Singh

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Abstract
Introduction The incidence of PCL injuries is relatively low compared to other. Isolated PCL injuries are particularly rare and challenging to diagnose, often requiring a high degree of clinical suspicion. Graft selection for PCL reconstruction remains a subject of ongoing debate. Each graft type has its respective advantages and disadvantages. Methods A total of 46 patients diagnosed with isolated PCL injuries underwent arthroscopic PCL reconstruction between 2020 and 2023. The procedure was performed using an additional posteromedial (PM) portal with a 30-degree arthroscope. Patients were divided into two groups based on graft selection. A standardized postoperative rehabilitation protocol was followed for all patients. Only those with a minimum follow-up duration of 12 months were included in the study. Results The primary mechanism of injury was road traffic accidents, particularly two-wheeler accidents followed by sports injuries and fall from height. The observed graft diameters ranged from 8-9 mm in the hamstring group and 9-10 mm in the PL group. Postoperative rehabilitation protocols were consistent across both groups; however, donor site morbidity was more frequently reported in the PL graft group. At the end of the one-year follow-up period, functional outcomes, including knee stability and range of motion, were comparable between both groups. Conclusion The PCL is a crucial stabilizing structure of the knee. This study found that both hamstring and PL tendon grafts yielded equivalent functional outcomes at one year postoperatively. However, donor site morbidity and cosmetically second incision were more pronounced in the PL graft group.

10:15 - 10:18

1376 Optimizing Vancomycin Soaking Protocols For Anterior Cruciate Ligament Reconstruction

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Abstract
Background/Objectives: Postoperative infection remains a significant complication of anterior cruciate ligament (ACL) reconstruction, with bacterial contamination of the graft being a primary source of infection. Although current guidelines recommend soaking autografts in 5 mg/mL vancomycin for 20 minutes, practical constraints often reduce soaking time to 5 minutes. This study aimed to evaluate the bacterial eradication efficacy, cytotoxicity, and vancomycin release profiles of different vancomycin concentrations and application methods within a 5-minute soaking period.
Methods: Human semitendinosus tendon grafts were inoculated with bacterial pathogens, including Staphylococcus aureus, Staphylococcus epidermidis (biofilm-producing and non-biofilm-producing strains), and Enterococcus faecalis. The grafts were treated with either direct soaking in 5 mg/mL vancomycin or gauze wrapping with 2.5, 5, or 10 mg/mL vancomycin for 5 minutes. Bacterial elimination was assessed via agar plating. Cytotoxicity on tenocytes and human umbilical cord-derived mesenchymal stem cells (HUMSCs) was evaluated at 6, 12, 24, and 72 hours. Vancomycin release was measured using an immunofluorescence assay with the Cobas C311 Roche analyzer.
Results: Complete bacterial eradication was achieved with direct soaking in 5 mg/mL vancomycin and gauze wrapping in 10 mg/mL vancomycin. Gauze wrapping in 2.5 and 5 mg/mL vancomycin resulted in residual bacterial presence in some samples. All vancomycin concentrations maintained tenocyte and HUMSC viability above 70%, with no significant cytotoxic effects.
Conclusions: A 5-minute soak in 5 mg/mL vancomycin using the direct soaking method or in 10 mg/mL vancomycin using gauze wrapping effectively eradicated bacterial contamination without compromising cell viability.

09:19 - 09:22

1743 Effects Of Unilateral Knee Anterior Cruciate Ligament Transection On Articular Cartilage Of The Contralateral Knee Of Rabbits.

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Abstract
Objective To explore the effect of unilateral anterior cruciate ligament transection(ACLT)on the articular cartilage of the contralateral(CL) knee of rabbits. Methods Thirty New Zealand white rabbits (4~5-month-old,2.5~3 kg) were randomly separated into an ACLT/CL group and a Sham/CL group. The ACLT/CL group was performed ACLT,while the Sham/CL group was given the sham operation. Five days after the surgery,both groups were forced to run on a treadmill,10 min a day at a speed of 0.3 mh(about 8 meters/min),5 days a week. At the 12 th、24 th and 36 th week after the surgery, 5 rabbits from each group were sacrificed and their medial femur condyles from CL（left
knees) were assessed through macroscopic observation and osteoarthritis research society international(OARSI)histological analysis,and the type Ⅱ collagen（COLⅡ） was tested using the immunochemical analysis. Results There were no significant cartilage lesions in Sham/CL group at different time
points. However,the cartilage lesion appeared in the ACLT/CL group 24 weeks after the surgery and became more severe 12 week later. There were significant differences in the average macroscopic and OARSI scores between the two groups 24 and 36 weeks after the surgery. Conclusion The long-term
unilateral ACL transection may cause articular cartilage injury of the contralateral knee and due attention should be paid to such condition in the clinical practice.

10:18 - 10:21

1879 Braided Hamstring Grafts In ACL Reconstruction: Superior Clinical And Functional Outcomes In Early Follow-Up

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Abstract
Aim: To compare the clinical and functional outcomes of anterior cruciate ligament (ACL) reconstruction using braided versus non-braided hamstring grafts at early follow-up.
Materials and Methods: A retrospective analysis was conducted on 103 patients who underwent ACL reconstruction at our clinic. Patients were divided into two groups: 61 underwent reconstruction with a conventional method with hamstring grafts, while 42 with braided hamstring grafts. Age, gender, and body mass index (BMI) were recorded as demographic data. Pre- and postoperative evaluations included Lysholm Knee Scoring Scale (LKSS), Knee injury and Osteoarthritis Outcome Score (KOOS), International Knee Documentation Committee (IKDC) score, Tegner Activity Scale (TAS), Visual Analog Scale (VAS), return to sports and 5-point Likert Scale for patient satisfaction.
Results: The braided group(n=42) had a mean age of 28.88±9.87 years, while the non-braided group(n=61) was 26.46±5.98 years. Preoperative VAS, KOOS, LKSS, IKDC, TAS, and demographic data showed no significant differences between the groups. Postoperative KOOS(81.88vs.68.33,p=0.001) and LKSS(84.45vs75.97, p=0.002) were significantly higher in the braided group. TAS improved more in the braided group(6.10vs.4.56,p=0.001), and VAS scores decreased similarly(1.81vs.1.62, p>0.05). Patient satisfaction was higher in the braided group(4.50vs4.13, p=0.020). Return to sports and postoperative IKDC scores showed no significant difference(p=0.144, p>0.05). No re-ruptures were observed in either group.
Conclusion: ACL reconstruction with braided hamstring grafts demonstrated superior clinical and functional outcomes at early follow-up compared to the conventional hamstring method, suggesting a potential advantage in early recovery. Longer follow-up studies are required to confirm these findings and assess re-rupture rates over time.

09:13 - 09:16

2059 Results Of The Repair Of Ramp Lesions During Anterior Cruciate Ligament Reconstruction

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2. SMS orthopedic center Bach Djerrah, Algiers, Algeria

Abstract

Objective

The aim of this study is to evaluate the outcomes of arthroscopic repair of medial meniscal ramp lesions during anterior cruciate ligament reconstruction.

Materials and Methods

This was a prospective, single-center study conducted between December 2019 and December 2023. The study included all patients who underwent arthroscopic repair of the posterior segment of the medial meniscus using a suture hook through posterior approaches during primary ACL reconstruction. For this, the posteromedial approach was used for right knees, and the posteromedial +/- trans-septal approach was used for left knees. Patients were evaluated pre- and postoperatively using the IKDC score and the Tegner activity scale. Knee laxity was assessed using a Rolimeter. Complications were also recorded.

Results

Seventy-two patients met the inclusion criteria. The mean follow-up was 27 months. The mean subjective IKDC score improved from 61.3 ± 11.7 (range: 26 to 90) preoperatively to 86.8 ± 13 (range: 52 to 100 $P < 0.001$). The Rolimeter test showed a reduction in the side-to-side difference in anterior knee laxity from 8 mm (range: 5 to 14 mm) to a mean value of 0.6 mm (range: -2 to 5 mm $P < 0.0001$). The Tegner activity scale at the last follow-up (4.9 ± 1.7) was slightly lower than before surgery (5.2 ± 1.9; $P = 0.0017$). Two patients (2.8%) experienced meniscal repair

Conclusions:

Our results demonstrate that arthroscopic repair of ramp lesions achieved a high rate of healing and appeared safe and effective in these patients.

09:51 - 09:54

2134 Meniscal Transplantation: The Future Of Treating Irreparable Meniscus Damage

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Abstract
Meniscus injuries are rising in prevalence. Early meniscectomy is linked to osteoarthritis, prompting the development of repair and replacement techniques. This paper aims to present a case where meniscal repair was unfeasible and to describe the technique of meniscal replacement using a semitendinosus tendon autograft.

A 38-year-old female futsal player suffered an indirect trauma to her right knee, resulting in a complete rupture of the anterior cruciate ligament (ACL) and rupture of the posterior horn of the lateral meniscus. Following the breakdown of the sutures, a partial meniscectomy was carried out, which was followed by the onset of Cyclops syndrome. As a result, a meniscal transplant using a semitendinosus graft became necessary.

In this study we present the case of a patient who underwent meniscal autograft transplantation with a semitendinosus tendon from the contralateral knee with good clinical results up to one year postoperatively. The patient follow-up remains active.

Autologous transplantation for meniscal reconstruction is an innovative technique with great potential for delaying progression to arthrosis in situations where the meniscal lesion is not repairable. However, the little evidence of long-term results and the great surgical skills required to perform this procedure creates an obstacle to its standardization in current clinical practice.

09:22 - 09:25

2266 Meniscal Repairs After 35 Years: How Far Can We Go In Suturing Degenerative Meniscal Lesions (DML)? Prospective Results Of 40 Cases

Redouane Samir Si Larbi[1], Mahdi Ghniet[2], Nadhir Meraghni[1], Nacim Soal[1]

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2. EPH Boumerdes, Algiers, Algeria

Abstract
Introduction:
With the increase in sports activity and longevity in the general population, degenerative meniscal lesions are becoming increasingly common, raising concerns about the preservation of cartilage integrity.
Materials and Methods:
This is a prospective, multicenter study with an average follow-up of 2 years, including 40 patients over the age of 35 who underwent meniscal repair. Associated ACL tears were present in 60% of cases. Root and ramp lesions were excluded. The inside-out technique was used in all patients with PDS 0 or 1 sutures, utilizing a posterolateral or posteromedial approach. In 5 cases, the repair was supplemented with outside-in stitches. Fibrin clot augmentation was performed in 40% of patients with isolated lesions.
Results:
The average age of the cohort was 42.7 years. The lesion was located in the medial meniscus in 64% of patients versus 36% in the lateral meniscus. The male-to-female ratio was 5:1. Meniscal symptoms resolved in all patients. The global KOOS score improved from 68 to 91, while the KOOS sports and recreation score increased from 45 to 70. Complications included 2 cases of paresthesia in the saphenous nerve territory, 2 cases of flexion loss estimated at less than 10°, and 2 cases of severe stiffness requiring arthrolysis with a second-look arthroscopy, which confirmed meniscal healing. No cases of failure were reported at the latest follow-up.
Conclusion:
Meniscal repair in degenerative meniscal lesions should be part of the therapeutic arsenal, with the goal of preserving the meniscus to protect the cartilage

10:21 - 10:24

2314 An Aetiological Study Of Surgically Treated Anterior Cruciate Ligament Injuries

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Abstract
Background:
Anterior Cruciate Ligament (ACL) is the major stabilizer of the translational forces in the knee joint. Sports injuries have been an established and leading cause of ACL tears. The aim of the study is to evaluate the aetiological factors of ACL injuries in the South Indian population.

Methods: A retrospective observational study was conducted at a tertiary care hospital from 2019 - May 2023. Case records of 130 surgically treated ACL reconstruction cases were retrieved from hospital database and analyzed to study the aetiology of ACL tear.

Results:
• Majority of the ACL injuries were result of accidental injuries (37.7%), followed by sports injuries (30%).
• Males were more commonly affected (73.8%) (p=0.002).
• Sports injury was the most common cause of ACL tear in male patients (38.5%) (p=0.002) and Road traffic accidents leading to ACL injuries were also more commonly seen in male patients (69.4%) (p=0.002).
• Most of the patients were of 26-35 years (36.2%).
• 45.4% of the patients were operated within 15 days of injury and the mean duration from injury to surgery was significantly lesser (p=0.012) in female patients at 2.662 months (±5.15 months).
• 36.9% of the patients had an associated meniscal injury with medial meniscal injury seen in 70.8% of these.

Conclusion: Non-sports related, accidental injuries are a leading cause of ACL tear in our study population.

10:24 - 10:27

2501 Our Experience In Meniscal Tear Suture And Repair. A Retrospective Analysis.

Mónica Sánchez Santiuste, Pablo Millán Antelo, Darío Guizado Elme, Joaquín García García, Valentín Calcedo Bernal, Víctor Vaquerizo García

Prince of Asturias University Hospital, Madrid, Spain

Abstract
The objective of meniscal repair is to delay the onset of knee osteoarthritis. Different surgical techniques appear to have similar outcomes. Our objective was to retrospectively analise the clinical and functional results of meniscal repair surgeries carried out at our hospital and compare the results to those in existing literature.We conducted a retrospective review of all meniscal sutures performed over 7 years with a minimum follow-up of 2 years.
We analysed patient demographics, type of meniscal tear, time span between diagnosis and surgery, suture technique performed, compounding lesions, need for revision surgery and return to daily life and sporting activity.
87 patients were included with a mean age of 29.38 years. 52.8% were medial meniscus tears, 29.9% lateral and 17.2% bilateral. Average time-to-surgery was 3.96 months. 42.5% presented ACL tears that were addressed in the same procedure. An average of 6-month return-to-play time was observed. A 38.9% rate of complication was reported (one case of infection and 33 revision surgeries). At 2-year follow-up, average Lysholm and Tegner scores were 78.2 and 5.
We found patients with compounding lesions and those with time-to-surgery over 3 months at higher risk of meniscal suture failure ($p < 0.05$), which is consistent with conclusions found in literature. However, because this is a retrospective case report, it is hard to draw conclusions from the data. Moreover, most of the existing literature regarding this topic pertains to professional athletes. Our patient population does not fit this category, therefore our results cannot successfully be compared.

10:09 - 10:12

2634 Does MRI-Detected Achilles Degeneration Affect Surgical Outcomes In Insertional Achilles Tendinopathy?

Adriel You Wei Tay, Rui Xiang Toh, Mohamed Buhary Kizher Shajahan, Zongxian Li, Kae Sian Tay

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Abstract

Introduction

The role of preoperative magnetic resonance imaging (MRI) in predicting outcomes after Insertional Achilles Tendinopathy (IAT) surgery is still uncertain. MRI can identify degenerative changes in the Achilles tendon, but its ability to guide management and predict postoperative success remains unclear. This study aims to evaluate whether MRI-detected Achilles degeneration influences surgical outcomes in IAT patients.

Methods

Twenty consecutive patients who underwent surgery for unilateral IAT were included. Patients were grouped based on the presence or absence of Achilles tendon degeneration on preoperative MRI. Surgery involved partial tendon detachment, debridement, resection of the posterosuperior calcaneal bony prominence, and tendon reattachment. Patient-reported outcome measures (PROMs) including the American Orthopedic Foot and Ankle Society (AOFAS) score, Visual Analog Scale (VAS) for pain, and Short Form-36 Physical (SF-36 PCS) and Mental (SF-36 MCS) Component Summaries were assessed preoperatively and 6 months postoperatively. Patient satisfaction was recorded through a standardized questionnaire.

Results

Fourteen of the 20 patients demonstrated MRI features of Achilles tendon degeneration. These patients had significantly higher preoperative pain scores compared to those without degeneration. However, there were no significant differences in postoperative functional outcomes, pain levels, or satisfaction rates between the two groups. Both groups reported high postoperative satisfaction (>80%).

Conclusion

While patients with MRI features of Achilles tendon degeneration had higher preoperative pain, they achieved similar postoperative outcomes and satisfaction as those without degeneration. Further research is needed to determine whether MRI, along with clinical factors, can more accurately predict surgical success and guide individualized treatment for IAT.

09:38 - 09:41

2692 Clinical And Radiological Outcomes Of ACL Reconstruction With And Without Lateral Extra-Articular Tenodesis: A Systematic Review And Meta-Analysis

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Abstract
Introduction:

Anterior cruciate ligament reconstruction (ACLR) remains the gold standard for restoring knee stability after ACL injury. Lateral extra-articular tenodesis (LET) has been introduced to enhance rotational stability, but its impact clinically and joint preservation is debated. This meta-analysis aims to compare clinical and radiological outcomes of patients undergoing ACLR with LET versus isolated ACLR.

Methods:

A systematic review and meta-analysis were performed following PRISMA guidelines. Studies comparing ACLR+LET with iACLR were included if they reported validated clinical outcome scores (KOOS, Tegner, Lysholm, IKDC) or radiological classifications (Kellgren-Lawrence, Ahlback, Fairbank). Random-effects models were used to pool mean differences and odds ratios. Heterogeneity was assessed via I^2 statistics.

Results:

ACLR+LET was associated with significantly improved clinical outcomes, including KOOS-QOL (MD = 67.34; 95% CI: 45.12 to 89.56), KOOS-ADL (MD = 92.66; 95% CI: 90.45 to 94.87), and KOOS-Recreation (MD = 64.49; 95% CI: 42.52 to 86.46). Lysholm scores showed no significant difference (MD = 1.37; 95% CI: –9.80 to 12.55), while data for Tegner and IKDC were insufficient for analysis. Radiological comparisons showed increased odds of changes in Kellgren-Lawrence (OR = 2.00; 95% CI: 0.23 to 17.10) and Ahlback (OR = 3.16; 95% CI: 0.36 to 27.43) classifications in the LET group, though these results lacked statistical significance due to wide confidence intervals and heterogeneity.

Conclusion:

The addition of LET to ACLR improves several clinical outcomes and may influence radiological joint changes. Despite encouraging results, the radiographic findings remain inconclusive, and further high-quality studies are required to fully define the long-term

09:45 - 09:48

2701 Clinical Outcomes Of MPFL Reconstruction With Quadriceps Tendon Graft For Recurrent Traumatic Patellar Dislocation In Adolescents

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Abstract
Purpose: Recurrent patellar dislocations in adolescents can occur due to various causes, and the treatment methods vary accordingly. This study aims to evaluate the clinical outcomes of medial patellofemoral ligament (MPFL) reconstruction using quadriceps tendon graft in adolescent patients with recurrent patellar dislocation secondary to trauma.

Methods: The study included nine adolescent patients aged between 13-17 years who underwent surgery for recurrent patellar dislocation at our clinic between 2020 and 2023. All patients underwent MPFL reconstruction with quadriceps tendon graft and were followed up for a period of 1 to 3 years postoperatively. Clinical outcomes were assessed using the Lysholm score and the IKDC 2000 score at the 1-year follow-up. Additionally, complications such as patellar fractures, wound complications, and redislocation were evaluated.

Results: At the 1-year postoperative follow-up, the mean Lysholm score significantly improved from 75.1±11.5 to 93.8±5.7 ($p<0.005$), and the IKDC 2000 score improved from 71.3±9.6 to 91.9±8.2 ($p<0.005$). No cases of patellar fractures or wound complications were observed during the follow-up period. Redislocation was noted in one patient (11.1%).

Conclusion: MPFL reconstruction using quadriceps tendon graft provides clinically successful outcomes and low complication rates at 1-year follow-up in adolescents with recurrent patellar dislocation secondary to trauma. This technique can be considered a safe and effective treatment option for this patient population.

09:03 - 09:06

2845 Arthroscopic Anterior Horn Of Lateral Meniscus Repair Using All Suture Anchor.

JYOTHIPRASANTH Mahesh Kumar, AGHOSH Mc, JITHIN Radhakrishnan, AKHIL Thomas, VENKATESH Kumar

BMH , KANNUR, Kannur, India

Abstract
Arthroscopic Anterior horn of lateral meniscus
repair using all suture anchor.

INTRODUCTION
The anterior horn of the lateral meniscus is a key structure in the knee joint, contributing significantly to load distribution, shock absorption, and joint stability. Injuries to this part of the meniscus, often resulting from sports activities, can lead to substantial functional impairment if not appropriately treated. The complexity of the meniscus's structure, along with its limited vascular supply, particularly in the anterior horn, makes the repair of tears in this region a challenging endeavour .
Recently, the development of all-suture anchors has revolutionized meniscal repair by offering a less invasive, yet highly effective, option. All-suture anchors are composed entirely of suture material, eliminating the need for rigid implants and thus reducing the risk of damage to surrounding tissues .
The biomechanical properties of all-suture anchors allow for secure fixation in the meniscal tissue, providing the necessary stability for healing while maintaining the flexibility required to accommodate the dynamic environment of the knee . Studies have demonstrated promising outcomes in patients treated with all-suture anchors for meniscal repairs, reporting significant improvements in knee function and a reduction in postoperative complications compared to traditional techniques .
This publication seeks to explore the role of all-suture anchors in the repair of anterior horn tears of the lateral meniscus. We will review the biomechanics of the lateral meniscus, outline the surgical technique for using all-suture anchors, and assess the clinical outcomes reported in recent studies.

09:00 - 09:03

3134 Needle Arthroscopy In The Surgical Management Of Brodie's Abscess Of The Distal Tibia In An Infant

Elena Chiara Thalia Georgiakakis[1], Akib Majed Khan[2], Prashant Singh[3], Khaled Maher Sarraf[4]

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Abstract
Brodie's abscess is a form of subacute osteomyelitis typically localised to the proximal and distal metaphyseal regions of long bones, with the lower limb, particularly the tibia, most often afflicted. Treatment conventionally involves evacuation and curettage of the abscess cavity, often in conjunction with a course of antibiotics. The traditional surgical approach entails arthrotomy, with or without primary skin closure, facilitating abscess drainage. However, in the paediatric population, this exposure present drawbacks pertaining to both the potential for iatrogenic injury to adjacent neurovascular structures, given the small size of the patients, and aesthetic implications from scarring. Needle arthroscopy (NA) is emerging as a viable alternative to traditional arthroscopy, offering minimally invasive access to joints for diagnostic and therapeutic interventions using small instruments ("Nano-instruments"). We describe the novel use of this technology to treat Brodie's abscess in the left distal tibia of a 16-month-old male. The Arthrex (Naples, FL, USA) NanoNeedle Scope (NanoScope) and associated Nano-instruments were used, featuring chip-on-tip camera technology incorporated on a 1.9mm diameter shaft, introduced through a 2.4mm sheath. At the 6-week review, the patient exhibited no residual symptoms, demonstrating full range of motion, no pain, and healed skin at the incision points. To our knowledge, this is the first reported instance of NA being used for the evacuation and curettage of Brodie's abscess.

09:54 - 09:57

1323 Exploring The Link Between Supraspinatus Tendon Retraction And Muscle Atrophy: A Quantitative MRI-Based Analysis

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1. Istanbul University-Cerrahpasa, Istanbul, Turkey
2. Istanbul University-Cerrahpasa, Istanbul, Türkiye

Abstract
Introduction:Rotator cuff injuries, particularly supraspinatus tendon tears are a leading cause of shoulder dysfunction. Tendon retraction is linked to progressive muscle atrophy, impacting surgical outcomes.MRI is essential for evaluating tendon integrity and muscle quality, yet the correlation between retraction severity and muscle atrophy remains under investigation.
Aims&Objectives:This study aimed to evaluate the association between supraspinatus tendon retraction and supraspinatus muscle atrophy as observed on MRI. Specifically,it sought to determine whether there is a correlation between retraction distance of the supraspinatus tendon and volume of supraspinatus muscle.
Study Design&Methods:A retrospective analysis was conducted on MRI scans of 50 patients diagnosed with rotator cuff injuries.The retraction distance of supraspinatus tendon was measured using the Tangential to Tendon(TTT) method. Supraspinatus muscle volume was quantified using semi-automated software that analyzed axial MRI images. Patient demographics,including age, sex and comorbidities, were taken into account.Correlation between tendon retraction and muscle volume was assessed using Pearson's correlation coefficient.
Results:The study found a significant positive correlation between retraction distance of supraspinatus tendon and degree of muscle atrophy,($p < 0.001$).Patients with greater tendon retraction exhibited higher degrees of muscle atrophy.Advanced retraction distances were associated with increased severity of muscle volume loss.

Conclusion: This study demonstrates a strong correlation between supraspinatus tendon retraction and muscle atrophy on MRI. Tendon retraction may serve as a key indicator of muscle degeneration, highlighting its prognostic value in rotator cuff injuries and the need for early intervention.

09:35 - 09:38

2658 Sensory Loss After Hamstring Graft Harvest In ACL Reconstruction: A Prospective Comparative Study Of Anterior Vs. Posterior Harvest Techniques

SAMUNDEESWARI Saseendar, SASEENDAR Shanmugasundaram

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Abstract
Introduction:
Hamstring grafts are widely used in anterior cruciate ligament reconstruction (ACLR), but sensory loss over the anterior upper leg is a common complication that can cause significant patient anxiety. This study compares the incidence and severity of sensory loss in patients undergoing ACLR using two different hamstring graft harvesting techniques.
Methodology:
Sixty patients undergoing ACLR were divided into two groups. Group A (30 patients) had gracilis and semitendinosus grafts harvested via a 3 cm anteromedial longitudinal incision, while Group B (30 patients) had hamstring grafts harvested through a small popliteal fossa incision for posterior graft harvest.
Results:
In Group A, the incidence of sensory loss was 93.33%, predominantly affecting the anterolateral leg (85.7%), with a smaller percentage around the harvest scar (14.2%). No sensory loss was observed in the medial leg. The average area of sensory loss was 150.97 cm^2 at 1 month, decreasing to 63.33 cm^2 at 6 months, with the incidence dropping to 42%. By 9 months, 42% of patients still experienced sensory loss, which further reduced to 13.3% at 1 year. In Group B, only 13.3% (4 out of 30) of patients experienced sensory loss, with an average area of 16 cm^2, which completely resolved before 6 months.
Conclusion:
Sensory loss following hamstring graft harvest for ACLR is significantly more common and severe with the anteromedial longitudinal incision technique compared to the small popliteal fossa incision for posterior graft harvest. Further studies with extended follow-ups and detailed anatomical investigations are needed to better understand the underlying causes and to develop preventive measures.

08:48 - 08:51

76 Performance After Anterior Cruciate Ligament Reconstruction In Major League Baseball Fielders: A Case-Control Study With Advanced Performance Data

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Abstract

Introduction

Anterior Cruciate Ligament Reconstruction (ACLR) is a common surgical procedure for athletes aiming to return to play following knee instability and reduced function. However, its influence on Major League Baseball (MLB) fielders remains relatively unclear.

Objectives

This study aims to evaluate post-ACLR performance changes in MLB fielders using advanced performance data.

Methods

A retrospective case-control study was conducted on MLB fielders who underwent ACLR between 2015 and 2023. Players with at least 100 plate appearances before and after surgery were included. A 1:2 matched control group of uninjured players was established based on defensive position, batting side, age, and pre-injury performance metrics. Advanced performance data from Statcast, including sprint speed, Extra Bases Taken (XBR), Defensive Runs Saved (DRS), and weighted Runs Created Plus (wRC+) etc., were analyzed using appropriate statistical methods.

Results

A total of 14 MLB fielders met the inclusion criteria. Compared to the control group, the ACLR group exhibited significant declines in baserunning and defensive capabilities. The ACLR group showed a significant reduction in XBR (-0.34vs0.53, p=0.03), and sprint speed (-0.55vs-0.27, p=0.04). Additionally, DRS dropped significantly (-3.93vs-1.36, p=0.04). Despite these declines in mobility-related performance, batting metrics showed no significant differences between pre- and post-ACLR performances, nor between the ACLR and control groups.

Conclusion

ACLR significantly affects baserunning and defensive performance in MLB fielders, while batting performance remains stable. These findings highlight the importance of targeted rehabilitation programs focusing on speed and agility to mitigate performance declines.

Keywords

Baseball; Anterior cruciate ligament reconstruction; Performance; Major League Baseball (MLB)

09:29 - 09:32

2408 Open Versus Arthroscopic Release For Lateral Patellar Compression Syndrome: A Randomized-controlled Trial

Sherwan Hamawandi

Hawler Medical University, Erbil, Iraq

Abstract
Abstract
Introduction Lateral patellar compression syndrome is one of the causes of anterior knee pain in young adults and resulted from tight lateral patellar retinaculum. The aim of our study is to compare between open and arthroscopic release of lateral patellar compression syndrome in relation of functional outcome, time of surgical procedure, length of hospital stays, intraop- erative and postoperative complications as bleeding, infection, recurrence, and patellar instability with 2 years of follow-up. Materialsandmethods 80patients,age(21–49years),weredividedrandomlyinto2groups(AandB).GroupA(40patients) were treated with open release. Group B (40 patients) were treated by arthroscopic release. All these patients are diagnosed as lateral patellar compression syndrome depending on clinical features and MRI. All patients were assessed by Lysholm knee scoring scale before surgery and at periods of 2, 6 weeks, 6, 12, and 24 months after surgery.
Results There is significant difference in functional outcome, measured by Lysholm knee scoring scale, between preoperative and postoperative assessment periods in both groups ($P < 0.001$). There is significantly better functional outcome at 2 years of follow-up with arthroscopic release ($P = 0.018$). There is no recurrence in both groups, but there were 4 patients develop medial patellar instability in the group of open release.
Conclusion Both open and arthroscopic lateral release for patients with isolated lateral patellar compression syndrome can be effective surgical procedures, but arthroscopic release can achieve better functional outcome.
Trial registration: NCT, NCT04130412. Retrospectively registered on 3rd of June, 2020 at ClinicalTrials.gov.

09:16 - 09:19

1622 Study Of The Functional Outcome Of Anterior Cruciate Ligament Reconstruction With And Without Internal Bracing

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Amrita Institute of Medical Sciences, Kochi, India

Abstract

Aims

The study is to compare the functional outcome of arthroscopic anterior cruciate ligament (ACL) reconstruction with and without internal bracing (IB), and also to compare complications such as arthrofibrosis, joint stiffness, synovitis, effusions and ACL reinjury requiring revision.

Methods

A retrospective cohort study was conducted in a tertiary care hospital comparing 60 patients who underwent primary ACLR with quadrupled semitendinosus autograft with (30 patients) and without internal bracing (30 patients), Pre and post operative PROMs were assessed using LYSHOLM score, KOOS score, IKDC score, and SANE score.

Results

The pre-op LYSHOLM, KOOS, IKDC and SANE scores showed no statistically significant difference between the groups. The other post-op PROM scores showed no significant difference. There was no significant difference between the groups in the change in each score, pre-op and post-op. Complications such as post-op joint stiffness, synovitis, infection and graft failure requiring revision surgery, were absent in both groups.

Conclusion

When comparing the outcomes of ACLR quadrupled Semitendinosusautograft with internal bracing and without internal bracing, after a minimum 2-yearfollow-up, none of the patients experienced any problems, graft failure, or requiredreoperations. Additionally, the patients had identical patient-reported outcome measures (PROMs), function, and rates of returning to sports. Therefore, it may be inferred that ACLR with Internal bracing is a safe and secure surgical technique in the initial two years but more larger trials of longer duration are required to assess potential consequences like arthrofibrosis, synovitis, graft failure, infection or other issues.

Thursday, 4 September

Trauma 3
08:48 - 08:51

240 Using Double-Bundle Achilles Tendon–Bone Allograft For Reconstruction Of Compound Loss Of Lateral Malleolus And Lateral Ankle Ligaments: A Rare Case Report

Hsuan Chiu, Jen Hung Chen

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Abstract

【Introduction】
The compound loss of the lateral malleolus, lateral ankle ligaments, and overlying skin can lead to ankle instability, lateral shift of the talus, and, eventually, post-traumatic arthritis. Reconstruction for this severe injury is technically challenging and requires bone grafting and soft tissue coverage.

【Material and method】
A 27-year-old woman was presented to our hospital due to chronic right ankle instability with pain. She had motorcycle traffic accident with right ankle crush injury about 5 years ago. A 15x8 cm composite skin and soft tissue loss was noted and she accepted skin flap reconstruction then. The magnetic resonance imaging revealed compound loss of the lateral malleolus with peroneal tendon dislocation, lateral ankle ligaments, including the anterior talofibular ligament (ATFL) and calcaneofibular ligament (CFL).

【Results】
We used double-bundle Achilles tendon–bone allograft for reconstruction. At the 1-year follow-up visit, the patient had obtained a stable ankle with nearly a full range of motion. The radiographs showed stable allograft bone block, and no increase in the talar tilt compared with the contralateral side.

【Discussion】
Reconstruction for this severe injury is technically challenging, and requires skeletal stabilization and soft tissue coverage. Anatomic reconstruction of the ATFL and CFL has been emphasized in the context of ideal lateral ligament reconstruction for a stable ankle and long-term satisfactory clinical results.

【Conclusion】
In our case, a double-bundle Achilles tendon–bone allograft can achieve anatomic, concomitant reconstruction of the ATFL and CFL with no donor site morbidity, nor need for the technically challenging microsurgical free tissue transfer.

10:20 - 10:23

720 Effect Of Tourniquet Use On Surgical Adverse Events Following Primary Ankle Fracture Fixation Surgery

Daniella Soussi[1,2], Rahman Fazail[1], Usama Rahman[1,2], Alexis-Dimitris Iliadis[1], Lucky Jeyaseelan[1], Amit Patel[1]

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2. Bone and Joint Health Blizard Institute, Queen Mary University London, London, United Kingdom

Abstract

Introduction: Around 30,000 ankle fracture surgeries are performed annually in the UK, with tourniquets commonly used to reduce bleeding, improve visibility, and shorten operation time. However, they may cause complications such as pain, venous thromboembolism (VTE), neurovascular injury, and infection, making their use controversial. This study retrospectively compares adverse surgical outcomes with and without tourniquet use at Barts Health NHS Trust.

Methods: We included patients aged ≥18 undergoing primary fracture fixation for isolated, closed ankle fractures (AO/OTA 44B/C) between 2021-2023 (inclusive). Exclusions were patients with additional fractures, or injuries requiring further surgeries/follow-up. Data on demographics, tourniquet use (including duration), and complications (reoperation, wound infection, VTE) was collected.

Results: We analysed 350 cases, 50.3% (n=176) being female. Median age was 42.5 years±26.0 (IQR), and body mass index was 28.0±7.0.12.0% (n=42) were smokers, 2.9% (n=10) were ex-smokers, and 8.0% (n=28) had diabetes. Tourniquets were used in 74.9% (n=262) of cases for an average of 100.0±46.0 minutes. Complications included two episodes of VTE (0.6%), 25 wound complications (7.1%), 14 superficial (4.0%) and 11 deep infections (3.1%). 11.7% (n=41) required reoperation, 68.3% (n=28) of which had an initial intra-operative tourniquet, and 26.8% (n=11) had the reoperation due to wound infection. When examining the relationship between tourniquet use and complications, OR 0.8 (95%CI 0.4-1.5) (p=0.5).

Discussion: This study suggests a potential association between tourniquet use and increased complications, though limited by small sample size. It contributes to a larger multicentre study, laying the groundwork for a future randomised trial to reassess current guidelines.

10:23 - 10:26

750 ChatGPT 4o Is Successful In Detecting Fractures In Hip X-Rays

Ali Yüce[1], Mustafa Yerli[1], **Mehmet Selçuk Saygili**[1], Nazim Erkurt[1], Tahsin Olgun Bayraktar[1], Abdulhamit Misir[2], Metin Uzun[3], Ihsan Ahmet Güneren[4], Kamil Berkay Akdere[4]

1. Prof. Dr. Cemil Tascioglu City Hospital, Istanbul, Turkey
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4. Prof. Dr. Cemil Tascioglu City Hospital, I?stanbul, Türkiye

Abstract

Introduction

ChatGPT is an artificial intelligence service that can produce text that closely resembling human-written content. ChatGPT can be used to help create clinical notes, summaries, and other documentation that will help optimize time and reduce the risk of human error. Therefore, various successes of ChatGPT in orthopedics, such as article writing, exam success, writing informative text, and finding errors in text, have been investigated in the literature. With the 4o version of this chatbot, an image processing feature has also been added to ChatGPT. In this study, we aimed to evaluate the success of ChatGPT in detecting fractures in hip X-rays using its image-processing feature.

Methods

50 femoral neck fractures, 50 intertrochanteric fractures, and 50 intact hip X-rays were found from hip X-rays taken between 2022 and 2024, and these X-rays were recorded as photographs in the file. Then, this number was loaded into the ChatGPT 4o model in order and asked whether there was a fracture in the hip X-ray. The answers given by ChatGPT were recorded. Then, its success in detecting fractures was statistically evaluated.

Results

The agreement between ChatGPT and the observer was also calculated as substantial agreement (κ:0.673). The positive predictive value was calculated as 0.88, and the negative predictive value was calculated as 0.72.

Conclusion

ChatGPT 4o is successful in detecting fractures from hip X-rays. Training ChatGPT can further increase its success. If it provides sufficient success, it has the potential to be an application that can help everyone detect fractures.

09:01 - 09:04

943 The Application Of The Modified Pelvic Frame In Clinical Practice

Artyom Mikhailovitsch Lysko[1,2], Karen Albertovitsch Egiasarian[1], Dmitriy Igorewitsch Gordienko[2,1], Nikita Dmitriewistch Judaev[2,1]

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2. First City Clinical Hospital n.a. N.I. Pirogov, Moscow, Russia

Abstract
Pelvic fractures and concomitant injuries remain problems in orthopaedics, especially when the fracture is more than 4 weeks old. Open reduction will increase the number of severe, lifethreatening injuries, regardless of the approach is used. The Starr Frame made a revolution in pelvic surgery. The invention made it possible to treat also old pelvic fractures with closed reduction and low invasive surgery. But this frame is bulky and has its own disadvantages. Methods: For unstable pelvic fractures, we established a comprehensive and integrated solution. We made a modification of the Starr Frame, that can be easier used in operating room. Results: The modified Pelvic Frame (MPF) is very helpful for closed reduction and percutaneous fixation in complex pelvic fractures. In this study, a minimally invasive fixation technique in the pelvic fracture was explored. Although the patient had delayed anterior sacral nerve compression problems after trauma we developed a traction system and surgical method using the MPF to achieve a closed reposition after 5 weeks from accident. The patient was relieved of nerve pressure, pain and rehabilitate his leg movement and sensitivity. Conclusions: This treatment method could be an alternative treatment for pelvic fractures and concomitant injuries. The application of this treatment is a safe and feasible option that can be employed to manage early and late nerve repair with sacral fractures when open surgery or conservative treatment is unsuitable. The MPF is more comfortable to use in operating room through its size and possibilities in its accommodation.

09:49 - 09:52

1085 Modified Stoppa Approach Versus Ilio-Inguinal Approach For Management Of Anterior Acetabular Fractures

Mohamed Ibrahim Elahwal

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Abstract
Background:Acetabular fractures are one of the most difficult fractures to manage in orthopedic
surgery. Anatomic reduction of these fracture is necessary to get the optimal result.
Aim and objectives:To compare the results of the ilio inguinal technique with those of the modified
Stoppa approach in treating anterior acetabular fractures.
Patients and methods:We compared the efficacy of the modified Stoppa technique with that of the
llio inguinal approach in a prospective randomized controlled trial of anterior acetabular fractures
requiring anterior exposure. The study ran from September 2022 to October 2023 at El-Hussein and
Sayed Galal university hospitals. Thirty cases with acute acetabular fractures were included in the
study. Split evenly in half, they had treatment using either the ilio inguinal method or the modified
Stoppa method.
Results:The rate of arthritis was 46.7% in ilio inguinal when compared to modified Stoppa 20%,
also inguinal hernia was approximately 13.3% in ilio-inguinal group. The rate of union was higher
in modified Stoppa approach
(93.3%) than ilio inguinal approach(80%), as the ability to do anatomic reduction was better in the
former than the latter.
Conclusion:No statistically significant differences were seen between the two groups; however, the
modified Stoppa method had a higher rate of union while the ilioinguinal technique had a slightly
higher rate of complications. The improved Stoppa method allows for direct observation of the
quadrilateral plate, which is an added bonus to its facilitation of reduction and plating. Ultimately,
the updated Stoppa technique may one day supplant the conventional ilioinguinal approach.
Keywords:Stoppa approach;Ilio inguinal approach;Acetabular fractures

10:05 - 10:08

1380 CORRELATION BETWEEN PREOPERATIVE MODIFIED BARTHEL INDEX AND 1-YEAR MORTALITY IN PATIENTS WITH HIP FRACTURES

Chung Ean Lo[1], Bryan Ce-Jie Peh[2], Joyce Suang Bee Koh[3], Tet Sen Howe[3], Gek Hsiang Lim[3], Karen Zhang Ting[3], William Yeo[3], Wen Jia Tan[3]

1. Lee Kong Chian School of Medicine, Singapore, Singapore
2. Yong Loo Lin School of Medicine, Singapore, Singapore
3. Singapore General Hospital, Singapore, Singapore

Abstract

Introduction:

Pre-existing comorbidities are frequently prevalent in patients with hip fractures. Their pre-existing comorbidities may impact their 1-Year Mortality. The c (MBI) is a highly validated and reliable method of quantifying a Patient's preoperative status. The aim of this study is to investigate the correlation between preoperative MBI and 1-Year mortality in patients presenting with hip fractures. We hypothesize that there is a correlation between preoperative MBI and 1-Year mortality in a cohort of patients with hip fractures.

Methods:

A retrospective study was conducted on all hip fracture patients who underwent surgery in a single tertiary hospital between 2020-2021. Variables collected from the cohort include 1-year mortality, type of fracture, type of surgery, age, gender, and ethnicity. The effect of these variables on 1-year mortality was examined through binary logistic regression.

Results:

There were 579 patients. The mean age was 79.54 ± 7.88 (range 60–102) years with a 1-year postoperative survival rate of 92.5% (544 patients). Preoperative MBI was found to be a strong predictor of 1-year mortality, and remained significant after adjusting for age, gender, ethnicity, type of surgery, and type of fracture in multivariable analysis (OR=1.03, 95% CI 1.01-1.04, $p<0.00$). 100% follow up rates were achieved.

Conclusion:

Through this study, we concluded that poorer preoperative MBI was associated with higher 1-year mortality rates in hip fracture patients. Thus, preoperative MBI is a useful predictor of 1-year mortality following hip fracture surgery.

09:07 - 09:10

1505 Floating Hip In Victims With Polytrauma

Sergiy Guryev[1], Pavlo Tanasienko[2], Ivan Kovalishin[1], Vyacheslav Esipenko[2]

1. Ukranian Center of Disaster Medicine, Kiyv, Ukraine
2. Vinniitsa National Mediine University, Vinnitsa, Ukraine

Abstract
Introduction: Floating hip is a term describing simultaneous injury to the hip in polytrauma victims. The aim of our work was to determine the clinical and nosological characteristics of victims with floating hip and polytrauma and its impact on the choice of treatment for patients. Materials and methods: The work analyzed the treatment of 77 cases of ipsilateral hip fractures as a result of polytrauma. Results: In all 100.0% of patients, the cause of floating hip was a severe high-energy trauma. Among the patients in the study, in 59.7% of cases, the cause of injury was a road accident. In 35.1% of the victims, the cause of the injury was a fall from a height, and in 4 5.2% - criminal trauma. Direct impact was the mechanism of injury in 100.0% of the victims. Among patients with polytrauma, simple fractures of the acetabulum of type C were most often detected (47.4% and 36.8%), fractures of the anterior wall of type B (60.0%) and posterior wall of type B (53.8%) and 38.5% (C). Analysis of hip fractures in victims with a floating hip and polytrauma indicated that the most frequently damaged was the diaphyseal part of the hip, which was detected in 53.2% of the study population, with the B-type fracture prevailing (58.5%). Conclusions: The conducted analysis of the clinical and nosological characteristics of floating hip in victims with polytrauma indicates the need to develop and implement a new, more adapted classification of such injuries in victims with polytrauma.

09:55 - 09:58

1547 Hip Biomechanics, Health Related Quality Of Life And Walking Ability After Intramedullary Fixation In Intertrochanteric Fracture: A Prospective Cohort Study

Deepak Bandu Ghuge, Sujit Kumar Tripathy

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Abstract
Altered hip biomechanics resulting from intertrochanteric (IT) fracture fixation can lead to impaired mobility, reduced functional scores, and ultimately, a diminished quality of life.
Methods: This prospective cohort study, conducted from July 1, 2020, to June 30, 2022, focused on individuals aged over 18 years with isolated IT fractures treated using proximal femur nail A2 (PFNA 2). The study aimed to assess changes in hip biomechanics and their impact on patients' quality of life.
Results: Out of 47 eligible patients, only 30 could be followed up for six months due to COVID pandemic and three patients died in the postoperative period. 25 of 33 patients were over 60 years old. 29 patients had unstable fractures. All patients had hypovitaminosis D and 92% patients had osteoporosis. Fracture union occurred in all cases, with a mean union time of 2.9 ± 0.8 months. Radiographic evaluation showed minimal changes in tip-apex distance and other biomechanical parameters (femoral offset, neck shaft angle, telescopy) over time. Functional scores, including modified Harris Hip score and health-related quality of life (HRQOL) measures, improved significantly post-surgery. However, at six months, these scores were lower than pre-injury levels. Walking ability varied significantly between age groups (<60 years' vs >60 years) at 6 weeks, but abductor strength did not differ significantly in subsequent F/U.
Conclusion: Poor bone quality, represented by osteoporosis, significantly associates with IT fractures in Indian populations. The PFNA 2 nailing system effectively maintains reduction and prevents varus collapse. Functional outcomes and HRQOL improve over time with intramedullary fixation.

09:10 - 09:13

1310 Combined Nail Plate Cage Construct In Management Of Distal Femur Fractures With Massive Bone Defect

Abdullah Khaled, Osama Elgebaly, Mahmoud El-Rosasy

Tanta university hospitals, Tanta, Egypt

Abstract
Introduction:
Traumatic distal femur fractures with a massive bone defect represents an extremely complex surgical challenge. We proposed a single stage technique with a mechanically stable construct using a combined linked nail-plate-cage construct to allow early rehabilitation and weight bearing for traumatic distal femur fractures with massive bone defect.
Patient and methods:
This is a prospective case series that was done in a level one university trauma hospital in the period from 2021to 2023 including adult patients with a distal femur fracture with a massive bone defect. All the patient was treated using a combined linked nail plate cage construct. The cage was filled with a morselized iliac crest bone graft mixed with a synthetic graft and covered with onlay graft contained in a surgicel mesh. All the patients were allowed for immediate range of motion and partial weight bearing when tolerated.
Results
Combined linked nail plate cage construct was used in 12 patients with massive bone loss (10 Males ,2 Females) with a mean age of 32.8y range (18-48y). The mean defect was 8.6 cm ranging from 6 to 14 cm. the mean follow- up time was 22.5 months . All the defects achieved bony union. The mean healing time was 7.5 months.
Conclusion:
Combined nail plate cage construct is a highly stable mechanical construct that allow early patient rehabilitation and weight bearing in a single stage procedure for management of distal femur fractures with massive bone defects.

10:17 - 10:20

1486 Treatment Of Deep Soft Tissue Defects Of The Extremities In Combat Trauma

Sergiy Guryev, Andriy Zhernov

Ukranian Center of Disaster Medicine, Kiyv, Ukraine

Abstract
Introduction. In the structure of combat trauma, limb lesions - 57.0 - 62.6% of cases. The aim and objectives of the study the results of treatment of deep limbs soft tissue defects. Research design and methods. Analyzed the size of the defect7x8 cm to 30x40 cm), the time since the injury(3 - 8 days), and condition of the victim. Results.. Surgical interventions - debridement, wound irrigation (VAC). Indications for wound closure are stabilization of the patient's, reduction contamination to 103-105 CFU. The operations were performed - 1 - 1.5 months after the injury. 105 vascularized flaps used: sural skin-fascial flap with a distal pedicle (22), proximal vascular pedicle (8). Skin-muscular flap with inclusion of the medial (26) and lateral (5) heads of the gastrocnemius muscle. Hemisoleus muscle flap on the distal pedicle with a split skin flap graft to the muscle (6). Free skin-muscular flap of the broadest muscle of the back on the lower extremity with superimposition of microvascular anastomoses (5). Rotational musculocutaneous flap of the latissimus dorsi muscle (18). Radial musculocutaneous flap of the forearm on the proximal (5) and distal pedicle (4). 6 cas flaps on the metacarpal arteries on the hand. In the presence of bone defects, a cement spacer was installed (25 cases). The results of treatment are satisfactory, in 12 (15.2%) cases, marginal necrosis of the displaced flaps on the pedicle was observed. In 7 (6.6%) cases, wound suppuration was observed. Conclusions: Staged treatment allows for complete closure of the defect within 1.5 months

09:20 - 09:23

1634 Comparison Of Radiological Outcome Between Dynamic Condylar Screw (DCS) And Distal Femoral Locking Compression Plate (LCP) Technique In Distal Femoral Fracture.

Azhar Hayat Khan

Ghurki trust teaching hospital, Lahore, Pakistan

Abstract
Objective: To compare the radiological outcomes of distal femoral fractures treated with Dynamic Condylar Screw (DCS) fixation versus Distal Femoral Locking Compression Plate (LCP), focusing on union time and associated demographic and clinical factors.

Study Design: Randomized Controlled Trial.

Setting: Department of Orthopaedic Surgery, Ghurki Trust Teaching Hospital, Lahore.

Period: July 5, 2024, to November 5, 2024.

Methods: Seventy-eight patients with distal femoral fractures were randomized into two groups: Group A (DCS) and Group B (LCP). Demographic data, mode of injury, and union time were recorded and analyzed using SPSS 26. Statistical significance was assessed using t-tests.

Results: The mean union time was significantly shorter in Group B (LCP) at 13.29 ± 0.68 weeks compared to 14.01 ± 0.61 weeks in Group A (DCS) ($p < 0.001$). Subgroup analysis showed faster union times in the LCP group across gender, age, side of fracture, and mode of injury. Male patients treated with LCP had a mean union time of 13.33 ± 0.70 weeks versus 13.90 ± 0.44 weeks in the DCS group ($p < 0.001$). Similarly, patients aged 19–50 years in the LCP group healed faster (13.31 ± 0.72 weeks) than those in the DCS group (14.03 ± 0.70 weeks; $p = 0.001$).

Conclusion: The LCP technique demonstrated superior radiological union times compared to DCS, making it a preferable option for distal femoral fracture treatment. These findings can guide orthopedic surgeons in selecting optimal fixation methods based on patient and fracture characteristics

09:23 - 09:26

1965 Dual Fixation Technique For Non Union Of Long Bones : The Missing Link In The Treatment Of Non Unions

Karthik Loganathan

stanley medical college, Chennai, India

Abstract

INTRODUCTION
Improving the mechanical stability of fixation is the key to achieving good fracture union. Intramedullary nailing and plating have been applied in daily clinical practice. However failure of union occurs in some cases due to instability at the fracture site.

AIMS & OBJECTIVES
Accurate fracture reduction and absolute stability can be achieved by using Dual fixation with two plates or using augmentation plating with an intramedullary nail. It can help achieve good union rates compared to fixation with a single implant.

STUDY DESIGN & METHODS
This Study is a prospective study conducted in stanley medical college ,India . A total of 12 patients with fracture non union of long bones were included in the study.Non union was diagnosed based on a fracture that did not achieve union within 9 months of surgery and did not show any signs of union for 3 consecutive months.Out of the 12 patients 3 patients were treated with DUAL PLATING and 9 patients were treated with NAILING with AUGMENTATION PLATING .

RESULTS
All patients were followed up at regular intervals for a period of two years. All the cases showed good union at the end of the study. The average time for union was 5 months.

CONCLUSION
Dual fixation technique can provide excellent mechanical stability to the non union site and achieve good union. It can be concluded that dual fixation is an unique and effective technique for the treatment of non union of long bones.

KEYWORDS
Dual fixation, non union, Long bones

09:17 - 09:20

1991 Esophageal Diverticulum: A Rare And Delayed Complication Of Anterior Cervical Spine Osteosynthesis

Anis Chaabouni[1], Mohamed Ben Jemaa[2], Dhief Jawhar[1], Mohamed Firkha[1], Mohamed Ali Rekik[1], Tarek Bardaa[1], Moez Trigui[2], Hasib Keskes[1]

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2. Military University Hospital of Sfax, Sfax, Tunisia

Abstract
Introduction:
Acquired esophageal diverticula are a rare and delayed complication following anterior cervical spine osteosynthesis. They can be life-threatening if associated with esophageal perforation.

Objective:
The aim of this study is to investigate the etiopathogenic, clinical, and therapeutic aspects of acquired esophageal diverticulum through this case report.

Case Report:
A 35-year-old male patient sustained a domestic trauma resulting in a cervical spine fracture complicated by tetraplegia. He underwent anterior cervical spine osteosynthesis. Nine months postoperatively, the patient developed high dysphagia for solids. Clinical examination revealed saliva stasis in the hypopharynx. Pharyngoesophageal transit showed a saccular outpouching connected to the posterior esophageal wall by a wide neck, located anterior to the osteosynthesis hardware. This finding was confirmed by cervical CT, which showed a heterogeneous hydro-aeric collection in the prevertebral and retrotracheal spaces. The patient underwent diverticulectomy via a left lateral cervical approach, along with removal of the osteosynthesis material. A nasogastric tube was placed. Postoperative control with water-soluble contrast showed no leakage or esophageal fistula.

Conclusion:
Acquired esophageal diverticulum is a rare complication of anterior cervical spine osteosynthesis and should be considered in cases of late-onset dysphagia for solids. Surgical treatment is essential.

keywords : esophageal diverticula, spine, osteosynthesis

09:33 - 09:36

2024 Platelet Rich Plasma The Trustworthy Aid In The Battle Against Open Fractures

Karthik Loganathan

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Abstract

Introduction

Open fractures are severe injuries where broken bones are exposed to the external environment, increasing the risk of infection, delayed soft tissue healing, and nonunion. Platelet-rich plasma (PRP) has gained attention as a potential adjunct therapy due to its high concentration of growth factors that control infection ,promote bone and soft tissue healing.

Aims & Objectives

The aims of the study is to asses the efficacy of Platelet rich plasma for infection control, soft tissue healing and bone union in open fractures of the lowerlimb.

Study design & Methods

The study was conducted in stanley medical college , india and included 50 patients with grade IIIA and IIIB type open fractures involving the lowerlimb .Initial management included emergency debridement and I.V antibiotics. External fixators were applied in needed cases. PRP prepared using patients own blood and injected in the open wound and covered with collagen dressing. 3 doses of Prp were given once every week .Regular dressing and follow up was done till soft tissue healing and infection control were achieved.

Results

All cases had successful healing and less incidence of infection .Definitive fixation and skin coverage procedures were done in the second stage.

Conclusion

PRP appears to be a promising adjunct in the treatment of open fractures by enhancing bone healing , reducing infection and fast recovery of soft tissues. Platelet rich plasma can be an ideal augmentation in the treatment of open fractures .

09:26 - 09:29

2477 Comparative Clinical Efficacy And Cost-Effectiveness Of Modified Tension Band Wiring Techniques In Patellar Fracture Repairs

Baochang Qi

The First Hospital of Jilin University, Changchun, China

Abstract
Background: Patellar fractures are a significant challenge in orthopedic surgery due to their impact on knee function. Traditional tension band wiring (TBW) techniques have limitations, including K-wire complications, leading to the exploration of modified TBW techniques. We hypothesized that a modified TBW technique without cerclage would demonstrate superior clinical efficacy, lower hospitalization costs, and reduced complication rates. Methods: We analyzed data from 83 patients with unilateral closed transverse patellar fractures, aged 18 to 80, treated at the First Hospital of Jilin University from December 2018 to December 2023. Patients were divided into three groups based on internal fixation type: Group A (modified TBW), Group B (modified titanium cable TBW), and Group C (modified titanium cable TBW with cerclage). The study population, intervention type, data collection methods, and one-year follow-up period were the mainstays of our investigation. Results: Group A incurred the lowest hospital costs, and Group C had the highest. Operation time was significantly shorter in Group B. There were no significant differences in intraoperative blood loss, incision length, and VAS score on the third postoperative day among groups. However, Groups A and B outperformed Group C in postoperative recovery time, early functional exercise initiation, Lysholm score at one year postoperatively, and complication rates. Conclusion: The modified TBW technique without cerclage showed advantages in postoperative recovery and early functional exercise initiation, which is crucial for patient rehabilitation. This technique also demonstrated lower hospitalization costs and fewer complications compared to the other groups.

08:51 - 08:54

2545 Building Strong Bones : Diet As The Pillar Of Bone Healing

Nesrine Nesrine Rehaimia[1], LYES Lyes Khelladi[2], Lyes Lyes Aitelhadj[1]

1. EHS BENAKNOUN, Algiers, Algeria
2. cabinet privee, Algiers, Algeria

Abstract
Introduction
Bone healing is a complex process that depends on multiple factors, of which diet plays a crucial role. A fracture requires tissue repair and bone regeneration, processes that require an adequate nutritional intake of essential nutrients such as calcium, vitamin D, vitamin K, magnesium, and protein. A balanced diet can not only accelerate healing but also prevent complications such as nonunion.
Aims:
The objective of this study is to analyze the impact of diet on bone healing by identifying key nutrients and dietary habits that promote optimal healing. We also seek to assess the risks associated with poor nutrition, such as delayed healing and post-fracture complications.
Materials and Methods
Inclusion criteria ARE adult and elderly patients with fractures who were monitored for their diet. Nutrients analyzed included calcium, vitamin D, vitamin K, magnesium, and protein. Assessment methods included dietary questionnaires, blood tests, and radiological follow-ups to measure healing progression.
Results and Discussion
Adequate intake of vitamins and minerals through a healthy diet has shown significant improvement in bone healing, with a 30% reduction in healing time in adequately nourished patients.
While deficiencies or harmful habits (smoking, alcohol) can compromise healing, further studies are needed to evaluate the impact of specific nutrient combinations and diets on patients, such as the elderly or patients with osteoporosis.
Conclusion
Diet is an essential in fracture management A diet rich in vitamins,minerals and protein can accelerate healing and reduce complications.
Conversely, harmful habits such as smoking and coffee or alcohol consumption should be avoided.

09:36 - 09:39

2707 FEMORAL STEM FIXATION IN TOTAL HIP ARTHROPLASTY: A COMPARATIVE STUDY IN ELDERLY PATIENTS

Mohamed Habib Sanaa, Adnen Benammou, Mokhtar Abderrahim, Mohamed Seddik Akermi, Mehdi Bellil, Mohamed Ben Salah

Charles Nicolle Hospital, Bizerte, Tunisia

Abstract
Background:
Femoral neck fractures in the elderly are common, often leading to complications and loss of autonomy. The choice of femoral stem fixation, whether cemented or uncemented, is crucial for optimal recovery.
The aim of this study was to compare the clinical, radiological outcomes, and complications of these two types of stems in post-traumatic total hip replacement in patients over 65 years old.
Methods:
This retrospective comparative study was conducted between January 2012 and December 2021, involving patients over 65 years old who underwent total hip replacement for femoral neck fractures.
Results:
Our study included 100 patients (52 with cemented and 48 with uncemented femoral stems).The two groups were comparable epidemiologically.
The surgical duration was significantly longer for the cemented stems while perioperative complications were similar between the groups.
Postoperatively, the Harris score was higher in the cemented group at six months (75,52/100 vs 71,65/100), one year (80,87/100 vs 75,65/100), and at the final follow-up (80,58/100 vs 75,83/100). Similarly, the PMA score was higher in the cemented group throughout the postoperative follow-up.
Radiologically, the two groups were comparable in terms of stem positioning, leg length discrepancy, and stem subsidence.
Regarding complications, peri-prosthetic fractures were significantly more frequent in the uncemented group but septic, systemic complications, dislocations, and aseptic loosening rates were similar between the groups.
Conclusion:
Although both cemented and uncemented femoral stems provide satisfactory outcomes in the elderly, cemented stems offer the advantages of improved functional results and reduced risk of peri-prosthetic fractures.

09:39 - 09:42

2769 The Impact Of Co-Locating Orthoplastic Services At A Major Trauma Centre On The Management Of Gustilo-Anderson Grade IIIB And IIIC Tibial Fractures

Matthew Flintoft-Burt[1], Olivia Morgan[2], Matthew Towner[1], Nicholas Hancock[1]

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2. University of Southampton, Southampton, United Kingdom

Abstract

Background: This study aims to investigate the outcomes of open tibial fractures following a regional restructuring from offsite plastic surgery cover to a single-centre Orthoplastics service within a major trauma centre (MTC).

Methods: Gustilo-Anderson grade IIIB and IIIC open tibial fractures presenting to the MTC from September 2012 to April 2018, and January 2019 to December 2023, were reviewed as pre- and post-restructuring groups. Demographics, injury mechanisms, and treatment details were recorded. Primary outcomes including time to initial debridement and definitive cover, rates of superficial and deep infection, non-union, and amputation were recorded.

Results: 116 verses 91 fractures were identified in each group respectively. Mean follow-up was 46 verses 35 months. 95% verses 83% were grade IIIB, 5% verses 16% were grade IIIC. The mean hours to initial debridement were 11.3 verses 12.8, and definitive soft-tissue cover was achieved in 9.9 verses 9.8 days. 14% verses 20% achieved definitive fixation and soft-tissue cover within 72 hours. Outcomes were: superficial infection; 36% and 9%, deep infection; 12% and 8%, non-union requiring revision; 19% and 11%, early amputation; 9.5% and 28%, late amputation; 8.6% and 5%.

Conclusion: Implementing a single-centre Orthoplastics service improved the percentage of patients receiving definitive cover within 72 hours, and lower rates of superficial and deep infection and were observed. A higher number of primary amputations were performed, potentially due to increased early decision-making, with reduced late amputations. This study shows improved outcomes, but numerous clinical and logistical challenges remain.

09:42 - 09:45

2776 Management Of Periprosthetic Fractures – Long Term Results Of A DGH In UK With Weekly Periprosthetic List

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North Tees and Hartlepool NHS Foundation Trust, Stockton-On-Tees, United Kingdom

Abstract

Introduction:
The aim of this study was to describe the management and outcomes of patients with femoral hip periprosthetic fractures (PPF). Over the past decade, this centre has implemented a dedicated weekly PPF list led by a fellowship-trained arthroplasty consultant emphasising a multidisciplinary approach that includes orthogeriatric input.

Methods:
This retrospective review examined periprosthetic fractures at a single centre over 10 years. Patients were identified from electronic database and comprehensive review of the demographics, comorbidities, social factors (mobility and residence), fracture types and surgical practice was undertaken. The primary outcome was mortality (30-day and 12-month) and secondary outcome was restoration of pre-injury mobility and residence, length of stay and complications.

Results:
The study identified 235 femoral hip periprosthetic fractures with a median age of 82 years (range 46–99 years), 61% female. The mean Charlson Comorbidity Index was 4.7 (median 5), reflecting a 10-year survival rate of 21%. 81.8% were admitted from home or sheltered housing, with 32.6% not requiring aids and 21.3% using one aid. Fractures were mostly Type B2 (32%) involving cemented stems in 60%. Surgical management was predominant with 41.5% undergoing fixation and 38.5% revision. Most patients (60%) were discharged to their original destination. In-hospital mortality was low (0.08%), with 30-day and 1-year mortalities of 2.9% and 19.5%, respectively.

Conclusion:
These results highlight a patient group with multiple comorbidities with fractures requiring various approaches and significant recovery needs. A dedicated list and MDT approach has allowed us to balance optimisation with early intervention to achieve the best outcomes.

10:08 - 10:11

454 Management Of Young Femoral Neck Fractures In 2025: A Multicentric Study

SACHIN Yashwant Kale[1], Sushant Sudhir Srivastava[2]

1. DR D Y PATIL HOSPITAL NERUL, Navi Mumbai, India
2. Mata Gujri Memorial Medical College & Lions Seva Kendra hospital, Kishanganj, India

Abstract

Introduction:

The femoral neck system (FNS) represents a novel advancement in the surgical management of femoral neck fractures, integrating enhanced axial compression and anti-rotational stability to optimize fracture healing. Introduced by DePuy Synthes in 2017, this innovative implant offers biomechanical superiority over traditional fixation methods such as cannulated screws and dynamic hip screws (DHS). This multicentric study aims to evaluate the clinical and functional outcomes of FNS in young adults presenting with femoral neck fractures.

Materials & Methods:

Following institutional ethical approval, we conducted a prospective study across multiple centres, enrolling 45 patients aged 18 to 40 years, selected based on stringent inclusion and exclusion criteria. Patient demographics, intraoperative parameters (including blood loss), fracture classification, fixation methods, and clinical follow-up data were meticulously documented. Functional outcomes were assessed using the Harris Hip Score (HHS) at standardized postoperative intervals (6 weeks, 3 months, 12 months). Radiographic evaluations were performed to monitor fracture union and implant stability. Statistical analysis was conducted to determine the significance of functional improvements over time.

Results:

Among the study cohort, 60% of patients were female and 40% male, with a mean age of 27 ± 2 years. The comparative analysis of HHS across different follow-up intervals revealed a statistically significant improvement in functional outcomes postoperatively. The FNS demonstrated a high rate of fracture union with minimal complications (<10%). Notably, four cases required secondary interventions—two patients underwent bipolar hemiarthroplasty, and another two required a shoe lift to address limb length discrepancy. The implant was associated with reduced intraoperative blood loss and expedited

10:11 - 10:14

557 Innovative Method Of Fixation Of 4 Part Intertrochanteric Femur Fracture : A Single Surgeon Single Centre Experience

Sushant Sudhir Srivastava

Mata Gujri Memorial Medical College & Lions Seva Kendra Hospital, Kishanganj, India

Abstract
Introduction : Intertrochanteric fracture is one of the most common fractures around the hip especially in the elderly . This fracture is encountered by all Orthopaedic surgeons and it is very important that one knows the proper trick to deal with such fractures. Sometimes the fractures present with 4 part shattering with fragmentation . This study focuses on the technical tips to bail oneself out. Materials & Methods: This study was done in a tertiary care centre after taking proper institutional ethics committee permissions. Study included 30 successive 4 part Intertrochanteric femur fractures from the year 2022 to 2024 . The inclusion criteria included any patient from 40 to 80 years age and willing for surgery. A special technique of getting this reduction is with the help of 3.5 mm Steinmann pin and holding the reduction with it in situ. After that a guide pin is inserted at the place of maximum bone stock as there is shattering of Greater Trochanter and Pyriformis fossa, using the 3.5 mm Steinmann pin to guide the safe entry.Results : Our 30 patients data showed 24 patients showing uneventful progression to union and weight bearing. The Harris Hip Score showed excellent outcomes in 20 patients , 4 patients showed good outcomes and 6 patients showed poor outcomes. Conclusion : It is felt that the important caveat of good reduction and its maintenance during the key steps of intertrochanteric femur fracture is of paramount importance to achieve good results.

09:04 - 09:07

1186 Utilizing Reverse Sural Flap For Repairing Foot And Ankle Defects In Low-Income Countries

Mohamed Ali Hussein

Demartino Public Hospital, Mogadishu, Somalia

Abstract
Introduction
Foot and ankle defects due to infection and trauma present significant challenges in low-income countries where access to advanced surgical treatment is limited. These defects can lead to permanent disability and overall quality of life. The reverse sural flap (RSF) is a commonly used surgical technique for soft tissue reconstruction of the lower extremities.
Objectives
The objective of this study is to evaluate the use of reverse sural flap for foot and ankle defects in low-income countries. Specifically, the study aims to assess the flap's effectiveness in terms of functional recovery while considering its safety and cost-effectiveness in low-resource settings.
Methods:
11 patients who received reverse sural flap reconstruction for foot and ankle defects were retrospectively reviewed between January 2023 and December 2024. Defect size, flap outcomes, complications, and functional recovery over a 12-month follow-up period were analysed.
Results
A sural flap repair was conducted on 11 patients, with an average age of 25 years. The causes of injury included traffic accidents, violence, and infection. Defects were primarily located in the ankle or proximal foot in 9 patients (81.8%), while the remaining 2 patients (18.2%) had defects in the distal foot. The average defect area was 48 cm^2. 9 flaps survived completely, while 1 flap developed edge necrosis and the other encountered infection.
Conclusions
The reverse sural flap is a practical and effective solution for foot and ankle defects in low-income countries. Its low cost and favourable outcomes make it a valuable option for reconstructive surgery in low-resource contexts.

08:54 - 08:57

1059 Correlation Between Preoperative Physical Component Summary (PCS) And 1-Year Mortality In Patients With Hip Fractures

Bryan Ce-Jie Peh[1], Chung Ean Lo[2], Joyce Suang Bee Koh[3], Tet Sen Howe[3], Gek Hsiang Lim[3], Karen Ting Zhang[3], Wen Jia Tan[3], Jia Xuan Yeo[3], Kenny Xian Khing Tay[3], Ng Yeong Huei[3]

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2. Nanyang Technological University (NTU) Lee Kong Chian School of Medicine, Singapore, Singapore
3. Singapore General Hospital, Singapore, Singapore

Abstract

Introduction

The Physical Component Summary (PCS) is a summary score derived from the Short Form 36 (SF-36), which quantifies health-related quality of life. In order to evaluate surgical outcomes and guide post-operative recovery, preoperative quality of life is commonly measured.

Aims and Objectives

The study aims to investigate the correlation between preoperative PCS and 1-year mortality in patients presenting with hip fractures. We hypothesize that there is a correlation between preoperative PCS and 1-year mortality in a cohort of patients with hip fractures.

Study Design and Methods

A retrospective study was conducted on all hip fracture patients who underwent surgery in a single tertiary hospital between 2020-2021. Collected variables included 1-year mortality, type of fracture, type of surgery, age, gender, and ethnicity. The effect of these variables on 1-year mortality was examined through binary logistic regression.

Results

A total of 579 patients were analyzed. The mean age was 79.54 ± 7.88 (range 60–102) years. The 1-year postoperative survival rate was 92.5% (544 patients). Preoperative PCS was found to be a strong predictor of 1-year mortality, and remained significant after adjusting for age, gender, ethnicity, type of surgery, and type of fracture in multivariable analysis (OR= 1.03, 95% CI 1.00-1.06, p=0.03). Data for preoperative PCS was complete. 100% follow-up rates were achieved.

Conclusion

Through this study, we concluded that poorer preoperative PCS was associated with higher 1-year mortality rates in hip fracture patients. Thus, preoperative PCS is a useful predictor of 1-year mortality following hip fracture surgery.

09:52 - 09:55

3074 Arrival To CT Head Time: Achieving Rapid Diagnosis Within 60 Minutes

Osman Elhassan[1], Bilal Al-Obaidi[1], Anshul Sobti[1], **Omar Odeh**[2], Qasim Rauf[1]

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2. Imperial College Healthcare NHS Trust, London, United Kingdom

Abstract
Aim of the Study:
Delays in diagnosing traumatic brain injuries can increase mortality and worsen patient outcomes. This audit assessed compliance with National Institute for Health and Care Excellence (NICE) guidelines and evaluated the impact of a triage pro-forma on timely computed tomography (CT) head scanning.
Method:
A retrospective audit was conducted over two cycles, including patients attending the emergency department who underwent a CT head scan. Non-trauma-related indications were excluded. The first cycle, using Electronic Patient Records (EPR), reviewed 138 patients from 20 September 2023 to 20 October 2023. Thereafter, a pro-forma was then introduced to help triage nurses identify eligible patients and ensure they were promptly assessed by a clinician and a CT requested. To reinforce this intervention, educational sessions were conducted daily from 20 October 2023 to 3 November 2023, alongside email dissemination and handover reinforcement. The second cycle, conducted from 3 November 2023 to 15 November 2023, included 87 patients with data collected from EPR.
Results:
In the first cycle, only 4.34% of patients received a scan within 60 minutes. In the second cycle, this increased to 6.9%, representing a notable improvement in patient numbers.
Conclusion:
The introduction of the triage pro-forma led to incremental improvements in timely brain imaging. The intervention showed potential for enhancing adherence to national guidelines and improving patient outcomes. Challenges such as staff compliance, patient transfer time, and workload require further attention. This project has the potential for broader implementation across multiple trusts.

Thursday, 4 September

Microsurgery
10:05 - 10:08

1043 Application Of Free Flaps In Reconstruction Of Lower Extremity Tissue Defects With Bone Exposure

Ahmet Yesevi Sariaslan[1], Feridun Arat[2,3], Kaan Gürbüz[1,4]

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4. Huma International Hospital, Clinics of Orthopedics & Traumatology, KAYSERI, Turkey

Abstract
Introduction: The reconstruction of lower extremity lesions with bone exposure presents significant technical challenges. The primary aims of this reconstruction process are to reliably restore functionality and improve cosmetic appearance. Objectives: This retrospective study evaluates the clinical results of major tissue defects involving bone exposure in the lower extremities, treated with various free flap techniques over a seven-year period. Patients and Methods:A retrospective analysis was carried out from June 2015 to July 2022 involving 19 patients who sustained extensive tissue defects with bone exposure from multiple causes. The causes included 10 trauma cases from vehicle accidents, 5 due to gunshot wounds, 2 from post-earthquake crush syndrome, 1 from an electrical burn, and 1 from an occupational infection. Defect sizes ranged from 9×12 cm to 15×21 cm. Various free flaps were used for reconstruction, including 13 anterolateral thigh flaps, 5 latissimus dorsi flaps, and 1 forearm flap, tailored to match the lesion sizes and transferred via anastomosed vessels. Results: Out of 16 flaps, all were successfully retained. One patient required flap thinning post-surgery. Four flaps demonstrated marginal necrosis, which was managed with serial debridement and skin grafts. One flap failed due to a hospital-acquired infection, leading to below-the-knee amputation. Follow-up for all patients exceeded 15 months, revealing good color, texture of flaps, satisfactory healing, and improved aesthetics. Donor sites exhibited notable scarring but without functional impairment. Conclusions: The use of free flap reconstruction for significant lower extremity tissue defects with bone exposure is a viable technique yielding positive patient outcomes.

09:33 - 09:36

1220 Innervated Dorsal Digital Artery Propeller Perforator Flaps In One-Stage Reconstruction Of Fingertip Defects: Experience With 45 Cases

Hui Liu

Shanghai Sixth People's Hospital Affiliated to Shanghai Jiao Tong University School of Medicine, Shanghai, China

Abstract
Purpose: We describe a technique to reconstruct fingertip lateral defects with dorsal digital artery perforator flaps innervated with terminal branches of the proper digital nerve in a propeller manner.
Methods: To reconstruct fingertip lateral defects, dorsal digital artery perforator flap innervated with terminal branches of the proper digital nerve was performed. This retrospective study includes 45 fingers and 4 thumbs in 45 cases. 37 males and 8 females with a mean age of 43.7 years were enrolled. The sizes of large paddles ranged from 2.0 cm × 1.3 cm to 6.0 cm × 1.6 cm and the sizes of little paddles ranged from 0.4 cm × 0.6 cm to 2.1 cm × 0.4 cm. All flaps were harvested from the injured fingers. Donor sites were primarily closed in all patients.
Results: All flaps survived without major complications, except two cases with partial epidermis necrosis that healed after dressing changes. The mean follow-up period was 14.9 months. Postoperative appearance and texture of the flaps were close to normal, and no deficiency was observed in the sensory functions, although partial recovery of nociceptive and tactile sensation was detected in 3 patients. Postoperative extension and flexion functions of the fingers were assessed using active range of motion, with all patients demonstrating values within standard parameters, and showing no signs of tendon adhesions or scar contractures.
Conclusions: The dorsal digital artery propeller perforator flap innervated with terminal branches of the proper digital nerve is a reliable and simple flap for the one-stage reconstruction of fingertip defects.

09:52 - 09:55

1225 Application Of Customized Perforator Flap Techniques In The Treatment Of Severe Lower Extremity Injuries In Pediatric Patients

Zhengbing Zhou

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Abstract

Objective: This study evaluates the application of customized perforator flap techniques in the treatment of severe lower extremity injuries in pediatric patients.

Methods: Between June 2020 and June 2024, a variety of perforator flaps were utilized for limb salvage in pediatric patients with severe lower extremity injuries. This retrospective study included 23 patients (13 males, 10 females), with a mean age of 6.5 years. Patients received one or a combination of the following perforator flaps: 10 anterolateral femoral perforator flaps, 4 inferior epigastric artery perforator flaps, 3 circumflex scapular artery perforator flaps, 4 thoracodorsal artery perforator flaps, and 2 peroneal artery chimeric perforator flaps. Postoperative assessments were made at 1, 2, 3, and 6 months, followed by subsequent evaluations every 6 months. The color and texture of the flaps, pressure ulcer development, and ankle function (AOFAS score) were evaluated.

Results: Limb salvage was successful in all cases except for one patient who experienced a venous crisis that resolved following emergency surgical intervention. The mean follow-up duration was 30 months. Postoperative flap appearance and texture were satisfactory, with well-restored plantar sensation and no incidents of ulceration. Linear scars were present at the donor sites. Ankle function, assessed using the AOFAS score, was excellent in 19 cases and good in 4.

Conclusion: Customized perforator flap techniques provide effective treatment for severe lower extremity injuries in pediatric patients, yielding excellent outcomes with minimal donor site morbidity. These techniques should be considered a preferred approach for limb salvage in this patient group.

10:02 - 10:05

1628 A Case Of Gustilo Type 3B Open Tibial Fracture With Massive Bone Defect And Extensive Soft Tissue Damage Treated With Free Flap And Distraction Osteogenesis

Hiroko Murakami

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Abstract
Introduction:
The treatment of open tibial fractures with massive bone defects and extensive soft tissue loss is challenging. We report a case in which a single free flap was used to cover the soft tissue defect after acute bone shortening, followed by bone lengthening to treat the bone defect.
Case Report:
A 39-year-old man sustained a Gustilo type 3B open tibial fracture. After initial external fixation and debridement, he was referred for bone and soft tissue reconstruction. The soft tissue defect was covered using acute bone shortening and a free latissimus dorsi flap. After soft tissue healing, a ring-type external fixator was applied, and approximately 13 cm of limb lengthening was performed. Subsequently, the fixation was converted to an intramedullary nail to allow bone maturation. Due to shortening at the lengthening site, an additional 3 cm of bone lengthening was performed. At 2 years and 6 months post-injury, bone union was achieved, and the patient was able to ambulate with bilateral crutches.
Discussion:
The treatment of extensive soft tissue loss and massive bone defects is complex and often requires a multimodal approach. In this case, we successfully completed the treatment by addressing the soft tissue defect with a single free flap following acute bone shortening and then performing limb lengthening using external fixation.
Conclusion:
We report a case of a Gustilo type 3B open tibial fracture with massive bone and extensive soft tissue loss, successfully treated using microsurgery and bone lengthening with external fixation.

10:11 - 10:14

1760 Vascularized Chimerical Perforator Flaps Of Deep Circumflex Iliac Artery Repairing Bone And Soft Tissue Defects Of Limbs

Panfeng Wu

Xiangya hospital, Changsha, China

Abstract
To explore the clinical effect and experience of separating deep circumflex iliac arteryosteocutaneous perforator flap(DCIAP)from the bone flap.Methods According to local applied anatomy of groin,vascularized chimerical flaps of deep iliac circumflex artery was designed and applied.From May,2018 to June,2022,12 patients who combined bone and composite skin and soft-tissue defects were positioned by color dopplarultrasound before operation and treated with vascularized chimerical flaps of deep iliac circumflex artery.The deepcircumflex iliac perforator flaps was 8 to 19 cm in length and 2 to 6 cm in width,and the iliac bone grafts ranged from5 to 8 cm in length. Results All flaps were fully survival.After 8-10 months postoperative followed-up,all thebone defect gained healing.The function and appearance of cutaneous flaps were satisfactory.There was no seriouscomplication in donor sites of groin.The average time of healing was 9(8-10)months. Conclusion Vascularizediliac bone graft and a perforator flap are nourished by the same deep circumflex iliac artery.There is more mobilescope and only 1 blood vessel between the bone graft and skin flap,which should be called chimeric perforator flapbased on the deep iliac circumflex artery,and is a kind of good method to repair bone and soft-tissue defects of limbs.

10:18 - 10:21

2243 Modified Lateral Gastrocnemius Myocutaneous Flap With Extended Anterior And/Or Inferior Boundary

Jianwei Wei[1], Zhonggen Dong[1], Ping Peng[2], Shibin Tao[1], Lijun Zhang[1]

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2. Department of Orthopedics, The Third Xiangya Hospital, Central South University, Changsha, China

Abstract
Introduction:There is little information regarding the boundaries of the lateral gastrocnemius myocutaneous (LGM) flap. The aim of this study was to introduce the modified technique of the LGM flap with extended anterior and/or inferior boundaries and its anatomical basis.Methods: Five fresh lower limb specimens were perfused and radiographed. Between December 2003 and August 2018, 27 modified LGM flaps with extended anterior and/or inferior boundaries were raised in 27 patients to reconstruct the soft tissue defects over the middle and upper leg, knee, and lower thigh. Results: Both the lateral popliteal cutaneous artery and musculocutaneous perforators from the lateral sural artery had rich linked arteries communicating with the chain-linked arterial network around both the posterolateral intermuscular septum and the sural nerve, and they also had rich transverse communicating arteries connecting with the perifascial arterial network overlying the anterior compartment in the upper and middle calf. Continuous fascial arterial networks were extended up to the level at the intermalleolar line. Twenty-three flaps survived uneventfully, 2 flaps displayed distal de-epithelialization, and 2 flaps (7.41%) developed partial necrosis. Osteomyelitis was cured successfully in all patients, and no relapse of infection was encountered during the follow-up period. Conclusions: Multiple feeder arteries are the arterial anatomic basis of the modified LGM flap. The modified LGM flap with extended anterior and/or inferior boundaries is feasible, and the modified flap with extended anterior boundaries is safe and reliable.
Keywords: Surgical flap; Myocutaneous flap; Gastrocnemius; True anastomosis; Modification.

09:39 - 09:42

2299 The Impact Of Previous Microsurgery Experiences On Robot-Assisted Microvascular Anastomosis

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Abstract
Objective: Supermicrosurgery imposes stringent technical demands on surgeons, characterized by a steep learning curve that limits its clinical application. Microsurgical robotic systems, exemplified by tremor filtration and enhanced operative precision, have unique advantages for lowering technical barriers. The aim of this study is to test the hypothesis that there is no difference in the quality of robotic-assisted microvascular anastomosis performed by the experienced microsurgeons and those without microsurgery experiences.
Method: Participants were divided into two groups: an expert group (with at least 5 years of microsurgery experience, n=3) and a non-expert group (no microsurgery experience, n=3). All participants were trained for operating the DeepSurgery microsurgical robotic platform according to the same protocol, then performing robotic-assisted anastomosis of rat tail arteries (0.5mm in diameter, n=3 per group). The time for anastomosis and the Global Rating Scale for Microvascular Anastomosis were evaluated by two blinded microsurgical specialists.
Results: The time for anastomosis in non-expert group and expert group were 44.78±11.83 min, and 42.56±11.00 min (p=0.6506). Meanwhile, the Global Rating Scale Scores in non-expert group and expert group were 20.00±3.77 and 19.22±3.93 (p=0.7500).
Conclusion: Under the assistance of microsurgical robots, preexisting microsurgical expertise demonstrated no significant influence on anastomotic quality, suggesting robotics may mitigate experience-dependent performance disparities in microvascular anastomosis.

09:55 - 09:58

2143 Clinical Improvement In Delayed Common Peroneal Neurolysis From Non-Degenerative Lesions: A Retrospective Observational Cohort Study

Kapil Sugand, Anna Panagiotidou, Dennis Hazell, Ashley Simpson, Mike Fox, Marco Sinisi

Royal National Orthopaedic Hospital, Stanmore, United Kingdom

Abstract
Background: Due to its superficial course from the popliteal fossa around the fibula neck, the common peroneal nerve (CPN) is frequently at risk of injury. This can result in senorimotor dysfunction of the anterolateral compartments of the leg. Functional recovery with non-operative treatment may gradually occur up to six months after a conduction block; however, persistent loss of function would traditionally be presumed to be due to a degenerative nerve lesion.

Aim: To assess recovery of the CPN following neurolysis in patients with a non-degenerative injury but with persistent absence of motor recovery for at least six months.

Method: 31 patients with post-traumatic CPN injury and no improvement in their neurologic status for at least six months prior to exploration and neurolysis were analysed.

Results: The mean age at the time of the operation was 37 years old (range 16-86) and the mean interval between injury and surgical intervention was 9.5 months (range 6-24). 19 (61.3%) patients achieved full recovery within 18 months post-operatively. One (3.2%) patient a month post-operatively and nine patients (47%) had improved enough by 6 months that they no longer required their foot drop orthosis. Nine out of nineteen patients (47%) showed an improvement (M1 – M2) within 4 weeks and fifteen of nineteen (79%) within 3 months post-operatively (Table 4). Age did not influence the outcome of recovery.

Conclusion: Neurolysis should be considered in selected cases where there has been a delay for up to one year.

09:36 - 09:39

2822 The Lateral Antebrachial Neurocutaneous Flap With Determining The Location Of The Distal Perforator Branches Of The Radial Artery For Treating Hand Soft Tissue Defects

Tran Phan Vinh Hien

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Abstract

Introduction
Researchers have studied the anatomy and clinical applications of the lateral antebrachial neurocutaneous flap, using distal perforator branches of the radial artery for treating hand soft tissue defects. However, there is no consensus on the optimal pivot point location for this flap.

Aims & Objectives
This study aimed to determine the appropriate distal perforator location of the radial artery as the pivot point of the flap for treating hand soft tissue defects, contributing to the evaluation of this flap's effectiveness in covering hand defects.

Study Design & Methods
The prospective case series study used the lateral antebrachial neurocutaneous flap to identify the appropriate distal perforator location of the radial artery as the pivot point for covering hand soft tissue defects with exposed tendons or bones.
Participants were followed for at least 6 months, the longest follow-up being 29 months. The study was conducted at the Hospital for Traumatology and Orthopedics, Ho Chi Minh City, Vietnam.

Results
33/35 flaps (94.3%) survived. 2/35 flaps experienced distal superficial necrosis. The pivot point was located 4 cm above the radial styloid process (26 flaps), 6 cm above the radial styloid process (9 flaps). The flap covered in various sides of the hand defects without complications and sequelae in the donor sites and hand wounds.

Conclusion
The lateral antebrachial neurocutaneous flap with determining the location of the distal perforator branches of the radial artery, is a valuable option for covering hand defects without complications and sequelae in the donor sites and hand wounds.

09:30 - 09:33

2198 Axial Medial Plantar Rotation Flap With Medial Plantar Artery Or Its Perforators For Repairing Soft-Tissue Defect In Plantar Heel: Anatomical Observation And Report Of A Clinical Series

Zhonggen Dong, **Shibin Tao**, Jianwei Wei, Lihong Liu

Department of Orthopedics, The Second Xiangya Hospital, Central South University, Changsha, China

Abstract
Introduction: Little information regarding the axial medial plantar rotation (AMPR) flap is available. This study aimed to report the outcomes of the AMPR flap with the medial plantar artery (MPA) or medial plantar arterial perforators（MPAPs）for repairing soft tissue defect in the plantar heel, and explore vascular basis of the flap. Methods: Three perfused amputated specimens were used to observe the fasciocutaneous perforators in the intermuscular septum between the abductor hallucis and flexor digitorum brevis muscle. Nine AMPR flaps with the MPAPs and two AMPR flaps with the MPA were used to reconstruct the aforementioned defects. The defect dimensions ranged from 2cm×2cm to 12cm×9cm. The AMPR flap with the MPAPs was elevated up to the inferior margin of the abductor hallucis muscle. Results: Five to seven fasciocutaneous perforators were identified in the intermuscular septum. All nine AMPR flaps with the MPAPs survived, whereas two AMPR flaps with the MPA developed necrosis—one with marginal necrosis and the other with partial necrosis. Conclusions: Vascular supply from the MPA or from both the flap base and the axial vessels (MPA or multiple MPAPs) forms the vascular basis of the AMPR flap. This flap is effective for reconstructing small, medium, and large plantar heel defects. Its advantages include a simpler and faster surgical procedure, primary donor site closure without the need for skin grafting, an aesthetically favorable outcome, minimal damage to the major vessels in the sole, good donor-recipient site matching, and preserved sensory innervation.
Keywords: Rotation Flap; Perforator; Medial Plantar Artery; Plantar Heel.

10:18 - 10:24

2365 Modified Medial Gastrocnemius Myocutaneous Flap With Extended Boundaries: Anatomical Research And A Clinical Series.

Shibin Tao, Zhonggen Dong, Jianwei Wei, Lihong Liu, Lijun Zhang

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Abstract
Introduction: This study aimed to investigate the vascular anatomical basis and clinical reliability of the modified medial gastrocnemius myocutaneous (MGM) flap with extended anterior, inferior and/or posterior boundaries. Methods: Five fresh lower limb specimens from patients with recurrent tumors in the thigh were immediately irrigated and perfused. The stripped integuments were radiographed. The pretibial skin was equally divided into nine zones. The modified MGM flap viability was documented in 33 patients. Results: True anastomotic connections existed among the branches of the saphenous artery, the perforator from the inferior medial genicular artery and 3–5 (mean, 4.5) perforators from the posterior tibial artery in the upper two-thirds of the leg. The anterior margins of 26 modified flaps with extended anterior boundaries alone or in combination with extended inferior or posterior boundaries exceeded the medial edge of the tibia by 1.0–4.5 cm (mean, 2.1 cm). Of the 33 flaps, 29 (87.9%) survived completely. Partial necrosis occurred in four flaps with extended anterior (n = 2) or inferior (n = 2) boundaries. Conclusions: Multiple source vessels are the vascular anatomical basis of the modified MGM flap with extended anterior, posterior and/or inferior boundaries. The modification of the MGM flap is feasible and reliable, broadening the applicable scope of the flap. The modified MGM flap can be applied to repair more distal, wider and larger-area defects with a simpler design and procedure.
Keywords: Surgical Flap ; Myocutaneous Flap; Gastrocnemius; True Anastomosis; Modification.

10:24 - 10:27

2367 Transfer Of Contralateral C7 Nerve To Upper Trunk Via Prespinal Route For Neuropathic Pain After Total Brachial Plexus Avulsion: A Novel And Effective Approach To Relieving The Intractable Pain

Shibin Tao[1,2], Zhonggen Dong[1], Jianwei Wei[1], Lihong Liu[1], Xinyu Peng[1]

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Abstract
Objective: To evaluate the efficacy of contralateral C7 nerve transfer to the upper trunk via the prespinal route for neuropathic pain after total brachial plexus avulsion. Methods: Between December 2014 and March 2023, seven patients with refractory pain underwent this procedure. Neuropathic pain was confirmed using the Douleur Neuropathique 4 (DN-4) questionnaire. Pain was assessed preoperatively and postoperatively using the Visual Analogue Scale (VAS), pain relief rate, revised Short-Form McGill Pain Questionnaire (SF-MPQ-2), pain territory and frequency, and the Hospital Anxiety and Depression Scale (HADS). Motor and sensory recovery were evaluated using the British Medical Research Council (MRC) grading system. Results: Preoperative DN-4 scores ranged from 5 to 8. Follow-up lasted 24 to 38 months (mean: 29.9 months). VAS scores showed a significant, progressive decline at 6 months, 12 months, and final follow-up ($P<0.05$). Pain relief was excellent in five patients and good in two. SF-MPQ-2 and HADS scores also significantly improved ($P<0.05$). Six patients achieved M3 strength in the deltoid and supraspinatus, with a mean shoulder abduction of 27.5°. Biceps brachii strength reached M3 or greater in five patients, with a mean elbow flexion of 81.7°. Sensory recovery reached grade 3 in five patients and grade 2 in two. Conclusion: Contralateral C7 nerve transfer effectively alleviates neuropathic pain and improves motor and sensory recovery, making it a promising treatment for intractable pain after total brachial plexus avulsion.
Keywords: Brachial plexus, C7 nerve root, Avulsion, Nerve transfer, Neuropathic pain

10:08 - 10:11

1687 Distally Based Sural Flap In Reconstruction Of Defects Over The Distal Forefoot: A Retrospectively Analysis

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2. School of Medicine, College of Medicine, Nursing and Health Sciences, University of Galway, Galway, Ireland

Abstract
Introduction: Distally based sural flaps are widely used for reconstructing soft-tissue defects of the lower extremity. However, reports on the reconstruction of the defects over the distal forefoot using the sural flaps are scarce. Herein, we describe our experience on the reconstruction of these defects using the flaps in a considerable sample size. Methods: Between February 2005 and August 2024, a total of 56 flaps were used to reconstruct soft-tissue defects in the forefoot. In order to reduce the length of fascial pedicle and the total length of the flaps, the ankles were fixed in dorsiflexion using a Kirschner wire. Patient and flap factors were compared between the "survival" and "partial necrosis" groups. Results: Overall, 47 flaps survived completely in one stage. Partial necrosis developed in nine flaps, with only one remnant defect covered using a local flap. By fixing the ankles in dorsiflexion, the length of the fascial pedicle was reduced approximately 2.35 ± 0.58 cm, and the total length of the flap was simultaneously shortened. The partial necrosis rate of the flaps with the top edge located in the 8th zone was significantly lower than that in the 9th zone ($p < 0.05$). Conclusion: The distally based sural flaps can be effectively used to reconstruct the defects over the distal forefoot because of convenient harvest and reliability. By fixing the ankle in dorsiflexion with Kirschner wire, the top edge of the flaps will be decreased, and this procedure is helpful for the flaps survival.

Keywords: Sural flap; Forefoot.

09:49 - 09:52

1262 DMF Promotes Skin Flap Survival In Rats By Inhibiting PANoptosis And PANoptosome Activation Via The RIPK/RIPK3 Signaling Pathway

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Abstract
Background: Distal flap necrosis is a major complication after flap transplantation, which limits the clinical application of skin flaps. PANoptosis represents a novel cell death mode involving a combination of pyroptosis, apoptosis, and necrosis, potentially occurring during the ischemic necrosis of skin flaps. Studies have shown that dimethyl fumarate (DMF) can inhibit the occurrence of PANoptosis, and has anti-inflammatory and anti-oxidative stress properties. Its impact on flap survival is unknown.

Methods: In this experiment, we established a modified McFarlane flap model and an oxygen deprivation cell model to investigate the impact of DMF treatment and PANoptosis on the flap's survival process. After seven days of DMF treatment, we assessed the flap survival rate in each group of rats. Additionally, we examined the expression levels of inflammatory cytokines and PANoptosis-related proteins in flap tissue and cell models. We employed adenovirus to silence RIPK1 gene expression in cells and subsequently measured the expression level of the RIPK1/RIPK3 signaling pathway and the degree of activation of the PANoptosome, to verify the crucial influence of PANoptosis in flap survival.

Results: DMF treatment dose-dependently increased the survival rate of skin flaps. The Western Blot results showed that drug administration inhibited the expression levels of PANoptosis-related proteins in flap tissue and cell models, and also down-regulated the activation of the RIPK1/RIPK3 signaling pathway. HE staining and immunofluorescence results showed that DMF treatment reduced tissue pathological damage and inhibited the activation of the PANoptosome.

Conclusion: DMF treatment inhibits the occurrence of PANoptosis and promotes flap survival.

Thursday, 4 September

Spine 3
09:30 - 09:33

206 Improving The Detection And Documentation Of Suspected Cauda Equina Syndrome: A Quality Improvement Project

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Abstract
Background
Cauda Equina Syndrome (CES) is a rare but serious neurological condition that can lead to irreversible damage and significant morbidity if misdiagnosed or not treated promptly. This Quality Improvement Project (QIP) aimed to enhance the accuracy and completeness of neurological examination documentation for suspected CES cases, improving diagnosis, management, and record-keeping.

Methods
Using the Plan-Do-Study-Act (PDSA) methodology, a service evaluation of patients presenting with suspected CES between May and August 2024 was conducted, assessing documentation of key neurological findings, including reflexes and tone. Based on initial findings, an automated documentation tool, "#CES," was developed and integrated into the Electronic Patient Record (EPR) system to serve as a checklist for clinicians. A second service evaluation from September to October 2024 assessed its impact.

Results
The initial evaluation revealed significant discrepancies in neurological documentation, particularly regarding red flag symptoms. In the second PDSA cycle, 53.3% of cases used the #CES template, but only 25% completed it fully. All cases using #CES documented key signs and symptoms. Documentation of reflexes improved from 4.9% to 57.1%, and vascular examination from 9.8% to 14.3%. However, documentation of tone (75.6% to 57.1%) and motor myotomal function (48.8% to 28.6%) declined.

Conclusion
These findings highlight the need for improved CES documentation and adherence to the #CES tool. The informatics team is working to promote its consistent use through clinician training, integration into initial clerking, and induction sessions for new doctors.

10:05 - 10:08

905 Investigation Of Spinopelvic Morphological Features Associated With The Occurrence Of Lumbar Degenerative Spondylolisthesis (LDS).

Issei Senoo, Tetsuya Kobayashi, Kozaburo Mizutani, Hiroki Okayasu, Hiroshi Ito

Asahikawa Medical University, Asahikawa, Japan

Abstract

Introduction

Some patients with lumbar spinal stenosis (LSS) do not have LDS, while others have either L3DS or L4DS, and some have both (L3+L4DS). However, it is unclear which morphological features are responsible for these differences.

Aim

To investigate risk factors for the site of occurrence of LDS based on the spinopelvic morphological features.

Methods

A total of 451 patients underwent a CT scan and standing whole spine sagittal X-ray.
SVA, PT, PI, LL, SS, L4, and L5 Slope were measured from Xp, and L34, L45, and L5S facet tropism (FT) from CT. A slip of more than 3mm was defined as spondylolisthesis.
Mann-Whitney and logistic regression analyses were performed.

Results

201 patients (105 women and 96 men) qualified for the final analyses after applying exclusion criteria.
There were 76 cases of LSS and 125 of LDS. By slipping site, 25 of L3DS, 73 of L4DS, and 27 of L3+L4DS.
Risk factors for LDS included L4, L5Slope, L34, L45FT, and PT.
Notable differences in the site of occurrence of the slips were as follows.
The L3DS group had significantly smaller L34FT and significantly larger L45FT than the L4DS group.
L3+L4DS group had significantly larger L4Slope and L45-L34FT than the L4DS group.

Conclusion.

Vertebral slope, PT, and low FT had an effect on slips, but especially, FT and slope are important factors in the location of slips and multiple intervertebral slips. These points should be taken into consideration when treating the lumbar spine or performing surgery.

10:02 - 10:05

1567 Overloaded Vertebral Body Following Consecutive Three-Level Hybrid Surgery And Anterior Cervical Discectomy And Fusion

Shihao Chen, **Wang Beiyu**

Sichuan University West China Hospital, Chengdu, China

Abstract
Introduction: Based on the varying number and relative positions of cervical disc replacement (CDR) and anterior cervical discectomy and fusion (ACDF) procedures, three-segment hybrid surgery (HS) presents a diverse structural approach.
Aims & Objectives: The purpose of this retrospective study is to compare the clinical and radiological outcomes of HS and ACDF in treating cervical degenerative disc disease (CDDD), aiming to provide further insights into overloaded vertebral body (OVB).
Study Design & Methods: Eligible patients were divided into three groups: Type I (one-level CDR and two-level ACDF), Type II (two-level CDR and one-level ACDF), and ACDF (three-level ACDF). The cervical radiological parameters assessed included: 1) vertebral cross-sectional area (CSA), 2) wedge angle (WA), 3) anterior vertebral height (AH), 4) posterior vertebral height (PH), and 5) Hounsfield unit (HU) values.
Results: A total of 123 patients were included and were well-matched in terms of demographic characteristics. The likelihood of vertebral body collapse (VBC) was notably higher in the ACDF group (41.5%) compared to the Type I (17.9%) and Type II (8.9%) groups ($p<0.01$). Additionally, the WA and AH values of the upper and lower adjacent OVB were consistently lower in the ACDF group than in the Type I and Type II groups at 6 and 12 months and at the final follow-up ($p<0.01$).
Conclusion: Three levels of HS appear to reduce stress concentrations and alleviate morphological changes in OVB. The occurrence of more VBC patients with OVB was associated with the use of Zero-P or Zero-P VA implants.

09:39 - 09:42

1267 Anterior Cervical V-Shaped Osteotomy And Fusion (ACVF) For Retro-Corporeal Decompression Bypassing Anterior Corpus Vertebra: A Technical Note

Beiyu Wang, Minghe Yao

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Abstract
Introduction: Anterior cervical discectomy and fusion (ACDF) is a trans-intervertebral space procedure with limited ability to treat compression at the back of the vertebral body. Anterior cervical corpectomy and fusion (ACCF) has a wider decompression range, but the higher complication rates restrict its usage.
Aims & Objectives: This study aims to describe an ACDF-based procedure named anterior cervical V-shaped osteotomy and fusion (ACVF) with wider axial decompression range while preserving intact anterior half of vertebral body.
Study Design & Methods: This study is a technical note and case report. From November 2023 to October 2024, four patient cases with cervical myelopathy caused by retro-corporeal compression lesions underwent ACVF and were followed up for twelve months. Intraoperatively, an electrode penetration test was conducted to verify complete decompression behind vertebral body. Clinical outcomes were evaluated using the modified Japanese Orthopaedic Association (mJOA) score and the Visual Analog Scale (VAS) score. Radiological examinations, including computed tomography (CT) and magnetic resonance imaging (MRI), were used to assess spinal cord decompression and intervertebral fusion.
Results: All surgeries were successfully completed with an average operative time of 182 minutes. Both the mJOA score and the VAS score improved at the follow-ups postoperatively. Postoperative imaging showed thorough decompression of the spinal cord, unimpaired fusion process, and acceptable vertebral body height loss.
Conclusion: ACVF may a safe and effective intervertebral procedure for spinal cord direct decompression in certain cases of retro-corporeal compression.
Key words: Degenerative cervical myelopathy; Spinal cord compression; Surgical decompression; Diskectomy; Spinal fusion

09:49 - 09:52

1285 Spinopelvic Fixation In Spine Diseases And Injuries

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Priorov National Medical Research Center, Moscow, Russia

Abstract
AIM: to analyze the results of surgical treatment of patients with diseases and injuries of the spine who underwent spinal-pelvic fixation.
METHODS. The analysis of the results of performing spinal-pelvic fixation in 74 patients with various pathologies of spine column and traumatic injuries (66 patients — S2AIS technique, 8 patients — fixation with individually made implants) was carried out.
RESULTS. The long-term follow-up period for the patient averaged 23.5 months (from 6 to 48 months). In the group of patients with fixation using the S2AIS method, the absence of complications, requiring repeated treatment, and stable fixation in the long-term follow-up period was noted in 53 cases (78.7%). The overall incidence of malpositions out of the total number of screws established was 4.3%; only one case (0.7%) required reoperation. Fracture of the metal implant rod at the L5-S1 level (15.2%), fracture of the screws in the ilium (5%) and instability of fixation with resorption of bone tissue around the screws in the S1 vertebra and in the ilium (3%). With fixation using individual support plates, stable fixation of spinopelvic fixation in the long-term period was achieved in 5 cases; in three cases, the implants had to be removed.
CONCLUSION. Installation of iliac screws using the S2AIS technique is the optimal method of spinopelvic fixation, allowing reliable fixation with minimal complications. In cases where traditional methods of spinopelvic fixation are impossible or technically difficult, fixation with customized implants is possible.

09:46 - 09:49

1307 Sacroiliac Joint Dysfunction With Lumbar Spine And Hip Joint Comorbidities: Classification And Treatment Outcomes

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Abstract
Objective:
This study examined the frequency and treatment outcomes of lumbar spine and hip joint comorbidities in hospitalized patients with sacroiliac joint dysfunction (SIJD).

Methods:
A total of 113 patients (39 men, 74 women; mean age 50.3 ± 18.4 years) diagnosed with SIJD using sacroiliac joint (SIJ) injections between April 2020 and August 2023 were included. Patients were classified as having Sacroiliac-Spine Syndrome if their pain improved by ≥70% after a lumbar region injection, and Hip-Sacroiliac Syndrome if persistent groin pain improved by ≥70% after a hip joint injection. Age, sex, BMI, and treatment outcomes were compared.

Results:
Among patients, 61 (54.0%) had isolated SIJD, 34 (30.1%) had Sacroiliac-Spine Syndrome, and 18 (15.9%) had Hip-Sacroiliac Syndrome. The proportion of women in each group was 60.7%, 64.7%, and 83.3%, respectively. Lumbar spine comorbidities included radiculopathy (n=18), discogenic pain (n=5), and facet join pain (n=11), while hip joint comorbidities included femoroacetabular impingement (FAI) (n=15), developmental dysplasia of the hip (DDH) (n=1), and combined FAI with DDH (n=2). Hip-Sacroiliac Syndrome patients were significantly younger than those with isolated SIJD (41.2 ± 10.8 vs. 53.8 ± 18.6 years, p=0.016). Favorable treatment outcomes (Macnab criteria: Excellent/Good) were observed in 78.7% of SIJD, 61.8% of Sacroiliac-Spine Syndrome, and 72.2% of Hip-Sacroiliac Syndrome patients, with no significant differences between groups.

Conclusion:
Patients with hip joint comorbidities were significantly younger and tended to be women. Favorable outcomes were achieved in over 60% of all groups. Treating both SIJD and its comorbid conditions led to outcomes comparable to isolated SIJD cases.

10:11 - 10:14

1810 Comparison Of The Effectiveness Of Various Types Of Halo-Gravity Traction In The Surgical Treatment Of Patients With Severe Spinal Deformities

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Abstract
Aim: studying the effectiveness of using different types of HGT. Methods: a retrospective analysis of surgical treatment of 88 patients using 3 types of HGT (A – intraoperative, B – in a standing frame, C – in a sitting chair) was performed. The patients were also divided into 2 groups based on the location of the main curve: I - thoracic, II – lumbar/thoracolumbar. A comparative analysis of the angles of the main curves, changes in mobility after HGT and the index of postoperative correction in subgroups IA, IB, IC and IIA, IIB, IIC. Results: when comparing the magnitude of the main curve the difference was confirmed statistically significantly ($p<0.05$), except the pair IIB-IIC with $p=0.51$. As a result of a detailed analysis of the data (a two-time study of the "before-after" mobility index, the development of the index of the effectiveness), it was revealed that the best mobilization preparation for the main curve at any location is HGT while sitting in a chair, and the next most effective is intraoperative. The best index of postoperative correction was noted in subgroup IC with thoracic deformities, and lumbar/thoracolumbar deformities were the same in subgroups IIB and IIC ($p>0.05$). Conclusions: preoperative HGT while sitting in a chair demonstrates the best mobilization preoperative preparation for any localization of the main curve. The best postoperative correction was noted in the subgroups with the use of sitting HGT, however, standing HGT with L/TL localization is not inferior to sitting HGT.

10:18 - 10:21

1853 Pulmonary Complications In Posterior Spine Surgery; Two Case Scenarios Of Haemothorax And Barotrauma With Post-Operative Diagnostic Dilemma And Management Strategies

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Abstract
STUDY BACKGROUND
Pulmonary complications in spine surgery are potentially life threatening with diagnostic dilemma and jeopardizing the clinical outcome, in case of delayed intervention.

STUDY DESIGN, METHODS (Case Scenarios)
Case 1:Fifty six years old male, underwent T10-L2 posterior instrumented debridement and stabilisation for spondylodiscitis, developed desaturation in post extubation period with progressive worsening on second post-op day, diagnosed with left apical pneumothorax on imaging, treated with non-invasive ventilation and oxygen support.
Case 2:Fifteen years old girl underwent T2-L5 posterior deformity correction for congenital kyphoscoliosis, developed progressive chest pain and desaturation on second post-op day, diagnosed with misplaced right T5 pedicle screw, impinging the lung parenchyma and haemothorax, managed with removal of the pedicle screw, ultrasound guided aspiration of haemothorax and intercostal drainage (ICD).

RESULTS
Case 1:The spontaneous left apical pneumothorax resolved with oxygenation and supportive care with complete resolution of pneumothorax at three weeks postop, pointing to barotrauma as a probable cause. At twelve months follow-up, the patient is asymptomatic without any pulmonary dysfunction.
Case 2:The haemothorax resolved with ICD in four weeks with gradual return of pulmonary function. At two years follow-up, the patient has no pulmonary symptoms or dysfunction on spirometry.

CONCLUSIONS
Pulmonary complications in prone spine surgery warrant post-operative pulmonary monitoring of patients' symptoms, rapid exclusion of potential aetiologies, intensive support measures and swift imaging to ensure an accurate diagnosis that might require either close observation alone or rarely surgical treatment.

10:21 - 10:24

1901 Modified Shilla Technique Versus Traditional Growing Rods: Better Cobb Angle Correction And Less Surgeries.

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2. Zhengzhou Orthopedic Hospital, Zhengzhou, China

Abstract
Introduction: Cobalt-chrome multidirectional slide growing-rod(CMSG) is modified based on the traditional Shilla technique: The cobalt-chrome rods and a buttress were used between fixed and sliding screws in concave side to avoid metal debris and maintain distraction force.
Methods: A retrospective study of EOS patients underwent CMSG and TDGR was conducted in two center. Patients were divided into 2 groups: CMSG group and TDGR group. Demographic information, radiographic parameters, complications and revisions were compared.
Results: 64 EOS patients were enrolled: 15 in the CMSG group and 49 in the TDGR group. Average follow-up was similar between groups (CMSG, 5.0 years; TDGR, 6.1 years; p 0.114). Average Cobb angle improvement of index surgery was 45.0°(69.8 to 24.9) in the CMSG group versus 32.8° (61.9° to 29.1°) in the TDGR group ($p < 0.001$). Average Cobb angle improvement pre-operatively to latest follow-up was 41.5°(69.8 to 28.3) in the CMSG group versus 31.8° (61.9° to 30°) in the TDGR group (p 0.042). T1-T12 length increased 5.4cm in patients treated with CMSG, compared with 5.3cm in TDGR patients (p 0.959). CMSG patients had fewer surgeries (1.3) than patients in the TDGR group (6.9) and similar rate of unplanned surgeries(CMSG, 0.40; TDGR, 0.42; p 0.846). The overall complication rate were comparable between groups (CMSG, 0.73; GR, 0.82; p 0.673). The main complications of the CMSG were screws loosening.
Conclusion: CMSG demonstrates powerful ability on scoliosis correction while preserving spinal growth potential. Compared to TDGR, CMSG exhibits stronger correction with less surgeries, and does not increase complications.

10:24 - 10:27

1937 Mode Establishment And Preliminary Clinical Application Effect Analysis Of Anterior Cervical Surgery In Outpatient Setting

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Abstract
Objective
To establish the mode of anterior cervical surgery in outpatient setting, and evaluate its preliminary effectiveness.
Study Design. Retrospective cohort study.
Methods
A clinical data of patients who underwent anterior cervical surgery between January 2022 and September 2022 and met the selection criteria was retrospectively analyzed. The surgeries were performed in outpatient setting (n=35, outpatient setting group) or in inpatient setting (n=35, inpatient setting group). The operation time, intraoperative blood loss, total and postoperative hospital stay, and hospital expenses were recorded; JOA score, VAS score and satisfaction score were recorded.
Results
The total and postoperative hospital stay, and hospital expenses were significantly lower in the outpatient setting group. The satisfaction of patients was significantly higher in the outpatient setting group. There was no significant difference between the two groups in operation time and intraoperative blood loss. The JOA score, VAS-neck score, and VAS-arm score of the two groups were significantly improved after operation with no significant difference between the two groups. The patients were followed up (6.67±1.04) months in the outpatient setting group and (5.95±1.90) months in the inpatient setting group, with no significant difference. No surgical complications, such as delayed hematoma, delayed infection, delayed neurological damage, and esophageal fistula, occurred in the two groups.
Conclusion
The safety and efficiency of anterior cervical surgery performed in outpatient setting were comparable to that performed in inpatient setting. Outpatient surgery mode can significantly shorten the postoperative hospital stay, reduce hospital expenses, and improve the patients' medical experience.

10:08 - 10:11

2372 The Cervical Spine Abnormalities And Deformities Surgical Roadmap

Alexander Gubin, Sergey Ryabykh

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Abstract
Introduction. Abnormalities and deformities of cervical spine create very heterogeneous group. Some of them are really dangerous for life and health, others are absolutely benign but may become a great cosmetic problem. Unfortunately most of this conditions are very uncommon and sometimes have very similar clinics consists of torticollis and short neck, neck pain, motion restrictions, neurological deficit, face and neck stigmata. Orthopedic surgeon can easily miss them when treating patients with usual orthopedic problems such as extremities abnormalities or thoracal or lumbar spine deformities.
Material and methods. We analyzed 200 cases. Patients age was 2 month – 53 years old. Our clinical algorithm was used to suspect the cervical spine problem. Computer tomography, magnetic resonance imaging and selective angiography were used to specify the abnormality structure and to make preoperative planning. Various techniques of surgical treatment such as halo, anterior and posterior fusion, decompression of the brain, spinal cord and cervical vertebral arteries, revision of the spinal canal were used in 95 patients.
Results. We decomposed all clinical symptoms according to their importance. It was very effective approach in pathological condition discovery and primary differential diagnostics. After using our diagnostic algorhithm all patients could be divided due to leading pathological syndromes.

09:33 - 09:36

1000 Neuromodulatory Effect Of Spinal Degenerative Disc Disease With Neural Compression In Predisposing To Foot & Ankle Injuries.

QASIM Silman Ajmi, FAISAL Khan, Aliasaghar Bharmal, Harinder Gakhar

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Abstract

Introduction:
Ankle fracture is not a typical osteoporotic fracture but is associated with high BMI.. Our study hypothesized that ankle fractures occur with increased propensity in patients with neural impingement primarily affecting eversion and inversion of subtalar joint, (L4-S1), commonly involved spinal levels.

Methods:
Retrospective analysis of prospectively cooled data of patients who underwent ankle surgery for ankle fracture. We reviewed the case notes of 570 patients (2019-2021) who underwent open reduction and internal fixation of the ankle, we reviewed the spinal imaging in these patients and correlation was calculated using Pearson's correlation of ankle fracture and spinal pathology. The frequency different types of ankle fractures, spinal level commonly involved with ankle injury was recorded.

Results:
There were 77 patients with MRI scan available on system (18.29%). Pearson's correlation test used to evaluate relationship which showed that there was correlation between Ankle Fracture and MRI Scans of the spine. The correlation between Ankle Fracture and MRI Scans was statistically significant, $r(71) = <0.005$, $p < 0.005$. Most severe fracture Tri malleolar (68%) and Ankle fracture dislocations occurred in Lumbar spine pathology. The null hypothesis that there is no correlation between Ankle Fracture and MRI Scans in the population is therefore rejected.

Conclusions:
Our study is the first to look at the correlation of spinal pathology in predisposition to ankle fracture. This study could not evaluate the whole spectrum of ankle injuries like sprains and instability which would be higher in

09:52 - 09:55

2518 The Outcome Of Interlaminar Endoscopic Lumbar Discectomy

Asim Abdelgader Abdalla Farah

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Abstract
Introduction:
Low back pain is a major health issue in adults with the lumbar disc herniation being the cause in 90% of patients. The minimally invasive percutaneous endoscopic discectomy has the advantages yet there is not a single study in our area to validate and measure its outcomes.

Methods:
All patients, 25, attending the Spinal Surgery Unit at DSFH – Jeddah, KSA and underwent fully endoscopic laminar discectomy from January 2019 to January 2023, were recruited in this hospital-based, descriptive, cross-sectional study, aiming to study the outcomes in terms of hospital-stay, time to return to work, complications, recurrence of LBP, clinical and functional improvement in the MacNab, VAS for leg pain and the ODI.

Results:
About 68% of patients stayed in the hospital postoperatively for one day and 96% were complications-free. Additionally, postoperative MacNab score was found to be in the excellent grade in 80% of patients. Moreover, 92% of the participants reported preoperatively VAS score of > 5 out of 10, while 96% of them reported VAS postoperatively with a score of less than 5 out of 10 with $P < 0.001$. Furthermore, ODI score of > 40 preoperatively was found to be in 72% of the patients, while all of them reported an ODI postoperative score of < 40, with $P = < 0.001$.

Conclusion:
The minimally invasive percutaneous interlaminar endoscopic discectomy showed better outcomes in terms of pain improvements, short hospital-stay and minimal complications and high patients' satisfactions. Further large scale and multicentric study is recommended.

Thursday, 4 September

Knee 4
11:54 - 11:57

1014 Effects Of An Immersive Virtual Reality-Based Exercise-Rest On Mobilization In Knee Surgery Patients: A Single-Blind, Randomized Controlled Trial

Süleyman Kasim Tas[1], Aydanur Aydin[2], Ahmet Kivanç Menekseoglu[3], Irem Dilaver[4]

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2. Gumushane University, Gumushane, Türkiye
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Abstract
Background: Immersive virtual reality (IVR) has emerged as a promising and innovative method to alleviate patient anxiety and support clinical recovery.
Objective: This study aimed to evaluate the impact of IVR interventions on enhancing mobilization in patients undergoing total knee arthroplasty (TKA).
Methods: A randomized controlled trial was conducted on 30 patients who underwent TKA for the first time. Participants were divided into two groups: the intervention and control groups. The primary outcome, mobilization distance, was measured at the first postoperative mobilization using validated scales. Before mobilization, patients in the intervention group experienced a simulated walk through a tranquil forest accompanied by birdsong and meditation music via IVR glasses.
Results: All surgeries were performed by the same surgeon, and postoperative medical care was standardized across both groups. The intervention group demonstrated significantly greater mobilization distances and shorter initial walking times than the control group. Moreover, patients in the intervention group reported reduced post-mobilization pain and expressed high satisfaction with the IVR experience.
Conclusion: The findings indicate that patients who experienced IVR intervention exhibited reduced post-mobilization pain, increased mobilization distance, and higher satisfaction. This innovative technique has the potential to serve as a practical solution to enhance clinical improvement in various healthcare settings.

Keywords: Nursing care, quality of care, virtual reality, knee surgery, symptom management

11:03 - 11:06

1416 Factors Associated With Higher Inpatient Opioid Consumption And Outpatient Physiotherapy Sessions After Unicompartmental Knee Arthroplasty: A Retrospective Tertiary Centre Analysis

Hugo Humphries, Andreas Fontalis, Warran Wignadasan, Moe Takenoshita, Zaid Yasen, Mohammed Shaeir, Abdullelah Alsheddi, Fares Haddad

UCLH, London, United Kingdom

Abstract
This study investigated inpatient opioid consumption following UKA and explored the factors associated with elevated opioid usage and an increased number of outpatient physiotherapy sessions post-operatively.

Methods: In this study we analyzed data from 369 primary UKAs between 2019 and 2023. We collected data on demographics, length of stay (LOS), type of anaesthesia, Post Anaesthesia Care Unit (PACU) admissions, 30-day readmissions, total opioid consumption (morphine milligram equivalents), surgical characteristics and pre and post-operative haemoglobin (Hb) levels.

Results: The cohort included 208 females and 160 males. The median opioid consumption was 74 mg (IQR = 35-160). The mean number of outpatient physiotherapy sessions was 4 (SD = 4.5). After adjusting for baseline demographics in the hierarchical multivariate logistic regression model, significant predictors of higher opioid utilization were increased BMI (OR (odds ratio) 1.054(1.003 – 1.107), p=0.036), patients with ASA score grouping of 3-4 (OR 1.972 (1.093 – 3.558) p=0.024, a greater Hb drop (OR 1.014 (1.004 – 1.024), p=0.008), and patients who had a general anaesthetic (Spinal OR 0.230 (0.128 – 0.414), p=<0.001). An increased number of outpatient PT sessions was significantly associated with female sex (Male OR -0.121 (-1.997 to -.172), p=.020), lower BMI (OR 0.114 (-.170 to -.008), p=0.033), longer operation time (OR 0.126 (.003 to .042), p=0.022), earlier year of operation (OR 0-.299 (-1.684 to -.766), p=<0.01) and increased opiate consumption as an inpatient (OR 0.136 (.001 to .007), p=0.014).

Conclusions: This study underscores specific risk factors for increased opioid use and greater physiotherapy needs following

12:00 - 12:03

1429 Retrospective Analysis Of Anatomic Double Bundle Medial Patellofemoral Ligament Reconstruction Using Aperture Fixation

Dr Vishnu S

Sports injury centre,VMMC, SAFDURJUNG,NEW DELHI, Delhi, India

Abstract
Introduction: Patellar dislocation is multifactorial and is associated with rupture of the medial patellofemoral ligament irrespective of the cause of dislocation. Anatomic double bundle reconstruction with aperture fixation of graft at patellar and femoral ends can result in better tendon healing and no bungee effect as seen with other modes of fixation. The aim of study was to retrospectively evaluate outcome of anatomic double bundle medial patellofemoral ligament reconstruction using aperture fixation.
Materials and Methods: 33 cases of anatomic double bundle medial patellofemoral ligament reconstruction using aperture fixation is retrospectively analysed for a period of minimum 2 years. To assess the patient based outcome, preoperative and postoperative kujala and lysholm scores were compared.
Result: Mean kujala score significantly improved from 67.18±8.179 preoperatively to 89.88±8.373 postoperatively. Mean lysholm score significantly improved from 65.64±10.931 to 90.67±9.416. None of the patients had postoperative subluxation or dislocation episodes.
Conclusion: Anatomic double bundle medial patellofemoral ligament reconstruction with aperture fixation is an easily reproducible technique that can achieve a satisfactory functional outcome.
Keywords: medial patellofemoral ligament, aperture fixation, anatomic double bundle

11:16 - 11:19

1515 Clinical And Kinematic Outcomes Of Medial Unicompartmental Knee Arthroplasty: A Retrospective Evaluation

Nuno Rodrigues, Filipe Maçães, Marília Ferreira, Catarina Souto, Hélder Pereira

Unidade Local de Saúde Póvoa de Varzim Vila do Conde, Póvoa De Varzim, Portugal

Abstract
Objective: This study aims to analyze the kinematic behavior of successfully implanted fixed bearing unicompartmental knee replacements compared to the non-operated knee.

Methods: Twenty-two patients underwent medial unicompartmental knee replacement by the same surgical team. Clinical evaluation was performed using the Knee Society Score (KSS), Knee Injury and Osteoarthritis Outcome Score (KOOS), and Tegner Activity Scale. The femorotibial mechanical angle was assessed pre- and post-operatively using pangonograms. All patients underwent dynamic CT evaluation with PKTDÒ to assess induced translation in the medial and lateral compartments (neutral, internal, and external rotation), comparing the operated knee to the opposite knee.

Results: The mean age was 56.4 years (SD: 5.6), with a predominance of female patients (n=19). Mean BMI was 32.1 kg/m² (SD: 4.1), and the mean follow-up was 30.5 months (P25: 26.0; P75: 48.0). Significant improvements were observed in all clinical scores: KSS increased by 30.4 ± 8.5, KOOS improved by 38.3 ± 6.6, and the Tegner activity scale showed a median increase of 1.5 levels (P25: 1.0; P75: 2.0). The femorotibial mechanical angle decreased significantly by 1.0 degree (P25: -2.0; P75: -1.0). Kinematic evaluation revealed higher anterior translation on the medial plateau with internal rotation and lower anterior translation with external rotation.

Conclusions: Fixed bearing medial unicompartmental knee replacement led to significant short-term functional improvements and favorable kinematic changes compared to the opposite knee. BMI above 30 did not negatively affect short-term outcomes.

11:06 - 11:09

1707 Thigh Muscle Changes In ACL-Deficient Knee: A Four-Year Longitudinal MRI Study Of 1,207 Patients

Osama Zied Alzobi[1], Bashir Zikria[2]

1. Hamad Medical Corporation, Doha, Qatar
2. Johns Hopkins, Baltimore, United States

Abstract

Background

The natural history of anterior cruciate ligament (ACL) tears remains incompletely understood. In particular, there is limited documentation of their impact on thigh muscle structure, size, and quality, which are critical for strength and function.

Purpose

To compare longitudinal changes in thigh muscle mass, composition, and strength between individuals with an unrepaired ACL tear and ACL-intact controls using MRI-based quantitative analysis over a 4-year period.

Methods

Quantitative MRI scans from the Osteoarthritis Initiative were analyzed at baseline, 2 years, and 4 years to track longitudinal muscle changes in MRI-confirmed ACL tears and ACL-intact individuals. A validated deep learning method was used for automated thigh segmentation to assess the association between ACL tears and 4-year longitudinal changes in muscle mass, including cross-sectional area (CSA), as well as muscle composition biomarkers such as intra-muscular adipose tissue (intra-MAT), contractile percentage (non-fat muscle CSA/total muscle CSA).

Results

A total of 1,207 thighs were analyzed, including 92 with ACL tears and 1,115 controls, with a mean age of 61 (9) years. Over four years, thighs of knees with ACL tears exhibited progressive atrophy in hamstrings (-24.20 mm^2/year, 95% CI: -36.48....

Conclusion

Our analyses suggest that ACL tear is associated with decreased flexor muscle size and force and Sartorius muscle atrophy. However, ACL tear was not associated with longitudinal changes in muscle composition and quality. While previous studies suggest that quadriceps muscle of knees with ACL tear have smaller sizes than knees with intact ACL (comparable with our baseline findings), we observed no longitudinal changes in quadriceps size associated with an ACL tear.

11:35 - 11:38

1795 Stemmed Total Knee Arthroplasty Implants: A Retrospective Cohort Study

Faran Chaudhry[1], Simon Dobransky[1], Ashlee Chan[1], Oishika Tarafdar[1], Matthew Cecere[1], Jesse Wolfstadt[1], Seper Ekhtiari[2]

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2. McMaster University, Hamilton, Canada

Abstract
Introduction: The increasing rates of complex primary and revision total knee arthroplasty (TKA) has led to an increased use of stemmed implants, which may place greater strain on the bone-implant interface. This study evaluates the long-term performance of stemmed TKA implants and a novel distal femoral morphology classification index.

Methods: We retrospectively reviewed 691 patients (370 women) from July 2000 to October 2021, with a mean age of 67.0 years (SD 9.6) and a mean follow-up of 8.0 years (SD 4.4). Of these cases, 37 (5.4%) were primary TKAs and 654 (94.6%) were revision TKAs. The primary indications for surgery were instability (166), aseptic loosening (151), and infection (118). Kaplan-Meier survivorship was analyzed, with failure defined as revision for any reason.

Results: Kaplan-Meier survivorship due to all-cause failure in primary TKAs was 80.0% at 10 years (95% CI: 44.9 to 100) with 8 knees at risk, and in revision TKAs it was 84.3% at 10 years (95% CI: 81.4% to 87.2%), with 227 knees at risk. The overall all-cause revision rate was 14.0%, with aseptic revisions at 8.4%. In primary TKA, both rates were 2.7%, whereas in revision TKA, all-cause and aseptic revision rates were 14.7% and 8.7%, respectively. All-cause revision rates varied significantly ($P = 0.024$) by inner femoral canal diameter 20 cm proximal to the joint line.

Conclusion: Our study demonstrated excellent survivorship of stemmed TKA implants in both primary and revision TKA with a low-moderate complication rate.

Keywords: stemmed total knee arthroplasty, distal femur morphology, survivorship

12:08 - 12:11

1834 Impact Of Posterior Condylar Offset Ratio On Outcomes In Posterior Stabilized Total Knee Arthroplasty: A Retrospective Cohort Study

Azhar Hayat Khan

Ghurki trust teaching hospital Lahore, Lahore, Pakistan

Abstract
Abstract

Background: Postoperative knee mobility is a key factor in Total Knee Arthroplasty (TKA) efficacy. Recent studies have emphasized the posterior femoral condylar offset (PFCO) as a potential determinant of improved knee flexion, prompting further investigation into its role in surgical outcomes.

Objective: To determine the impact of the posterior femoral condylar offset on the clinical and functional outcomes of a cohort of patients who received posterior stabilized TKA.

Methodology: This study was conducted in the Department of Orthopedics and Spine at Ghurki Trust Teaching Hospital, Lahore, Pakistan. Clinical and radiological data were reviewed for 200 patients (250 knees) who underwent primary PS TKA between 2019 and 2023. Parameters evaluated included preoperative and postoperative Knee Society Score (KSS), knee range of motion (ROM), tibial slope (TS), and PFCO. Data were analyzed to determine correlations between these variables and postoperative outcomes.

Results: The mean postoperative knee flexion increased significantly compared to preoperative values. Postoperative PFCO and TS were positively correlated with maximal knee flexion and KSS. These findings suggest that higher PFCO and TS values contribute to improved functional outcomes.

Conclusion: PFCO and TS significantly influence clinical and functional outcomes in PS TKA, enhancing postoperative knee flexion and patient satisfaction. These findings support the meticulous intraoperative optimization of PFCO and TS to improve TKA success. Further prospective studies are recommended to confirm these observations.

Keywords: Total Knee Arthroplasty, Posterior Femoral Condylar Offset, Tibial Slope, Knee Flexion, Knee Society Score, Posterior Stabilized TKA.

11:19 - 11:22

2030 Meniscal Allograft Transplantation: Report Of First Two Cases

João De Sousa Seixas, Ana Lucinda Correia, Diogo Rodrigues, Bianca Barros, Gonçalo Silva, João Nelas, Alexandra Santos, Ricardo Sousa, Filipa Pereira

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Abstract
Meniscus tears are a common orthopedic condition. Treatment depends on tear size, location, and pattern. Partial meniscectomy (PM) remains a frequently performed procedure for irreparable, symptomatic tears but alters knee biomechanics and may lead to osteoarthritis. Some patients develop post-meniscectomy syndrome, characterized by intractable pain after a pain-free interval. MRI findings include subchondral sclerosis, bone edema, and cartilage damage. Meniscal allograft transplantation (MAT) is an option for patients with high-grade meniscectomy or irreparable meniscal injury and persistent pain unresponsive to conservative management.
We report the first two cases of MAT performed at a tertiary hospital. Preoperative planning followed the Pollard method with calibrated radiographs for graft sizing. Fresh frozen allografts were implanted.
Case1: A 19-year-old male with a history of PM for a lateral meniscus anterior horn and root tear presented with persistent pain and instability. MRI showed post-meniscectomy changes, partial anterior cruciate ligament rupture, and grade II chondropathy. He underwent MAT and anterior cruciate ligament reconstruction.
Case2: A 48-year-old male with a history of medial PM presented with refractory medial knee pain. X-ray showed 5º varus malalignment without osteoarthritis; MRI revealed post-meniscectomy changes and subchondral edema. He underwent MAT and femoral osteotomy. Both surgeries were uneventful. Weight-bearing was restricted for six weeks. At one year, both patients were pain-free with good function.
MAT restores knee biomechanics, provides chondroprotection, and enhances stability. Studies report favorable long-term outcomes and graft survivorship exceeding 80% at 10 years. Despite short follow-up, both patients experienced significant pain relief and functional improvement.

11:51 - 11:54

2128 Outcomes Of Primary Total Knee Arthroplasty In Octogenarians.

Esperanza Marín García-Cabrera, Miguel Ángel Marín Aguado, Cristina Wert Martín, Beatriz García Marqués, Melina Cano Maalouf, Ariadna Casado Castillo

Hospital Universitario Fundación Alcorcón, Madrid, Spain

Abstract

Aims & Objectives
To compare morbidity, mortality, and functional outcomes of total knee arthroplasty for primary gonarthrosis in patients aged over 80 years versus those younger than 80 years.

Study Design & Methods
This retrospective study analysed 500 patients who underwent total knee arthroplasty: 250 aged 80 or older and 250 younger than 80. Most were women with an American Society of Anaesthesiologists score of 2. All implants were cemented and posterior-stabilized. Surgery-related complications were assessed, including thrombotic events, transfusions, wound dehiscence, prosthetic infections, aseptic loosening, periprosthetic fractures, and other adverse outcomes. Functional status and postoperative mortality were also evaluated.

Results
Complications occurred in 17.2 percent of patients aged 80 or older compared to 14 percent in younger patients. Postoperative mortality was similar. Among older patients, there were 10 prosthetic infections, 5 wound dehiscence, 1 aseptic loosening, 1 periprosthetic fracture, and 1 thromboembolic event. In younger patients, there were 9 infections, 6 wound dehiscence, 2 aseptic loosening, 3 periprosthetic fractures, and 2 thromboembolic events. The reoperation rate was 5.6 percent in older patients and 6.4 percent in younger ones. Functionally, 65.4 percent of older and 84.3 percent of younger patients did not require crutches postoperatively. Transfusion needs were significantly higher in older patients ($p=0.007$), while other complications showed no statistical difference.

Conclusion
Total knee arthroplasty is safe and effective for patients 80 or older, with good functional outcomes. However, transfusion rates are significantly higher in this group.

Keywords: Total knee arthroplasty, Primary gonarthrosis, Elderly, Octogenarian, Morbidity, mortality, functional outcomes, complications.

11:32 - 11:35

2370 Evaluating AI Chatbots As Learning Tools: A Comparative Analysis Of Their Performance In Adult Reconstruction Questions

Tarishi Parmar, Akshay Khanna, Jonathan Berg, Alexander Linton, Alec Kellish, **Lauren O'Mara**, David Nazarian

Rothman Orthopaedic Institute, Philadelphia, United States

Abstract
Purpose: Chatbots are increasingly used in orthopedics but face challenges in answering complex questions. This study evaluates their performance in answering Adult Reconstruction questions from the AAOS ResStudy question bank as learning tools for medical professionals.

Methods: 55 questions from the AAOS Resident Question Bank were categorized by anatomic location and concept. Seven chatbots were tested for accuracy, response time, and citation quality. Statistical analysis (Chi-Square, Pearson Correlation, ANOVA) was used.

Results: Chatbots had an overall accuracy of 67.5%. GPT-4o led with 80%, surpassing AAOS members (75%), followed by Co-Pilot (70.9%). Chatbots performed best in Clinical Presentation (78.6%) but struggled in Prognosis (63.1%) and Management (67.3%). Co-Pilot had 100% accuracy in citation quality.

Conclusion: GPT-4o performed best in accuracy, while Co-Pilot excelled in citations. Chatbots are better at descriptive knowledge but struggle with applied reasoning, highlighting their supplementary role in medical education.

11:25 - 11:28

2587 Deficiencies In Current UK National Coding And Joint Registry Data Based On A Survey Of Specialist Knee Surgeons Highlighting Consensus On The Importance Of Information About Site Of Surgery Factors, Demonstrate Need For Better Data Collection

Sunny Deo, Daniel Yeomans

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Abstract

Background

Total Knee Arthroplasty (TKA) is the most frequently undertaken major surgical procedure with excellent results based on implant survival and improved quality of life. Factors such as deformity, patella tracking and bone loss impact length of procedure, physiological insult and outcome.

Methods

The 37 specialist knee surgeons across hospitals in the South West deanery invited to complete a 12-part Likert questionnaire about their perceptions of complexity in primary TKA surgery and its representation in national documentation. Cumulated responses were scaled to percentages. Data was collected using Google Forms. The response rate was 65% (24 of 37).

Results

The cohort mean specialist arthroplasty experience was 17 years (range 1-30, SD 6.8), with a mean 98 (range 15-200, SD 57.5) TKA's performed per annum, with an estimated cumulative experience of approximately 40,000 TKA. There was 95% agreement that local complexity factors impact patient outcomes, with patella baja 93.4% and maltracking 91.6% scoring highest of 8 suggested factors. The lowest score was for varus deformity at 73%.
The scores for whether these complexities were reflected in the UK National Joint Registry (NJR) or hospital coding were far lower at 38.4% and 40.6% respectively.
Thematic analysis of data also showed suggestions for documentation of skin condition, local soft tissue envelope and comorbidities.

Conclusion

There is a mismatch between the importance of complexity factors judged by specialist knee surgeons and its poor recognition in the NJR or coding.
There is consensus to better qualify and quantify pre-operative local and systemic complexities in TKA.

12:17 - 12:20

2929 Postoperative Swelling And Gastrointestinal Complaints Following Total Joint Arthroplasty Account For Majority Of 7-Day Return Visits To The Emergency Department

Clark Dorman[1], Natalie Barnett[2], Napat Intarachumnun[1], Viraj Deshpande[1], Sean Guerrero[3], **Matthew P. Siljander**[1]

1. Department of Research and Education, Hoag Orthopedics, Irvine, United States
2. Anne Marion Burnett School of Medicine at Texas Christian University, Fort Worth, United States
3. Department of Orthopedic Surgery, Hoag Orthopedics Institute, Irvine, United States

Abstract

Introduction

Total joint arthroplasty (TJA) continues to be optimized with increased focus on quality and cost. Early postoperative emergency department (ED) visits are often unnecessary and further understanding of the frequency, reason and outcomes of ED visits can be useful.

Aims and Objectives

The primary aim of this study was to characterize ED utilization within 7 days following TJA.

Study Design and Methods

A retrospective review of all unilateral TJAs performed at a high-volume orthopedic hospital from January 2019 to December 2024 identified 18,434 patients. Patients returning to the ED within 7-days postoperatively were identified. Data collected included demographics, comorbidities, ED presenting complaints, intervention and readmissions.

Results

The 7-day postoperative return to ED was 1.4% (254 patients) with mean age 72 years, 52% female and BMI 29. There were 332 presenting ED complaints with the most common: post-operative pain and swelling (39%), gastrointestinal (15%), neurological (12%), cardiac (8%), and pulmonary (7%). ED interventions were required in 11% (27 patients) and 3% (8 patients) were readmitted. Pain and swelling and gastrointestinal complaints accounted for over 50% of the ED visits, yet of these only 2% (6 patients) required an ED intervention and <1% (2 patients) were readmitted.

Conclusion

The overall rate of 7-day postoperative return to ED is low, with nearly 9 out 10 patients not requiring an intervention. Better methods to reduce unnecessary visits to the ED can influence both quality and episode cost of care in patients undergoing TJA.

11:41 - 11:44

2999 Is Tactile Feedback Enough? Evaluating Bone Density Assessment In Total Knee Arthroplasty

Rohan G. Reddy, Amy Y. Zhao, Jonathan Sayegh, Andrew B. Harris, Amil R. Agarwal, **Savyasachi C. Thakkar**

Johns Hopkins University, Baltimore, United States

Abstract
Introduction: Cementless total knee arthroplasty (TKA) is increasingly utilized due to advancements in implant design and favorable mid-term outcomes. However, implant success depends heavily on bone quality, and intraoperative decision-making regarding cement fixation remains subjective. While dual-energy X-ray absorptiometry (DEXA) is the current standard for assessing bone mineral density (BMD), it is underutilized and rarely assesses the tibia. Portable quantitative ultrasound (QUS) devices offer a validated, accessible alternative for site-specific BMD assessment. This study aimed to evaluate the relationship between intraoperative surgeon assessment and QUS-derived BMD.

Methods: A prospective observational study was conducted among patients undergoing primary TKA. Preoperative BMD was measured at the proximal tibia using a portable QUS device. The surgeon was blinded to results. Cement fixation was used as a proxy for intraoperative assessment. Knees were categorized as normal, osteopenic, or osteoporotic based on QUS-derived T-scores. Chi-square analysis was used to evaluate the association between BMD and fixation method.

Results: Seventy-nine knees (68 patients) were included. Forty-six (58.2%) had normal BMD, 17 (21.5%) were osteopenic, and 16 (20.3%) were osteoporotic. Cemented fixation was used in 32.6%, 35.3%, and 31.3% of these groups, respectively. There was no significant association between BMD category and fixation type (Chi-square = 0.07, p = 0.968).

Discussion: Surgeon assessment did not correlate with QUS-derived BMD. Cement usage was similar across bone density categories, suggesting a potential disconnect between subjective and objective assessment. Portable QUS may offer a standardized, accessible approach to improve bone quality evaluation in cementless TKA.

12:20 - 12:23

3098 Comparison Of Quality Of Life In Transfemoral Amputee Using Bone-Anchored Prostheses Vs Socket Prostheses: A Systemic Review And Meta-Analysis

Janice Tan[1,2], Nafisa Zilani[1,3], Md Rezaul Karim[1], Bijendra Patel[1]

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2. Barts and the London School of Medicine and Dentistry, London, United Kingdom
3. GKT School of Medical Education, London, United Kingdom
4. King's College University of London

Abstract

Introduction

Amputation significantly impacts an individual's quality of life (QoL) and mobility. While socket prostheses are the standard treatment, they often cause discomfort and skin issues. Bone-anchored prostheses (BAP) offer an alternative to address these limitations.

Aims & Objectives

This systematic review and meta-analysis compare QoL and mobility outcomes between BAP and socket prostheses in transfemoral amputees.

Study Design & Methods

A systematic review and meta-analysis were conducted (November 2023 to July 2024) following PRISMA guidelines. PUBMED, EMBASE, Scopus, Cochrane, and Web of Science were searched. Studies with a single-arm trial design comparing pre- and post-operative outcomes were included. Statistical analysis used inverse variance with a random effects model. QoL was assessed using the Questionnaire for Persons with a Transfemoral Amputation (Q-TFA) and the 36-Item Short Form Survey (SF-36). Mobility was evaluated using the 6-Minute Walk Test (6MWT). Subgroup analyses compared Press-fit and Screw-type BAP implants.

Results

Thirteen non-randomised controlled trials (NRCTs) with 398 participants were included. Significant improvements in QoL were observed across all Q-TFA domains and SF-36 Physical Component Score (PCS), but not in the Mental Component Score (MCS). Mobility significantly improved per the 6MWT. No significant differences were found between Press-fit and Screw-type BAP.

Conclusion

BAP significantly improve QoL and mobility in transfemoral amputees, supporting their potential as a preferred alternative to socket prostheses.

Keywords: bone-anchored, mobility, quality of life, socket-suspended, transfemoral amputation

11:48 - 11:51

3138 The Global Incidence Over Time For Primary Total Knee Replacements - A Multi Registry Review

Branavan Rudran, Luca Ignatius, Simon Abram, Abtin Alvand, Andy Judge, Andrew Price

Oxford University, Oxford, United Kingdom

Abstract
Total knee replacements (TKR) are projected to increase significantly over the next 10-20 years, with a particular increase in patients less than 55 years. Mandatory registries across the Western world continue to present their data annually, however there has not been a comparative country level analysis of mandatory registries for total knee replacements to date.
All mandatory national joint registries with >98% completion were reviewed. The countries included were: Australia, Finland, Switzerland, New Zealand, United Kingdom, Canada and Germany. All available annual registry reports from 2012-2022 were analysed. The total number of primary TKA per country per year was extracted. For patients less than 55 years, the rate per 100,000 was extracted to compare rates of TKR in younger patients
Across all mandatory registries, the total number of knee replacements increased from 2012-2022. The rate per 100,000 joint replacements in patients less than 55 years of age increased in Australia (by 2.33 per 100,000), Finland (4.73 per 100,000), United Kingdom (4.45 per 100,000) and Germany (6.8 per 100,000) from 2012-2019. Switzerland's rate per 100,000 joint replacements in patients less than 55 remained constant from 2017-2019. Following the impact of Covid-19, there has been varying impacts on the total number of joint replacements delivered.
In conclusion, the demand for total knee replacements continues to rise in the western world. The rate per 100,000 for patients less than 55 continues to rise in mandatory registries. Further granular understanding of the registry data is required to understand the impact on younger patients.

11:57 - 12:00

3139 Systematic Review: Survival Of Prosthesis, Revision Rates, Complication Rate And Patient Reported Outcome Measures For Patients 60 Years Or Younger Undergoing Primary Total Knee Arthroplasty For Osteoarthritis.

Branavan Rudran, Chris Little, Simon Abram, Abtin Alvand, Andrew Judge, Andrew Price

Oxford University, Oxford, United Kingdom

Abstract
Total knee arthroplasties (TKA) are projected to increase significantly, particularly among patients under 60. Younger patients face higher risks of complications compared to older patients. This study will assess the outcome of primary TKA for patients aged 60 years or younger (≤60), diagnosed with osteoarthritis of the knee.
This systematic review was performed according to PRISMA guidelines. Studies were included if they reported at least one outcome of interest following primary TKA in patients 16 to ≤60 years of age for OA. These included: revision rates, survival of prosthesis, complication rate and PROMs. The primary outcome of interest was revision rates following primary TKA. Revision was defined as exchange of any component and/or subsequent patella resurfacing. All statistical analysis was performed using Stata Version 15 (STATA corp).
1868 articles were reviewed, with 32 included. The overall revision rate for patients ≤60 years of age was 0.47% per annum (CI 0.43-0.51). This equates to a 10 year survival rate of 95.3%. The overall revision rate for patients ≤40 years of age was 3.14% per annum (CI 2.17-4.12)(68.6% 10 year survival). The most common complication reported was DVT ranging from 0.9-40% at 90 days. 29 studies reported at least one PROM.
In conclusion, revision rates were noted to increase by 7 years with a revision percentage of 15.6% to 18%. All-cause survivorship was reported above 90% and patient-reported outcome scores were broadly above good up to 5 years. Long term survivorship ranged from 69%-95.8%. Further research is required on younger patients outcomes following TKR.

11:38 - 11:41

2899 Reliability Of Patient Reported Outcomes In The Asian Arthroplasty Population

Wing Ki Cheung, Yim Ling Amy Cheung, Michelle Hilda Luk, Ka Chun Thomas Leung, Chun Man Lawrence Lau, Chun Him Henry Fu

The University of Hong Kong, Hong Kong, Hong Kong SAR

Abstract
Background
Patients undergoing total hip and knee arthroplasty seek to reduce pain and improve mobility, making quality of life assessment crucial in evaluating the outcomes of these surgeries. However, the use of multiple questionnaires for assessment raises concerns about the validity of responses.
Methods
This study prospectively sought to evaluate the correlation of responses to similar questions in three frequently utilized questionnaires - the 36-Item Short Form Survey (SF-36), Forgotten Joint Scores (FJS), and 5-level EQ-5D version (EQ-5D-5L). A total of 509 post-surgery patients were enrolled and completed all three sets of questionnaires. Questions with similar wording or scenarios were assessed for correlation using Pearson correlation analysis.
Results
3 questions from SF36 and 5 questions from FJS were compared to EQ-5D-5L and 10 questions from SF36 were compared to FJS. The results revealed significant correlations ($p<0.05$) among the questions, with correlation coefficients ranging from -0.28 to 0.616. Despite the significant correlations, the strength of the relationships was not strong, indicating inconsistencies in responses. Notably, outliers were observed where patients provided conflicting responses to similar activities across the questionnaires.
Conclusion
The discrepancy may be attributed to the length of the questionnaires or difficulties in understanding the context of the questions. Further research is warranted to improve the reliability and accuracy of quality of life assessments in post-arthroplasty patients and to address the observed discrepancies in responses.

12:23 - 12:26

1037
Clinical & Radiological Outcome Of Medial Proximal Tibial Vertical (Reduction) Osteotomy In Primary Total Knee Arthroplasty For Severe Varus Deformity Of The Knee

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Abstract
Introduction: Release of contracted tissues (MCL) and removal of osteophytes is necessary to achieve ligament balancing during TKA with severe varus deformity.This led to over-release of the superficial MCL, hematoma formation, knee joint line elevation and instability.To overcome these, method of bone resection of medial proximal tibia (MPT) with minimal medial soft tissue release called reduction osteotomy (RO).Study aims to evaluate clinical, radiological benefits of RO over progressive medial soft tissue release, and quantification of method of bone resection of MPT for achieving soft tissue balancing in TKA.

Methods & Methods: Study included 24 patients having osteoarthritis with varus deformity >10 degrees.All investigations with X-ray, scanogram were done and clinically, OKS(Oxford Knee Score) and KSS(Knee Society Score) were assessed.Patients followed up at 3 months.

Results: There was significant improvement in OKS and KSS at 3 months. For each unit of medial gap deficit, there was corresponding 2.14 units of Proximal tibia vertical osteotomy thickness.For each unit change of Pre-op varus angle, there was corresponding 0.38 units of Proximal tibia vertical osteotomy thickness.
Conclusion: Prospective RCT on TKA indicated that in patients with severe varus deformity, addition of MPT Vertical RO step was better than conventional technique, as it could decrease intraoperative time, by bypassing the step of progressive release of medial soft tissue structures and repeated assessment of medial versus lateral gap balance to achieve rectangular extension gap. Complications due to excessive soft tissue release and need for thicker insert/constraint implant were avoided.

Keywords: TKA, Varus, MPT RO, OKS, KSS

12:14 - 12:17

2451 Real-World Safety And Performance Of The Destiknee Knee System In Cruciate-Retaining Total Knee Arthroplasty: A Multi-Center Indian Cohort Study

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5. Meril Life Sciences Pvt. Ltd, Vapi, India

Abstract
Background/AIM:
Cruciate-retaining total knee arthroplasty (CR-TKA) remains a widely preferred option for preserving knee kinematics. However, data on real-world outcomes of contemporary implants in Indian populations remain sparse. This study evaluates the safety and performance of the Destiknee knee system in a real-world Indian cohort undergoing CR-TKA.
Methodology:
This prospective, multi-center observational PMS study included 161 patients (104 females, 95 males; mean age 65.80 ± 7.81 years) across two tertiary Indian centers, all of whom underwent CR-TKA using the Destiknee system with a minimum of one-year follow-up. There were no formal exclusion criteria. Data on demographics, co-morbidities, preoperative range of motion (ROM), operative details, and adverse events were collected.
Results:
The mean age was 65.80 ± 7.81 years. Co-morbidities: hypertension (49.69%), diabetes (16.15%), and hypothyroidism (16.15%). Preoperative ROM was 118 ± 7.55 degrees. Osteoarthritis was the primary indication with 119 (74.07%) cases of KL grade 3, while 42 (26.08%) had advanced osteoarthritis (KL grade 4). 112 (69.56%) underwent unilateral and 49 (30.43%) bilateral TKA. The mean surgical duration was 1.85 ± 0.53 hours. A total of 21 patients (13.04%) experienced adverse events, most commonly pain, swelling, and stiffness. No revision surgeries were reported with implant survivorship of 100% at one year.
Conclusion:
This multi-center PMS study highlights favorable short-term outcomes of CR-TKA using the Destiknee system in an Indian population, with 100% implant survivorship, acceptable surgical duration, and a low complication rate at one-year follow-up.
Keywords:
Total Knee Arthroplasty (TKA); Cruciate Retaining; Destiknee Knee System; Prosthesis Safety and Performance.

12:11 - 12:14

2280 Does BMI Affect The ACL Status? - Comparative Study Of Mobile Bearing Oxford OUKA Vs. Robotic Assisted Fixed Bearing RUKA

Aashay Ashok Sonkusale[1], Ashok Kumar Ps[1], Pichai Suryanarayan[1], Kartik Ghate[1], Akshay Atilkar[1], **Kalaivanan Kanniyan**[2]

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2. Asian Orthopaedic Institute, SIMS Hospital, Chennai, India

Abstract
INTRODUCTION: With improved implant design and the advent of robotics, the conventional contraindications for Unicompartmental Knee Arthroplasty (UKA) like obesity and ACL dysfunction are no longer justifiable.
AIM: The role of pre-surgical BMI and instability due to ACL insufficiency in affecting the functional outcomes and complications was studied at the mid-term follow-up compared across two sub-groups: robotic assisted fixed bearing (FB-rUKA) and mobile bearing oxford (MB-oUKA).
METHODOLOGY: In prospective study of patients undergoing UKA, 82 Oxford MB-oUKAs and 109 robotic (CORI) arm-assisted FB-rUKAs with a follow-up of 6 years were identified between 2015-2024. The patients were stratified according to BMI and ACL dysfunction based on visual assessment at surgery. Pre-op and post-op Oxford Knee Score (OKS) was used for functional assessment.
RESULTS: The average BMI in MB and the rFB groups were 29.62 and 29.94 respectively. Almost half the cohort in both groups were obese (45% in MB and 51% in FB). 48.7% in oMB and 85.32% in rFB had an ACL dysfunction of grade 1 & above. There was no co-relation between ACL & BMI and post operative OKS in both the groups. Both the groups had a statistically significant(s.s) increase in OKS post-operatively and a s.s increase was seen in the OKS post-operatively in rFB group. There were 2 revisions in MB group.
CONCLUSIONS: High BMI does not may not be a contraindication for medial UKA, in appropriately selected patients following comprehensive evaluation. Robotic assistance has helped in improving component positioning, joint line restoration and eliminate surgeon-controlled errors.

11:09 - 11:12

782 Bilateral Knee Arthroplasty: A Surgical Challenge For Enhanced Patient Outcomes. A Short-To-Mid-Term Evaluation

Cesare Chemello, Ilaria Donadelli, Giovanna Toso, Fabio Merlo, Paolo Vialetto, Alessandro Cappellari

San Bassiano Hospital, Bassano Del Grappa, Italy

Abstract
Background:
Bilateral knee osteoarthritis (OA) severely impairs mobility and quality of life. Simultaneous bilateral total knee arthroplasty (SMTKA) offers a single-stage alternative to staged procedures, benefiting from advances in perioperative management. This study evaluates the safety and efficacy of SMTKA in a carefully selected patient population.
Methods:
This retrospective study analyzed 30 SMTKA cases performed between September 2021 and November 2023 at two orthopedic centers in Italy. Patients with Kellgren-Lawrence grade 3–4 OA, unresponsive to conservative treatment and without contraindications for prolonged surgery, were included. Perioperative data (operative time, blood loss, transfusions, complications) and functional outcomes were assessed using the Knee Society Score (KSS) and Oxford Knee Score (OKS) preoperatively and at 12 months postoperatively.
Results:
The cohort included 30 patients (16 males, 14 females) with a mean age of 73.5 years (range 54–82) and an average BMI of 29.90 kg/m². Most patients (56.7%) were ASA 2. Mean operative time was 110 minutes, with an average blood loss of 1L. Eleven patients required transfusions (mean 2.3 units). One case of popliteal vein thrombosis was successfully treated, with no infections or mortality. At 12 months, the mean KSS improved from 48.23 to 93.97, and the OKS from 31.93 to 55.34 ($p < 0.0001$). Higher BMI correlated with lower postoperative scores.
Conclusion:
SMTKA is a safe and effective option for selected patients with advanced bilateral knee OA, yielding significant functional improvements. Careful perioperative management is crucial. Larger cohort studies are needed.

11:00 - 11:03

536 The Length Of Stay After Total Hip And Knee Arthroplasty And Factors Associated With Prolong Stay In A Tertiary Specialised Centre

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Abstract
Background: Total hip arthroplasty (THR) and total knee arthroplasty (TKR) have become very common surgeries in the recent
century.This study investigates the factors associated with prolonged LOS post-THR and TKR in a tertiary, subspecialized center in Saudi Arabia. Methodology: This retrospective cohort study investigates the inpatient
LOS of 219 patients admitted to THR and TKR in the period from January 2020 until June 2023. We divided the patients into two groups: group A
experienced a LOS of 1–3 days, while group B experienced a LOS of more than 3 days. We also statistically analyzed using independent t-tests and multifactor analysis using
the linear regression for continuous parametric data and chi-squared tests for categorical variables. $P < 0.05$ is considered statistically significant.
Result: We collected and analyzed data from 222
patients. The mean age was 62.53 years (SD: 9.56), and 149 subjects (67.1%) were female. Mean BMI was 32.7 kg/m², kneereplacement procedures were 193 (86.9%), and 29 (13.1%) hip replacement procedures, and the average LOS in our study was
2.14 ± 1.02 days; 193 (86.9%) had LOS <2 days, and 29 (13.1%) had prolonged LOS >3 days.Factors like age, BMI, type of anaesthesia, anaemia, albumin, ASA class, post-operative haemoglobin,
and pre- and post-operative mobility were significantly correlated with LOS in TKA and THA patients ($P<0.05$).Conclusion: The average length of stay
post arthroplasty hip and knee surgery is 2 days. Prolonged LOS significantly correlated with age, BMI, type of anaesthesia,
anaemia, albumin, ASA class, post-operative haemoglobin, and pre- and post-operative mobility.

Thursday, 4 September

Hip 4
14:30 - 14:33

209 Minimize Morbidity: Arthroscopic Management Of Pipkin's Type I Femoral Head Fractures

Ahmed H Abdelazeem, Ahmed Sabry, Ahmed Khalil, Waleed Elnahal, Fouad Sadek

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Abstract
Purpose
Arthroscopy has recently been described for managing Pipkin type I femoral head fractures. To evaluate this novel technique, we included a case series and a review of literature reporting the indications, patients' demographics, surgical techniques, outcomes and complications.
Methods
A systematic literature review was conducted comprehensively across PubMed, Scopus, and Web of Science to include case series and case reports with a clear outcome after either excision or fixation of Pipkin I fractures.
A prospective case series was conducted between January 2022 and June 2023 at a university hospital and included all Pipkin type I fractures treated with arthroscopic-assisted fixation.
Results
Only seven papers, including twenty patients, were included in the final review. Most of the injuries were reported in males. The central compartment first technique was used in all cases. After joint debridement, the labrum was inspected and either debrided or repaired. All authors used the standard anterolateral and anterior portals, with an additional accessory portal for fracture fixation. Excellent outcomes were reported with few complications.
Our case series included six patients. In all cases, the central compartment was accessed first, and a posterior capsule-labral repair using two anchors was performed. Anatomical reduction was achieved in four cases and near anatomical in one case. At a mean follow-up of 19 months, the mean HHS was 92.4, and the non-arthritic hip score was 77. Two complications were detected: arthroscopic reduction was impossible in a case with a flipped big fragment, and an iatrogenic femoral vein injury in another.

14:49 - 14:52

190 A Comparative Study Of The Modified Dunn Procedure And In Situ Pinning For Severe Slipped Capital Femoral Epiphysis: Clinical And Radiographic Outcomes

Sakti Prasad Das, Dhananjay Prasad Sahoo

LALIT HOSPITAL, Cuttack, India

Abstract
Introduction: Best surgical approach for severe slipped capital femoral epiphysis (SCFE) is controversial. The modified Dunn procedure and in situ pinning are two commonly used surgical interventions for severe s SCFE, especially when the posterior sloping angle (PSA) exceeds 50°. While the Dunn procedure offers more accurate correction of slippage and better restoration of proximal femoral anatomy, there are concerns regarding complications such as AVN. and FAI This study compares the clinical and radiographic outcomes of both procedures to evaluate their relative effectiveness and risks. Materials and Methods: We retrospectively reviewed the clinical and radiographic outcomes of 19 patients who underwent either the modified Dunn procedure or in situ pinning for severe stable SCFE (PSA > 50°). The patients were followed for 2 to 7 years postoperatively. The primary outcomes assessed included the incidence of complications such as AVN, femoroacetabular impingement (FAI), and chondrolysis. Results: In the Dunn procedure group (n=10), four patients developed AVN postoperatively. In contrast, only one hip in the in situ pinning (n=9) group developed chondrolysis. The in situ pinning group experienced three cases of symptomatic FAI, one of which required osteochondroplasty. Discussion: Although the Dunn procedure provides a more accurate correction of slippage and restores the femoral anatomy more reliably, the risk of complications such as AVN is very high. In contrast, in situ pinning avoids the dreaded complication of AVN, Conclusion: In the short term, in situ pinning appears to be a safer option than the Dunn procedure in the treatment of severe SCFE.

14:46 - 14:49

179 Post-COVID-19 Osteonecrosis Of The Femoral Head: A Retrospective Clinical Analysis

Akbarjon Baxrom O'G'Li Mirzayev[1,2,3], Abduaziz Shodievich Babakulov[1], Maxsur Maqsudjon Ugli Abdullayev[1], Saodat Ubaevna Asilova[4]

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2. Akfa Medline University Hospital, Tashkent, Uzbekistan
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4. Kimyo Internation University in Tashkent, Milliy Bog St, Uzbekistan

Abstract
Introduction: The incidence of post-coronavirus disease 2019 (COVID-19) osteonecrosis of the femoral head (ONFH) is increasing, but its etiology remains poorly understood.
Aims and Objectives: This study aimed to investigate COVID-19-related factors that may contribute to the development of ONFH.
Methods: A retrospective analysis was conducted on 84 patients with ONFH who had a confirmed history of COVID-19. The study evaluated potential associations between ONFH and COVID-19 related factors such as vaccination status, joint involvement, steroid regimen type, and ONFH severity.
Results: Vaccination status showed no correlation with ONFH development, and no significant differences were noted between unilateral and bilateral ONFH cases. Patients treated with both dexamethasone (DEX) and methylprednisolone (MPS) showed greater lung involvement compared to those treated with DEX alone (59.2% vs. 36.3%, $p = 0.002$). The DEX and MPS group also had significantly longer hospital stays in both general wards (14.2 days vs. 10.6 days, $p = 0.018$) and ICUs (5.4 days vs. 3 days, $p = 0.017$). Cumulative steroid dose was identified as a significant predictor of ONFH severity (OR: 1.040, 95% CI: 1.015–1.066, $p = 0.001$), with stage 3 patients receiving higher cumulative doses compared to stage 2 patients ($p = 0.018$).
Conclusions: Our study demonstrated that cumulative steroid dose is the primary determinant of ONFH severity in post-COVID-19 patients. Additionally, our findings suggest that the combined use of corticosteroids may accelerate the onset of ONFH, underscoring the need for cautious management of steroid regimen in COVID-19 patients.
Keywords. Avascular necrosis, COVID-19, Dexamethasone.

15:27 - 15:30

236 Current Concepts And A Proposed New Classification For Acetabular And Peri-Acetabular Calcifications Of The Hip

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2. Department of Orthopaedic Surgery, Hospital Mompia, Santander, Spain

Abstract
Background

With the advancement of hip arthroscopy, studies on the acetabular labrum and pathology have taken greater interest. We aim to present a unifying classification for acetabular and periacetabular calcifications of the hip, along with corresponding medical imaging findings and arthroscopic pictures.

Findings

This proposed classification can be broadly divided into 4 large groups based on their morphological appearance and sites - Type A: Calcifications of the acetabular rim; Type B: Calcifications of the direct portion of the rectus femoris; Type C: Heterotopic ossification of the hip capsule; and Type D: Mixed with combination of Types A and B.

Type A calcifications have been previously described by Marc Safran and can be further subdivided into Type A1 – punctate/ partial calcifications; Type A2 – large rounded calcifications; Type A3 – large fragments with a vertical line consistent with consolidated or non-consolidated stress fractures and Type A4 – complete circumferential ossification. Type B calcifications can be furthered subdivided into Type B1 – short filiform type; Type B2 – long filiform type and Type B3 – rounded calcifications of the direct portion of the rectus femoris. Type C ossification refers to that of heterotrophic ossification and can further be subdivided by the Brooker Classification. Type D calcifications refer to a mixed-type entity where there are combinations of the earlier described Types A and B.

Conclusion

Acetabular and periacetabular calcifications are complex conditions with diverse etiologies. Differentiation and classification of the different types and subtypes will aid in accurate diagnosis and appropriate treatment.

14:33 - 14:36

547 Total Hip Arthroplasty With Second-Generation Dual Mobility System As A Treatment For Primary Coxarthrosis: Medium-Term Results

Pablo Ramos[1], Gonzalo Arteaga[1], Medardo Vargas[1], Pablo Ramos Murillo[2], Francisco Endara Urresta[3], Carlos Peñaherrera[4], Daniel Ramos[5]

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2. Quiron Salud, Madrid, Spain
3. Clinica Arthros, Quito, Ecuador
4. Hospital Vozandes, Quito, Ecuador
5. Universidad del Bosque, Bogota, Colombia

Abstract

Introduction

Hip osteoarthritis is a debilitating condition with a reported prevalence of 7.4% in our population. Total hip arthroplasty is the standard treatment for advanced stages, but it is not without complications, with prosthetic dislocation being one of the most common. Dual mobility systems have emerged as an alternative to reduce this risk. This study evaluates complication rates and clinical outcomes in patients undergoing total hip arthroplasty with dual mobility systems for primary coxarthrosis.

Objectives

To determine functional outcomes and complication rates in patients treated with total hip arthroplasty using dual mobility systems for primary coxarthrosis.

Methods

A retrospective study was conducted on 120 cases in 114 patients diagnosed with grade III coxarthrosis, with a mean age of 62.43 years and an average follow-up of 8.5 years. The Hardinge approach was used, and patients were evaluated using the Harris Hip Score (HHS) and radiological studies to assess functional outcomes and implant survival.

Results

The mean preoperative HHS score was 56.45 points, improving to 74.23 at one month postoperatively, 85.40 at six months, 94.01 at one year, and 94.84 at five years. The overall complication rate was 3.44%, with only 0.86% related to prosthetic components. No cases of prosthetic dislocation were reported.

Conclusion

The dual mobility system should be considered a therapeutic option in primary total hip arthroplasty due to its excellent functional outcomes and low complication rate.

Keywords

Hip osteoarthritis, total hip arthroplasty, dual mobility, complications, Harris Hip Score.

14:52 - 14:55

642 ASSESMENT OF VASCULARITY OF FEMORAL HEAD AFTER DIFFERENT METHODS OF FIXATION OF INTRACAPSULAR NECK FEMUR FRACTURE BY DIGITAL SUBTRACTION ANGIOGRAPHY

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2. IPGMER & SSKM Hospital, Berhampore, India

Abstract

Background:
Intracapsular neck femur fractures pose a high risk of avascular necrosis (AVN) due to potential disruption of the femoral head's blood supply. This study evaluates femoral head vascularity using digital subtraction angiography (DSA) following fixation with Cannulated Hip Screws (CHS) or Dynamic Hip Screws (DHS) and assesses the association between arterial involvement and AVN development.

Methods:
Thirty patients (aged 18–40 years) with intracapsular neck femur fractures were treated at IPGME&R and SSKM Hospital, with 17 undergoing CHS and 13 DHS fixation. Postoperative DSA analyzed involvement of the anterior, superior, and inferior retinacular arteries, while AVN severity was graded using the Ficat Arlet system. Functional outcomes were assessed with the Harris Hip Score. Statistical analysis, including the Chi-square test, was conducted.

Results:
A significant association was found between arterial involvement and AVN severity ($p < 0.005$), while fixation methods did not significantly differ in AVN outcomes ($p = 0.556$). ANOVA confirmed that greater surgical expertise correlated with better clinical outcomes ($p < 0.05$). Patients without arterial involvement exhibited lower AVN grades and higher Harris Hip Scores. Severe AVN (Grade 3–4) was observed in patients with multiple retinacular artery involvement.

Conclusion:
DSA is a valuable tool for predicting AVN development. Both CHS and DHS fixation methods preserve femoral head vascularity comparably. Greater surgical expertise leads to better clinical outcomes. Further research is needed to refine AVN prediction models.

Keywords: Intracapsular neck femur fracture, avascular necrosis, digital subtraction angiography, Cannulated Hip Screws, Dynamic Hip Screws, vascularity, surgical expertise, femoral head, Harris Hip Score, Ficat Arlet grading.

14:39 - 14:42

912 Return To Sports (RTS) After Labral Reconstruction Of The Hip - A Systematic Review And Meta-Analysis (SRMA)

Xinyu Tao[1], Teddy Cheong[2], Danyal H Nawabi[3], Hamid Razak[4], Paul Chang[1], Merrill Lee[1]

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2. Sengkang General Hospital, Singapore, Singapore
3. Hospital for Special Surgery, New York, United States
4. Total Orthopedic Care & Surgery, Singapore, Singapore

Abstract
Hip labral tears typically present with mechanical symptoms such as clicking or locking. Athletes involved in sudden pivoting activities are at higher risk of these injuries. There are various surgical treatment options available inclusive of labral repair and debridement with labral reconstruction rapidly becoming an alternative. However, there is no consolidated review on the return-to-sport(RTS) rates and patient-reported-outcomes(PRO) in patients who undergo labral reconstruction.

We aimed to conduct a novel systematic review and meta-analysis that evaluates the RTS rates and changes in PRO following labral reconstruction in patients with hip labral tear.

Major databases such as PubMed, Embase, CINAHL, SCOPUS and Cochrane Library were reviewed. Case series or cohort studies assessing PRO and RTS rates after labral reconstruction were included. Pooled analysis of Modified Harris Hip Score(mHHS), Non-Arthritic Hip Score(NAHS), Hip Outcome Score(HOS), Visual Analogue Scale(VAS) and RTS rates were conducted.

Eight studies of high methodological quality involving 262 patients were included. Most studies had a high rate of RTS(>70%) with the lowest being 64%. Four studies had RTS at the same or even higher level of play. Pooled PROs improved significantly post-operatively. At last follow-up, VAS improved by 3.40(95% CI:-4.14 to -2.65, $p<0.00001$) while mHHS improved by 20.54(95% CI:16.78 to 24.30, $p<0.00001$). Similarly, NAHS improved by 19.94(95% CI:15.78 to 24.10, $p<0.00001$) and HOS improved by 29.61(95% CI:23.95 to 35.28, $p<0.00001$).

Current best evidence suggests that labral reconstruction is an effective option in the treatment of hip labral tears producing good return-to-sports rates and patient-reported-outcomes.

Keywords: Hip, Return-To-Sports, Labral Reconstruction

14:55 - 14:58

1097 Femoral Morphology And Range Of Motion After Periacetabular Osteotomy In Males With Hip Dysplasia

Hiroto Funahashi, Yusuke Osawa, Yasuhiko Takegami, Hiroaki Ido, Hiroyuki Yokoi, Yuto Ozawa

Nagoya University, Nagoya City, Japan

Abstract
Purpose
This study aimed to evaluate the relationship between hip morphology and range of motion (ROM) after eccentric rotational acetabular osteotomy (ERAO) in males with hip dysplasia (HD).
Methods
This study included 24 hips in males and 98 hips in females with HD who underwent ERAO between 2016 and 2018. Virtual ERAO was simulated using preoperative computed tomography to achieve a lateral center-edge angle of 30° and an anterior center-edge angle of 55°. Femoral neck anteversion (FNA) was measured, followed by ROM simulations for flexion and internal rotation at 90° flexion. Sex differences in femoral morphology and ROM were analyzed, and the FNA threshold required to achieve sufficient ROM for daily activities was determined.
Results
Males had lower FNA (males: 13.7° ± 14.0° vs. females: 21.5° ± 13.1°; $p = 0.011$) and lower ROM in flexion (males: 111.5° ± 12.7° vs. females: 118.3° ± 11.0°; $p = 0.009$) and internal rotation (males: 29.5° ± 15.9° vs. females: 41.0° ± 16.8°; $p = 0.003$). In males, FNA correlated with flexion ($r = 0.69$, $p < 0.01$) and internal rotation ($r = 0.52$, $p < 0.03$). The FNA threshold to achieve sufficient ROM was 0.0° (AUC: 0.78, sensitivity: 0.57, specificity: 0.94).
Conclusion
Low FNA in males with HD may contribute to ROM limitations after ERAO. In cases with FNA ≤ 0.0°, excessive anterior acetabular coverage should be avoided.

15:24 - 15:27

1101 Does The Use Of A Traction Table In Anterolateral Spine Approach Total Hip Arthroplasty (ALS-THA) Affect Implant Alignment?

Yuto Ozawa[1], Taiki Kusano[1], Kazuyoshi Kobayashi[1], Hiroto Funahashi[2], Yusuke Osawa[2], Yauhiko Takegami[2], Koji Sato[1]

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2. Nagoya university, Nagoya, Japan

Abstract
Purpose:
This study aimed to investigate whether the use of a traction table in anterolateral spine approach total hip arthroplasty (ALS-THA) affects implant alignment. Although ALS-THA has higher dislocation resistance than the posterior approach, achieving proper stem alignment, especially in flexion, can be challenging. Since August 2022, we have introduced a traction table to stabilize limb position without assistance.
Methods:
We retrospectively reviewed ALS-THA cases performed between December 2021 and February 2023. Patients were divided into two groups: the traction table group (R group) and the conventional group without a traction table (N group), with 30 cases each. We compared age, sex, BMI, blood loss, operative time, femoral anteversion, postoperative stem alignment, and cup placement angle. Stem malalignment was defined as varus/valgus or flexion/extension exceeding 3 degrees. Statistical significance was set at $p < 0.05$.
Results:
There were no significant differences between groups in age, sex, BMI, blood loss, operative time, or femoral anteversion. The incidence of varus/valgus malalignment was significantly lower in the R group (6.7%) compared to the N group (30%) ($p < 0.05$). Flexion/extension malalignment was also lower in the R group (43.3%) than in the N group (73.3%) ($p < 0.05$). Femoral anteversion was significantly lower in the R group (28.1 ± 10.5°) compared to the N group (36.7 ± 10.9°) ($p < 0.05$). Cup inclination and anteversion showed no significant differences between groups.
Conclusion:
Using a traction table reduced limb movement during surgery, contributing to better stem alignment.

15:47 - 15:50

1405 Metal-Induced Myocardiopathy In A Patient With A Right Hip Resurfacing Prosthesis: A Case Report.

Federico Jesús Serván Alcántara, Juan José Sánchez-Villares Rubalcaba, Miguel Sánchez Ruiz De Gordoa, Roberto Carrera Abad, Leire Otxoa Alberdi, Gorka Pastoriza, Amaia Ongay López

Hospital Universitario de Navarra, Pamplona, España

Abstract
OBJECTIVES:
To present the case of a patient with metal-induced cardiomyopathy secondary to a right hip resurfacing prosthesis.
MATERIAL AND METHODS:
A 63-year-old patient with a right hip resurfacing prosthesis, implanted in 2010, presented for an annual review in October 2023. Although asymptomatic in the hip, the patient reported exertional dyspnea. An echocardiogram showed cardiomyopathy with moderate left ventricular dysfunction (ejection fraction 40%). Medical treatment for heart failure was initiated. Blood levels of chromium (41.3 mcg/l) and cobalt (71.4 mcg/l) were elevated. The prosthesis was replaced due to suspected metal-induced myocarditis.
Surgical intervention via the Hardinge approach was performed, exposing and removing the neocapsule and prosthesis. A cervical osteotomy allowed for the removal of the femoral head and component. Metal-affected tissue and remnants of the articular capsule were excised. Acetabular component extraction, reaming, and the placement of a hemispherical acetabular cup with ceramic insert followed, along with a ceramic head and stem. Prosthesis reduction confirmed stability.
RESULTS:
One year later, the patient experienced significant improvement in dyspnea, with stable ventricular function on echocardiogram. Hip function was normal, and blood chromium and cobalt levels had normalized.
CONCLUSIONS:
Metal-induced cardiomyopathy should be considered in patients with metal-on-metal prostheses. Chromium ≥12µg/l and cobalt ≥10µg/l suggest the need for surgical intervention. Removal of the prosthesis and debridement is essential in managing metal toxicity.
KEYWORDS:
1. Metal-Induced Myocardial Toxicity
2. Cobalt and Chromium Toxicity
3. Hip Resurfacing Prosthesis
4. Cardiomyopathy

14:36 - 14:39

1509 Population-Based Prevalence Of Femoroacetabular Impingement: A Systematic Review

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Abstract

Background

Femoroacetabular impingement syndrome (FAIS) is a risk factor for osteoarthritis with a rising global burden. Its prevalence remains unkown. This systematic review reports population-based prevalence data.

Methods

MEDLINE, Embase, and Cochrane databases were searched for population-based studies on FAIS and related radiographic morphologies (cam, pincer, mixed) from participants recruited from the general population. Pooled prevalence was calculated using the inverse-variance method. Risk of bias and quality were assessed with the JBI checklist and GRADE tool.

Results

Eighteen studies from eight countries were included, comprising 63,965 participants (86,679 hips, mean age 63.4, range 21–96). Only one study (500 participants) reported FAIS prevalence, estimating 3.0% (men: 3.4%, women: 2.7%). Radiographic prevalence of cam, pincer, and mixed morphologies was 15.2%, 11.6%, and 1.6%, respectively. Cam was less common in East Asia vs. Western countries (4.8% vs. 9.2%), whereas pincer was more common (20.3% vs. 9.5%). No studies represented low- and middle-income countries. Definitions varied, with cam morphology defined as alpha angle ≥ 60º in 70% of studies and pincer as central edge angle ≥ 40º in 71.4%. AP radiographs alone were used in 90.9% of studies to diagnose FAI-related morphologies.

Conclusions

There is currently a lack of systematic reports of population-based evidence of the prevalence of FAIS, with variations in definitions of cam and pincer morphologies complicating effective pooled prevalence estimates. Further high-quality population-based studies with unified diagnostic criteria, utilising multiple imaging modalities, and with representative weighing of subgroups are essential to assess the global prevalence and burden of FAIS.

15:18 - 15:21

1686 Comparative Analysis Of Muscle Damage In Direct Anterior Approach Total Hip Arthroplasty: Standard Versus Traction Table

Vikrant Manhas, Ankur Goyal, Sandeep Sandeep

All India Institute Of Medical Sciences Delhi, New Delhi, India

Abstract
The Direct Anterior Approach (DAA) for Total Hip Arthroplasty (THA) has gained popularity due to its minimally invasive technique and potential for recovery. Despite these advantages, the impact of operative table choice on muscle damage remains unclear. This prospective cohort study compared muscle damage and early functional outcomes in patients undergoing THA via DAA performed on a standard orthopedic table versus a traction table.

Between March 2022 and September 2024, symptomatic patients with avascular necrosis (Ficat-Arlet stage III or IV) were enrolled. Patients were divided into two groups: Group A underwent DAA on a standard table, while Group B received DAA on a traction table. Preoperative and postoperative (3 to 6 months) magnetic resonance imaging (MRI) was used to evaluate muscle quality employing a modified Goutallier classification. Serum markers, including creatine kinase (CK) and myoglobin, were measured preoperatively and on postoperative day two. Functional outcomes were assessed using the Harris Hip Score (HHS).

A total of 44 patients met the inclusion criteria with comparable baseline demographics. Group A exhibited significantly higher fatty infiltration and atrophy in key muscle groups, including the tensor fasciae latae, piriformis, obturator internus, and quadratus femoris, alongside elevated CK and myoglobin levels ($p<0.05$). Moreover, Group B demonstrated shorter operative times and improved early functional recovery.

In conclusion, performing DAA THA on a traction table significantly reduces muscle damage and enhances short-term outcomes compared to a standard table. These findings advocate for the traction table’s role in optimizing surgical efficiency and minimizing postoperative morbidity

15:56 - 15:59

1754 Functional Outcome Analysis Of Autologous Stromal Vascular Fraction (SVF) (Sahaj Therapy ®) Using Direct Sonication In Osteonecrosis Of The Femoral Head (ONFH): A 6-Year Follow-Up Study

Arulkumar Nallakumarasamy[1], Madhan Jeyaraman[2]

1. JIPMER, Karaikal, India
2. ACSMCH, Chennai, India

Abstract
Introduction: We investigated the safety, efficacy, functional, and clinical outcomes of intra-osseous implantation of mechanically isolated, autologous stromal vascular fraction (SVF), an Australian patented direct ultrasonication technology (Sahaj Therapy ®) in osteonecrosis of the femoral head (ONFH). Materials and Methods: A total of 32 cases of ONFH were enrolled in the study after confirming with an MRI of the affected hip. All cases were treated with an intra-osseous autologous SVF implantation [4–5 cc with the cellular dosage of 8.0 × 107 cells with a viability of > 85% SVF cells] on the same surgical sitting. A comparison of mean HOOS scores at different follow-ups was done using Paired 't'-test. A P value of < 0.05 was considered significant. Results: In our study, male preponderance was seen (53.1%). According to the modified Ficat and Arlet classification, the most common grade of ONFH was grade 2 [right: 25 hips and left: 25 hips]. There was a statistically significant improvement in the mean HOOS score of the right hip (n = 10) and left hip (n = 9) from preoperative time till 72 months (P < 0.05). The follow-up MRI of the affected hips shows improved osteogenesis without any further worsening of the contour of the femoral head. Conclusion: For individuals with ONFH, treated with intra-osseous autologous SVF implantation in the same surgical procedure is an innovative and promising treatment modality. Even after 6 years of follow-up, the study participants with ONFH have shown good clinical and functional outcomes with autologous SVF.

15:21 - 15:24

1862 Clinical Implications Of The Increasing Use Of Direct Oral Anticoagulants In Patients With Hip Fracture: A Retrospective Study.

Jorge Sanz-Romera, Luis Bellido-Bello, Ignacio Miranda-Gomez, Maria José Sangüesa-Nebot

Hospital Arnau de Vilanova-Llíria, Valencia, Spain

Abstract

Introduction

Hip fractures are a major cause of hospital admissions in orthopedic trauma, predominantly affecting elderly patients. The frequent use of anticoagulants in this population significantly impacts perioperative management.

Aims & Objectives

To analize anticoagulant use in the general population and in patients with hip fractures, evaluating changes in prescription patterns and their clinical impact.

Study Design & Methods

A retrospective, analytical, and observational cohort study was conducted, including 435 patients who underwent surgical treatment for hip fractures in 2018 and 2023. The type of anticoagulation was recorded, and variables such as surgical delay, hospital length of stay, and mortality were analyzed and compared.

Results

The use of direct oral anticoagulants (DOACs) increased significantly, with apixaban (+400%) and edoxaban (+20%), while acenocoumarol decreased by 33.33% ($p=0.001$). Surgical delay was longer in DOAC users (77±32 h) than in those on acenocoumarol (55±27 h) and non-anticoagulated patients (41±38 h; $p<0.005$). Hospital stays were also longer with DOACs (8.96±4 days) vs non-anticoagulated patients (7.63±4 days; $p=0.021$). No significant differences in overall mortality were observed ($p>0.05$).

Conclusion

The analysis of anticoagulant use from 2018 to 2023 revealed a significant shift in prescription patterns, both in the general population and in patients with hip fractures. DOAC use was associated with increased surgical delay and longer hospital stays in patients with proximal femur fractures. These findings highlight the need to optimize perioperative management protocols and improve patient care strategies.

15:05 - 15:08

2044 Long-Term Joint Preservation And Functional Outcomes Of Osteochondroplasty In Femoroacetabular Impingement Using Ganz Safe Surgical Hip Dislocation

Sabir Khan Khattak

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Abstract
Objective: To assess the clinical outcomes of osteochondroplasty, with or without labral repair, in cam and pincer impingements and other hip lesions using the Ganz safe dislocation technique.

Methodology: A retrospective study of 55 patients was conducted. Baseline characteristics, lesion types, and symptom duration were recorded. Pre- and post-operative outcomes were assessed using the Visual Analog Scale (VAS) for pain, Hip Outcome Score, and Modified Harris Hip Score (HSS). Post-operative complications and outcomes by lesion type were analyzed.

Results: The cohort included 63.6% males with a mean age of 27.89 years. The most common etiologies were traumatic lesions (34.5%) and Perthes Disease (25.5%). Post-operatively, VAS scores improved from 6.49 ± 0.98 to 2.85 ± 1.37, Hip Outcome Score from 33.49 ± 9.03 to 46.96 ± 13.38, and Modified HSS from 54.27 ± 9.28 to 73.05 ± 12.17 ($p < .0001$). Complications occurred in 11% of patients. Anatomical variations (DDH) showed the lowest VAS (1.50) and arthritis the highest (44.00), though differences were not statistically significant ($p > 0.05$). AVN had the best functional recovery (Hip Outcome: 45.38; Modified HSS: 47.25).

Conclusion: Osteochondroplasty using the Ganz safe dislocation technique significantly reduces pain and improves hip function across various lesion types, with low complication rates. Although functional outcomes varied by etiology, differences were not statistically significant, the procedure demonstrated overall effectiveness in joint preservation.

15:34 - 15:37

2099 Direct Anterior Vs. Postero-Lateral Approach In Robot-Assisted THA: A Comparison Of Perioperative And Functional Results

Devansh Goyal

Woodend Hospital, Aberdeen, United Kingdom

Abstract

Background

The Direct Anterior Approach (DAA) for Total Hip Arthroplasty (THA) has gained popularity, but comparative data on robot-assisted THA (RA-THA) via DAA versus the Postero-Lateral Approach (PLA) remain limited. This study evaluates perioperative outcomes, functional recovery, and selection biases in RA-THA performed via DAA or PLA.

Methods

A retrospective cohort study included 64 patients who underwent RA-THA (Mako, Stryker) by three fellowship-trained surgeons via DAA (n = 27) or PLA (n = 37), with a minimum one-year follow-up. Demographics (age, gender, BMI, smoking status, Charlson Comorbidity Index [CCI]) and perioperative data (blood loss, hospital stay, complications) were analyzed. Radiographic parameters (Neck Shaft Angle, Ilium-Ischial Ratio, Cortical Thickness Index) were assessed. Patient-reported outcomes (Oxford Hip Scores [OHS] and EQ-5D) were collected at 6 weeks and 1 year.

Results

No significant differences were found between groups in age ($p = 0.31$), BMI ($p = 0.13$), METS ($p = 0.35$), CCI ($p = 0.74$), or gender ($p = 0.17$). Radiographic parameters were similar, indicating no selection bias. DAA resulted in significantly lower blood loss (290.37 ml vs. 475.68 ml, $p < 0.01$) and shorter hospital stays (1.81 vs. 2.73 days, $p = 0.008$). In PLA, higher BMI correlated with greater blood loss and longer hospitalization, whereas no such correlation was seen in DAA. While OHS and EQ-5D scores were higher for DAA at 6 weeks and 1 year, differences were not statistically significant.

Conclusion

RA-THA using DAA led to significantly lower blood loss and shorter hospital stays, independent

15:11 - 15:14

2236 Updates Regarding Precision Surgical Treatment Options For Cam-Type Femoroacetabular Impingement: A Scoping Review

Ryan Mcwilliams, Vikas Khanduja

University of Cambridge, Cambridge, United Kingdom

Abstract
The aim of this scoping review is to define and assess the current precision surgical treatment options available for cam-type femoroacetabular impingement. A scoping review was conducted in accordance to guidelines from the 'Joanna Briggs Institute Evidence Synthesis Recommendations for Scoping Reviews' as well as the 'Preferred Reporting Items for Systematic Reviews and Meta-Analyses - Scoping Reviews Extension Checklist'. A systematic search using Medline (PubMed), Scopus, Embase and The Cochrane Library was performed from conception to date. A total of 395 articles were identified in the initial search of which 23 were included in the final review. Precision surgical treatment options that were identified included arthroscopic, navigated and robotic. Currently, navigation when compared to arthroscopy offers superior resection accuracies and improved post-operative range of motions, though at the cost of higher radiation exposure and longer setup times. Robotic technology is still in its infancy and therefore the number of trials regarding its usage is limited, however, it does hold the potential for greater resection accuracy and scalability.

15:50 - 15:53

2973 Automated Impaction In Primary Uncemented Total Hip Arthroplasty: A Systematic Review And Meta-Analysis

Eliseu Bandeira Senhorinho Junior[1], Shrey Sharma[1], Milos Brkljac[1], Kartik Logishetty[2]

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2. University College London Hospital, London, United Kingdom

Abstract
Background: Intraoperative periprosthetic femoral fracture (IPF) remains a concern in uncemented total hip arthroplasty (THA). While manual impaction offers tactile feedback, automated systems (e.g., KINCISE) provide consistent energy delivery, potentially reducing surgeon workload and avoiding fractures.

Objective: We reviewed the risk of IPF and differences in operating time between automated and manual impaction during primary uncemented THA.

Methods
We conducted a systematic review of peer-reviewed articles from the year 2000 onwards. Direct paired analysis of automated (302 hips, 2 fractures) versus manual (257 hips, 3 fractures) impaction was feasible in five studies for IPF and four studies for operative time. An additional single-arm analysis included all automatically impacted hips (n=5,599; 49 fractures) and manual hips (n=1,057; 8 fractures). A random-effects meta-analysis using the Knapp-Hartung method was performed for overall fracture incidence, calcar-specific fracture and operation duration.

Results
All but one study utilized cementless, hydroxyapatite-coated, collared, triple-tapered stems (DePuy Synthes Actis). One study included Corail (single-tapered) alongside Actis. Paired and single-arm analysis showed no statistically significant difference IPF rate or operation time. A higher proportion of calcar fractures were associated with automated impaction, however, it did not reach statistical significance.

Conclusion
From a practical standpoint, surgeons may consider automated impaction without heightened concern for increasing IPF risk or adding operative time if they value its potential benefits. Larger prospective cohorts would help determine whether automation truly alters fracture patterns or procedural efficiency.

Keywords: total hip arthroplasty, intraoperative fracture, automated impaction, manual impaction, KINCISE, cementless, systematic review, meta-analysis, operating time

15:40 - 15:43

2802 Trainee Vs Consultant Operated 'Same Day Discharge' Total Hip Arthroplasty: No Significant Difference In Complication Rates

Abdulaziz Mirdad, Ciara Doran, James Cashman

National Orthopaedic Hospital Cappagh, Dublin, Ireland

Abstract
Background:
Hands-on operative experience is a critical component of surgical training. However, concerns about increased complication rates often limit trainee involvement. Existing literature suggests that trainees performing total hip arthroplasty (THA) under supervision do not increase adverse outcomes. This study evaluates whether these findings apply to same-day discharge (SDD) THA.
Methods:
We retrospectively reviewed data from 243 patients who underwent SDD THA under a single consultant at one clinical site. The primary operator was either a consultant or a registrar. Key outcome measures included postoperative complications, discharge date, re-admission rates, operative time, and surgical indications.
Results:
Of the 243 patients, 170 were operated on by a consultant and 73 by a registrar. The average operative time for consultants was 45 minutes (range: 23–110), compared to 55 minutes (range: 40–80) for registrars. Eleven patients were not discharged on the same day, primarily due to wound ooze (5 cases, with 1 registrar-operated case). Five patients required re-admission, 3 due to dislocation, with only 1 operated on by a registrar. The most commonly used implants were the Actis femoral stem and Pinnacle cup (66%), followed by the Accolade stem and Trident/Tritanium cup (25%).
Conclusion:
Under direct supervision, trainees performing SDD THA do not increase complication rates. The average operative time was only 10 minutes longer for registrars compared to consultants. These findings support involving trainees in SDD THA procedures without compromising patient outcomes.

15:53 - 15:56

425 Comparing Posterior, Anterior, And Direct Superior Approaches In Total Hip Arthroplasty: A Network Meta-Analysis

Francisco Soler[1], Javier Hernández[1], José María Lamo-Espinosa[2], Gonzlo Mariscal[3]

1. Soler Trauma Clinic, Elche, Spain
2. IMED Valencia, Valencia, Spain
3. Valencia Catholic University, Valencia, Spain

Abstract
Introduction: There has been a growing interest in less invasive surgical techniques, due to their potential for faster recovery times and earlier mobilization for patients.
Purpose: The primary objective of this study was to compare the posterior approach, the direct anterior approach, and the direct superior approach in terms of efficacy and safety.
Methods: This meta-analysis followed the PRISMA guidelines and utilized the PICOS framework. An extensive search of the literature was performed across four databases. Odds ratios, mean differences, and standard mean differences with 95% confidence intervals (CIs) were calculated.
Results: Thirteen studies (n=972) were included. Posterior approach showed a significantly shorter surgery time (MD -11.92, 95% CI -18.48 to -5.36). The dislocation rate showed no significant differences globally (OR 0.98, 95% CI 0.31-3.07), similarly to the periprosthetic fracture rate, the deep vein thrombosis rate, the infection rate, and the reoperation rate. Regarding hip function, at 2-4 weeks follow-up, there were significant differences in favour of the the superior approach comparing with posterior approach (MD -4.39, 95% CI -5.60 to -3.19), but there were no significant differences in hip function at 12 months follow-up (SMD -0.10. 95% CI -0.31-0.12). In terms of pain, there were no significant differences at 2-4 weeks follow-up and at 12 months follow-up.
Conclusion: The results indicate a shorter surgery time with posterior approach and better functional results with the direct superior approach in the short term. No statistically significant differences between the posterior awere found regarding regarding complications, pain and functional results at long term.

15:08 - 15:11

1734 Arthroscopy For Femoroacetabular Impingement In Athletes Versus Non-Athletes: Systematic Review And Meta-Analysis

Madhan Jeyaraman

ACS Medical College and Hospital, Dr MGR Educational and Research Institute, Chennai, India

Abstract
Introduction: Hip arthroscopy has increasingly become the preferred surgical approach for managing FAI due to its ability to alleviate symptoms and improve function. This systematic review and meta-analysis compared arthroscopic management for FAI in athletes versus non-athletes. The outcomes of interest were patient-reported outcome measures (PROMs) and complications. Methods: PubMed, Web of Science, and Embase were accessed until October 2024. The studies eligible were clinical investigations comparing athletes and non-athletes undergoing hip arthroscopy for FAI with a minimum follow-up of 24 months. The outcomes assessed included VAS, HOS-ADL, and HOS-SSS. Data on reoperation rates and progression to total hip arthroplasty were also extracted. The ROBINS-I tool was used to assess the risk of bias, and meta-analyses were performed using Review Manager 5.3. Results: The analyses demonstrated no statistically significant differences in the PROMs (VAS: $p = 0.7$; HOSADL: $p = 0.5$; HOS-SSS: $p = 0.4$), reoperation rates ($p = 0.7$), or the rate of progression to arthroplasty ($p = 0.4$) between athletes and non-athletes. Furthermore, meta-analyses of two studies reinforced the absence of significant differences in VAS and HOS-SSS outcomes. Conclusion: Hip arthroscopy for FAI appears to yield equivalent improvements in pain and functional outcomes for both athletes and non-athletes, with comparable complication rates at an approximate two-year follow-up. Despite the limited number of studies and a moderate risk of bias, the findings support the effectiveness of arthroscopic intervention across varying physical activity levels.

Keywords: femoroacetabular impingement; hip; pain; sports; athletes

15:37 - 15:40

2642 Total Hip Arthroplasty Rehabilitation Through A Mobile Application: A Retrospective Observational Study

Jesus Moreta[1], Joaquin Zambrano-Martin[2,3,4], Antonia Gomez-Conesa[4], Roberto Méndez-Sánchez[5], Miguel Mendoza-Puente[6]

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2. Fundación San Juan de Dios, Madrid, Spain
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4. Universidad de Murcia, Murcia, Spain
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Abstract
Introduction: Postoperative rehabilitation following total hip arthroplasty is crucial for optimizing functional recovery and quality of life. This study compares the use of a mobile app providing functional recovery exercises and pain management education with a in-person physical therapy rehabilitation program in patients undergoing total hip arthroplasty.

Methods: A retrospective study was conducted with two cohorts matched using Propensity Score Matching. The App group (n=47) used a mobile app for postoperative follow-up, while the control group (n=47) received conventional follow-up. Functional variables (Harris Hip Score [HHS], Merle d'Aubigné [MDP], WOMAC), pain intensity (Visual Analog Scale [VAS]), and patient satisfaction (VAS and Likert-type scale) were evaluated at three time points: preoperative, one month, and three months post-intervention.

Results: Both groups showed significant improvements in all measurements compared to preoperative values. However, the group followed using the mobile app showed significant improvements compared to the control group in the following outcome measures: HHS at three months ($p = 0.02$), MDP in mobility ($p = 0.02$) and walking ability ($p < 0.0001$) at three months, difference in VAS pain scores, both at one month ($p = 0.004$) and three months ($p = 0.01$). No significant differences were found in satisfaction levels between the groups.

Conclusions: Mobile app-based follow-up significantly improved postoperative recovery, especially in physical function and pain. However, there were no significant differences in satisfaction levels between the two groups. These digital health interventions could optimize postoperative rehabilitation for hip arthroplasty.

Keywords: Total hip Arthroplasty. Mobile Applications. Postoperative Care

15:02 - 15:05

2023 Labral Tears In Adolescence: Is There Always A Structural Cause?

Stuart Ferrell, Samuel Ramirez, Scott Rosenfeld, Andrew Sher, Pritish Bawa, J. Herman Kan, **Basel Touban**

Texas Children's Hospital, Houston, United States

Abstract
Introduction

Labral tears are commonly thought to be caused by a deformity such as femoroacetabular impingement or hip dysplasia. If MRI shows a tear without deformity, it may not be considered a true tear, warranting evaluation for other causes of hip pain.

Purpose

To compare the incidence of surgically confirmed labral tears in patients with anatomically normal hips compared to hips with coexisting CAM deformity or hip dysplasia.

Methods

A single-center retrospective study assessed hip pain patients from Jan 2012 to Sept 2024. Data collection was based on chart review and imaging consensus of hip MRI conducted by two musculoskeletal radiologists and a pediatric orthopedic surgeon. Data included the presence of CAM deformity, hip dysplasia (LCEA<18 degrees), and labral tear. Statistics were done with SPSS version 29 at a significance level of <0.05.

Results

There were 107 hip pain patients (mean age 15.3 years, 66% female). 80 hips had a CAM deformity, hip dysplasia, or both (abnormal hips). 38 hips had no CAM deformity or hip dysplasia (normal hips). Among 81 hips surgically treated, 27 were normal hips, and 54 were abnormal. Of the 60 patients that had both surgical treatment and a positive MRI for labral tear, 18 (90%) normal hips and 33 (82.5%) abnormal hips had surgically confirmed labral tears. There was no statistically significant difference between the groups (p=0.704).

Conclusion

Labral tears may occur in adolescent hip pain patients whether or not there is an associated structural abnormality.

Keywords: Labral Tear, CAM Deformity,

Thursday, 4 September

Knee 5
14:48 - 14:51

1656 Long-Term Survival And Functional Outcomes Of A Personalized Primary Total Knee Arthroplasty: A 10-Year Follow-Up

Daniel Horcajo Sanz, María Del Mar Otero Pérez, Álvaro Ruiz-Andreu Ortega, Javier Martínez Martín, Ariadna Casado Castillo

Hospital Universitario Fundación Alcorcón, Madrid, Spain

Abstract
Objective: To assess the 10-year outcomes of Persona® total knee arthroplasty (TKA), focusing on complications, survival, and revision rates due to loosening, as well as functionality and patient satisfaction.
Materials and Methods: A retrospective study was conducted on 155 cemented Persona® TKA performed between 2013–2015. An independent team reviewed medical records and radiographs. Functional outcomes (Oxford Knee Score [OKS], Forgotten Joint Score [FJS]) and satisfaction surveys were collected 10 years post-surgery. Kaplan-Meier and competing risk analyses were performed. Surgeries used posterior-stabilized polyethylene inserts, with patellar resurfacing in two cases. Patients had a mean age of 72 years, 69% were women, and the mean BMI was 31.8. More than 80% were ASA II, and 90% had no prior knee surgeries. Minimum follow-up was 10 years, except for 19 patients who died before the target date. 8 patients were lost to follow up.
Results: The 10-year survival was 95.9% for any revision and 98.7% for aseptic loosening. Five revisions occurred: two for infection, two for aseptic loosening, and one for arthrofibrosis. Functional scores were 94.81/100 (OKS), 88.81/100 (FJS), and satisfaction was 98.83/100.
Conclusions: To our knowledge, this is the first 10-year follow-up study on the Persona® implant. It demonstrates excellent survival and functional outcomes, with no increased osteolysis or tibial loosening risk, comparable to other knee prostheses.
Keywords: TOTAL KNEE ARTHROPLASTY; SURVIVAL RATE; REVISION; FUNCTIONAL OUTCOMES; PATIENT SATISFACTION

15:41 - 15:44

1919 Hinged Knee Arthroplasty: Outcome Evaluation In Our Institution

José Miguel Rodrigues, Tiago Barbosa, César Correia, André Moreira, João Pereira, Joana Azevedo, David Ferreira, Ana Vilela, Pedro Domingues, Pedro Varanda, Pedro Pinho

Hospital de Braga, Braga, Portugal

Abstract
Introduction
Total knee arthroplasty with hinged prostheses is a viable option for patients with severe instability and significant bone loss. This retrospective observational study analyzed cases performed at Hospital de Braga between 2014 and 2024. The study included 15 patients (mean age: 76.2 years), 86.7% of whom were female. The primary surgical indications were joint stiffness (33.3%), periprosthetic infection (26.7%), and instability (26.7%).
Case report
Range of motion (ROM) progressively improved from 68.7º preoperatively to 91.7º at 12 months. The mean hospital stay was 15.3 days. Functional outcomes also improved, with the Oxford Knee Score (OKS) increasing from 23.5 preoperatively to 37.2 postoperatively. Complications occurred in 20% of patients, including periprosthetic reinfection (6.7%), patellar necrosis with tendon rupture (6.7%), and refractory postoperative stiffness (6.7%).
Conclusion
These findings suggest that hinged prostheses provide effective knee stabilization and functional improvement within the first year of follow-up, with a manageable complication rate. However, the severity of some adverse events underscores the need for rigorous follow-up and strategies to prevent infections and mechanical complications. Future studies with a larger sample size and longer follow-up will be essential to validate these findings.
Key Words: revision knee arthroplasty, knee arthroplasty, rotating hinge, total knee, complications

15:01 - 15:04

2176 Functional Results And Survival Of Total Knee Prostheses After Tibial Valgization Osteotomies

Ahmed Adel Bezzaouia, Mehdi Meddeb, Yousri Abcha, Safouene Ben Brahim, Khalil Habboubi, Mondher Mestiri

Kassab Institute of Orthopedics, Tunis, Tunisia

Abstract
Issue: Tibial valgus osteotomy (TVO) offers satisfactory results, but may be exhausted by the progression of osteoarthritis. Thus, subsequent revision with total knee arthroplasty may be necessary.

Aim of the study: The aim of this study was to answer the following question: Does TVO compromise the results or survival of a subsequent total knee replacement (TKR)?

Materials and methods: This were a retrospective and comparative study on patients operated on over an 11-year period (2008-2018) with a minimum follow-up of 60 months. We collected epidemiological, clinical and radiological data preoperatively, postoperatively and at final follow-up.

Results:
The two groups were similar in terms of preoperative epidemiological and clinical characteristics.
As regards surgery, the operating time was longer for the TVO-TKRs, with statistically higher recourse to ligament release and two cases requiring anterior tibial tuberosity osteotomy.
After a mean follow-up of 83 months, there were no statistically significant disparities in subjective patient assessments, joint range, functional scores or prevalence of complications between the two groups. The overall IKS score was 170.5/200 for TVO-TKR, with a gain of 82.9 points, and 175.2/200 for TKR1, with a gain of 84.6 points, with no significant difference.
Ten-year survival was 91.6% for the TKR after TVO and 91.9% for TKR1s, with no significant difference.

Conclusion: Total knee replacement after tibial valgization osteotomy gives the same results as primary arthroplasty.

15:04 - 15:07

2191 Stiff Knees. Is A Hinged Total Knee Replacement A Good Decision?

Lyes Ait El Hadj, Ayoub Touati, Hadia Haouari

EHS Benaknoun, Algiers, Algeria

Abstract
Implanting a total knee replacement on a stiff knee poses technical challenges . The goal of arthroplasty is to achieve as complete a correction as possible of the flexion contracture and to achieve a pain-free, stable, and mobile knee. Specific technical procedures, to be performed in a specific order, may be necessary once the flexion contracture reaches approximately ten degrees. The problem in these cases: Does total arthroplasty provide increased mobility in knees made stiff by osteoarthritis, inflammatory arthritis, hemophilia, or the after-effects of trauma? Over the past 10 years, our department has treated 32 patients, or 43 prostheses (28 men, 4 women), with knee stiffness or ankylosis. 18 cases of hemophilic arthropathy, 7 cases of arthrodesis, 4 cases of stiffening due to osteoarthritis, and 3 cases of post-arthritis. All our patients had a preoperative Cleveland score below 65 points and an IKS score below 50 points. Types of prostheses implanted: 22 primary prostheses, 4 CCk-type constrained prostheses, and 16 hinge prostheses.
An average mobility gain of approximately 32 degrees was achieved, with a significant reduction in flexion contracture. The results on pain in hemophiliacs were spectacular, giving us a 90% satisfaction rate at the final follow-up. Complications are particularly high; we experienced three postoperative hemarthroses,probably due to pressure ulcers.In the pivotal series, three major complications, such as sepsis, required two additional arthrodesis procedures and one amputation.prosthesis in these cases poses immense challenges; the difficulty in obtaining good exposure and achieving good ligament balance as well as the correction of flexion

15:17 - 15:20

2756 A Retrospective Analysis Of NexGen Stemmed Option Tibial Component Failures: Insights From A Single-Centre Experience

Sheng-Chieh Lo, Suraj Kohli, Nicholas Hancock, Simon Tilley

University Hospital Southampton, Southampton, United Kingdom

Abstract
In 2022, Zimmer Biomet issued a voluntary recall of the NexGen Stemmed Option Tibial component, as part of the NexGen Complete Knee system. Evidence from the National Joint Registry (NJR) identified the implant as having unacceptably higher rates of revision compared to other contemporary systems. Previous studies have demonstrated increased revision rates via tibial de-bonding and aseptic loosening.
Aims
In this study, we aim to calculate overall revision rates and mean time to revision, as well as identify possible causes and risk factors for revision.
Methods
Single-centre, retrospective analysis of all primary procedures involving the NexGen Legacy Posterior Stabilized (LPS) Flex Option or LPS Flex Gender Solutions (GSF) Option implant. Failure was defined as the first incidence of revision in affected cases.
Results
Between 2007-2017, 1297 primary NexGen TKAs were performed on 1179 patients. A total of 71 TKAs have been revised to date with an all-purpose revision rate of 5.5% and mean follow up of 10.7 ± 2 years. 58 revisions were performed due to aseptic loosening. The revision rates were 0.39%, 2.24% and 3.39% at one year, three years and five years respectively. These figures are substantially higher than those reported in the 20th Annual NJR report.
Conclusion
Overall, the Nexgen LPS options and GSF tibia implant demonstrates significantly higher rates of revision than those quoted in the NJR. Revisions due to aseptic loosening are multifactorial but evidence suggests that there may be an inherent manufacturing issue with the NexGen implant.

15:26 - 15:29

2923 Restoration And Mild Deviations Of CPAK Improves Mid-Term Functional Outcomes In Conventional Kinematic Alignment Total Knee Arthroplasty

Yong Ng[1], Jeremy Tze En Lim[2], Audrey Xinyun Han[2], Eric Xuan Liu[2], Seng Jin Yeo[2], Darren Keng Jin Tay[2], Hee Nee Pang[2], Ren Yi Kow[3], Ming Han Lincoln Liow[2]

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3. International Islamic University Malaysia, Kuala Lumpur, Malaysia

Abstract

Background

Kinematic alignment (KA) in total knee arthroplasty (TKA) aims to restore a patient's native knee anatomy. The Coronal Plane Alignment of the Knee (CPAK) classification enables standardised assessment of coronal alignment, but the impact of CPAK changes after conventional KA-TKA remains unclear.

Objective

To evaluate how CPAK change influences early postoperative and mid-term outcomes in patients undergoing conventional KA-TKA.

Methods

We retrospectively analysed 192 conventional KA-TKAs. Postoperative CPAK was categorised as: (1) CPAK restoration (unchanged phenotype); (2) minor deviation (horizontal row shift due to arithmetic hip-knee-ankle [HKA] shift within ±4° without joint line obliquity [JLO] change); or (3) JLO-driven CPAK change (vertical column shift with >3° deviation from the 180° JLO axis). Non-favourable CPAK changes (n=4, 2.08%) were excluded. Outcomes included day 1 pain, range of motion (ROM), ambulation, and six-month scores from the Knee-Related Symptoms Functional Index (KRSFX), Knee Index (KRSKNEE), Oxford Knee Score (OKS), and SF-36 Physical Function (SF36PF).

Results

Patients with JLO-driven CPAK changes (15.1%) were associated with significantly (<0.05) poorer six-month scores in KRSFX (67.6 vs 77.2 vs 78.4), KRSKNEE (84.6 vs 88.9 vs 90.3), OKS (20.3 vs 18.5 vs 18.2), and SF36PF (68.8 vs 75.7 vs 79.8) compared to patients with CPAK restoration (52.6%) and minor deviations (30.2%) respectively.

Conclusion

Restoration or mild deviations in CPAK following conventional KA-TKA led to superior mid-term functional outcomes, while JLO-driven changes should be avoided. Further research should identify which preoperative deformities can achieve CPAK and JLO restoration with KA-TKA.

Keywords: Kinematic Alignment, CPAK, Conventional

15:50 - 15:53

3001 HTO Is A Viable Alternative To Joint Replacement In Medial Compartment Osteoarthritis Of Knee In Low Income Asian Population

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Sanjay Orthopaedic Spine and Maternity Centre, Dehradun, India

Abstract
Introduction: Osteoarthritis is age related degenerative arthritis due to wear and tear phenomenon. Knee joint arthritis usually presents as a medial compartment involvement. The author is presenting a study of medial open wedge high tibial osteotomy. Material and Methods: 113 patients of osteoarthritis of knee joint were treated with open wedge high tibial osteotomy from April 2005 to Decemeber 2017. There were 28 male and 85 female. 33 patients had both side osteotomy. Their age ranged from 46 to 89 years (average 57.5 years). All patients presented with features of OA along with varying degree (6 to 19º) of varus deformity. Deformities were corrected with medial open wedge osteotomy. Appropriate size of iliac graft was placed at osteotomy site. The osteotomy was fixed with tibial head buttress plate in 9º valgus. The patient was mobilized with progressive weight wearing form next postoperative day. Results: Arthritic pain disappeared just after surgery. All except 2 patients regained the preoperative range of motion. All osteotomies healed. Five patients developed infection. Plate had to be removed in two patients. 90% patients were satisfied with the procedure. Poor results were seen in joints with associated ligaments laxity, under correction, post-op loss of correction and infection Discussion: Medial open wedge high tibial osteotomy is technically a simple procedure, financially a significantly cheaper option and a viable option as compared to replacement surgery as viable alternative to TKR in selected cases of OA, particularly in Asian countries where squatting and cross legged knee activities are required.

15:23 - 15:26

3127 A Sore Point. Previously Unrecognised Medial Proximal Tibial Tenderness In Knee Osteoarthritis Patients Is A New Relevant Clinical Sign. Implications For Clinical Assessment And Outcomes. Highlights Deficiencies In Basic Examination Findings With Implications For Diagnostic Algorithms.

Sunny Deo, Bhavisha Patel, Thisari Piyarisi

Great Western Hospital NHSFT, Swindon, United Kingdom

Abstract
Background: There is variation in positive clinical signs of patients with severe knee osteoarthritis (KOA). Patients may have no tenderness at or overlying affected arthritic joint lines and other signs such as deformity, stiffness and instability may occur only in end-stage disease.
Methods: This observational study looked at the incidence of medial proximal tibial tenderness (MPTT) in a consecutive cohort of over 55-year-old patients, referred to our institution where a Standardised Knee Assessment Proforma was used. Aims were to define incidence, demographic and pathology differences between patients with and without MPTT.
Results: Of 172 patients with complete data available for this analysis, MPTT was present in 76% of cases (131 patients). The 2 groups demonstrated near identical age (median 70), sex distribution, 60% female and median Body Mass Index (BMI) of 31, with subtle differences of higher mean BMI and lower, worse, Oxford Knee Scores (OKS) in the MPTT group. There were no differences between the 2 groups in terms of arthritis severity. Slightly more patients with MPTT (40%) had varus than those with no MPTT (34%) and the proportion going straight onto a waiting list for surgery was higher in the MPTT group (47% compared with 39%)
Key findings / Conclusions:
There is a high incidence of MPTT, even with non-medial OA.
The MPTT group displayed worse knee scores for equivalent osteoarthritis severity.
MPTT is a previously unrecognised physical sign which may have implications for pre- and post-operative assessment where tenderness may be mistaken for an implant-related problem.

15:29 - 15:32

784 The DAIR (Debridement, Antibiotics And Implant Retention) Procedure For Infected Total Knee Arthroplasty.

Amjad Hossain, Muhammad Tanvir Hasan, Md Nasimul Islam

Labaid Hospita Ltd., Dhaka, Bangladesh

Abstract
Abstract
PJI is a serious complication where the artificial knee joint becomes infected after surgery, causing significant pain, swelling, and potentially joint instability, often requiring extensive surgical revision to remove the infected implant and manage the infection; this is considered one of the most detrimental complications of knee replacement surgery, with significant impact on a patient's quality of life and posing a substantial challenge for healthcare providers due to its complex management. Treatment options include non-operative measures with long term antibiotic suppression, debridement and implant retention (DAIR), one- or two-stage revision arthroplasty, arthrodesis and amputation. Implant retention without infection is ideal and DAIR has been reported to have variable success rates depending on patient factors, duration of infection, infecting micro-organisms, choice of procedure, single or multiple debridement procedures, arthroscopic or open, antibiotic choice and duration of antibiotic use. The important factors contributing to failure are the presence of sinus, an immunocompromised patient, delay between onset of infection and debridement procedure, Staphylococcal infection in particular, Resistant Staphylococcus aureus, multiple debridement procedures, retention of exchangeable components, and short antibiotic duration. In conclusion, DAIR can be a successful procedure to eradicate infection in TKA in selective patients with factors contributing to failure taken into account.
Keywords: Debridement and implant retention, DAIR, Infected total knee arthroplasty, Prosthetic joint infection

14:39 - 14:41

869 Simultaneous High Tibial Osteotomy And Total Knee Arthroplasty On Contralateral Knees: A Postoperative Comparison

Kao-Shang Shih

Shin Kong Wu Ho-Su Memorial Hospital, Taipei, Taiwan

Abstract
Background:
For younger patients with bilateral knee osteoarthritis (OA) at different disease stages, selecting between High Tibial Osteotomy (HTO) and Total Knee Arthroplasty (TKA) presents a challenge. This study evaluates the postoperative outcomes of concomitant contralateral HTO and TKA, focusing on functional recovery and rehabilitation.

Methods:
A retrospective review was conducted on patients who underwent simultaneous contralateral HTO and TKA. Clinical outcomes were assessed using Knee Society Scores (KSS), range of motion (ROM), rehabilitation progress, and complications. The role of autologous bone grafting from TKA for open-wedge HTO and weight-bearing protocols was analyzed.

Results:
The HTO side showed short-term weakness but recovered within three months. Immediate weight-bearing on the TKA side facilitated HTO rehabilitation. Adequate autologous bone grafting ensured no cases of non-union or delayed union. The HTO side demonstrated superior ROM and proprioception compared to the TKA side, enhancing functional outcomes, particularly for activities such as squatting.

Conclusion:
Concomitant contralateral HTO and TKA is a viable approach for managing bilateral knee OA at different stages. This strategy optimizes rehabilitation, preserves proprioception, and enhances postoperative function. Proper patient selection and precise surgical execution are key to achieving favorable outcomes.

15:37 - 15:40

1916 Precision Of Robotic Arm Assisted Total Knee Arthroplasty: Are We Hitting The Target?

Parichay Sharma, Ashish Phadnis, Sagar Bansal, Neharika Tandon, Manish Baviskar, Praveen Vishwakarma, Prathamesh Sangare, Meet Siroya, Shubham Tiwari, Arzoo Sareen, Keertana Vaidyanathan, Shubham Jadhav

Jupiter Hospital, Thane, India

Abstract
Introduction: Robotic systems provide intraoperative guidance and real-time feedback to the surgeon, potentially improving the precision of implant positioning and achieving the planned alignment according to the surgeon's chosen alignment philosophy. The interplay of component positioning and alignment philosophy contributes to the overall outcome of the patient.

Aims & Objectives: The study aimed to investigate whether the planned alignment is consistent with the achieved alignment intraoperatively in Robotic-Assisted Total Knee Arthroplasty.

Methods: This study is an analysis of patients who underwent Robotic-assisted Total Knee Arthroplasty using the CORI Surgical System (S&N) at a tertiary care centre between 2022 and 2025.
Inclusion criteria: Patients with OA knee, who underwent primary robotic-assisted TKA. Uni- or bilateral cases were included.
Exclusion criteria: Revision TKA
Data collection: The planned alignment and the achieved alignment, as measured by the CORI Surgical System, was recorded for each patient.
Statistical analysis: The Paired t-test was done on the data collected and statistical significance was determined (p-value <0.05 was considered statistically significant).

Results: A total of 206 knees were evaluated.
P-value and statistical significance: The two-tailed P value equaled 0.6382. By conventional criteria, this difference is considered to be not statistically significant.

Conclusion: In conclusion, CORI can help reliably achieve the surgeon's intended alignment, potentially offering improved accuracy and precision compared to conventional manual TKA techniques irrespective of the surgeons learning curve, and experience.

15:47 - 15:50

3035 Short Term Outcome Of Revision Knee Replacement For Remotely Located Patients

Rajkumar Thangaraj, Aimen Abuquba, Hushil Sandhu, Sam Singh, Nachappasivanesan Uthraraj

NHS Highland, Inverness, United Kingdom

Abstract
Complex primary and revision total knee arthroplasty (TKA) are challenging procedures requiring expertise and special resources especially for AORI 2 and 3. We analysed the demographic and geographic data with primary and secondary outcomes for patients who underwent complex primary and revision TKA in the Scottish Highlands where patients are located remotely.
We included 53 patients in this study over a period of 2 years. The data was retrospectively collected from patient records. Data on patient location (distance from the hospital), demographics, average waiting time for surgery, ASA grade, BMI, AORI classification was collected and analysed. Outcomes measured were average length of stay; complications of instability, deep infection and need of further surgery, improvement in the range of motion post-surgery (ROM) and patient reported outcome scores.
Results: A total of 53 patients were included in our cohort study with the median age group of (72+/-12.5 years). Patients in this cohort presented predominantly with AORI type 2b and type 3 with instability and loosening of components. At 2 year follow up none of the patients underwent revision surgery. No deep infection was noted. No patients had instability.
Conclusion: This is a unique study that studies the outcomes of complex primary and revision total knee arthroplasty in the unique setting of the Scottish Highlands for remotely located patients. Our study shows the safety of performing these complex procedures for remotely located patients.

15:10 - 15:13

2458 Three Degrees Of Implantation Error Can Be Expected In All Three Planes When Performing Kinematic Alignment

George Mihai Avram, Randa Elsheikh, Michael Tobias Hirschmann

Kantonsspital Baselland, Bruderholz, Switzerland

Abstract
Introduction: Kinematic alignment is a modern technique that resurfaces the knee joint, considering cartilage and bone loss. No studies currently examine the 3D real-world accuracy of implantation and postoperative knee phenotype reconstruction.
Objective: The primary objective is to conduct a pre- and postoperative 3D phenotype analysis. Secondary objectives include: 1) determining the measurement error rate, and 2) reporting the reconstruction error rate for each surgical plane using kinematic alignment.
Study Design: Retrospective, paired cohort design.
Methods: Pre- and postoperative CT scans were conducted following the Berger protocol. Patients were included if they had a preoperative OA diagnosis and underwent primary total knee arthroplasty using kinematic alignment principles. Exclusion criteria included prior knee osteotomy, post-traumatic OA, or coronal plane deformities >15° HKA. After applying these criteria, 60 patients were included. The analyzed variables were: 1) Femoral mechanical angle (FMA), 2) Tibial mechanical angle (TMA), 3) Hip-knee-ankle angle (HKA), and 4) Femoral internal/external rotation (F IR/ER). Measurements were taken twice to calculate the mean error rate.
Results: The measurement error rates were 0.72°±1.02° for FMA, 0.86°±1.22° for TMA, and 0.97°±1.37° for HKA. Postoperative implantation error exceeded the measurement error rate, with 0.97°±3.44° for FMA, 1.51°±2.14° for TMA, and 2.21°±3.13° for HKA. Functional knee phenotype analysis was conducted to investigate the phenotype-based error distribution.
Conclusions: Kinematic alignment achieves 3D implantation accuracies of ≤2°. However, due to its focus on joint line resurfacing, cartilage and bone defects significantly impact accuracy, resulting in ≤3° implantation error for FMA, 3° for TMA, and ≤5° for HKA.
Keywords: TKA, Kinematic Alignment, Accuracy.

15:44 - 15:47

2651 Fixed Flexion Deformity During Total Knee Arthroplasty. Complete Intra Operative Correction Is A Must?

Mahmoud Abdo Garad

Zagazig University hospitals, Zagazig, Egypt

Abstract
Abstract
Background: Fixed flexion deformity is among the most challenging problems during total knee arthroplasty (TKA).the complete intra operative correction still a controversy and challenging in longstanding sever cases.
AIM: We aimed to represent integrated algorithmic approach for correction of FFD during TKA whether it is pure or complex deformity aiming to full correction without compromising the joint stability.
Methods: this prospective study involving 90 patients with 120 knees who underwent primary total knee replacement due to arthritic knee with fixed flexion deformities, in the period between 2017 and 2024.
Results:
The group of patients included 18 male (20 %) and 72 females (80%). 40 patients (44.4%) had the right knee replaced, 20 patients (22.2%) had the left one, while 30 patients (33.3%) had bilateral total knee replacement. 78 patients (86.7%) with osteoarthritis while 12 patients (13.3%) with rheumatoid arthritis .15 knees had mild flexion deformity (less than 15°) while 19 knees had moderate flexion deformity (15° - 300
) and 26 knees with
sever FFD >300
There was a high statistical significant improvement of FD post-operative, 100% of Patients with FD from 0-15 and deformity >15-30 degree were fully corrected; however, sex knees out of 52 achieved full extension with pre-operative FD more than 30. So, we concluded that 114/120 knees achieved full extension
Conclusion: Flexion deformities are eventually improved after TKA.
Flexion deformity is dealt with in a sequential fashion depending on their severity. Full correction of a flexion contracture must be achieved Intra operative.

15:07 - 15:10

2463 Distal And Posterior Femoral Offsets Could Approximate A Single Radius Geometric Unit With A Compromised Anterior Compartment

Randa Elsheikh[1], George Mihai Avram[1], Felix Amsler[1], Lukas B. Moser[1], Silvan Hess[1], Vincent Leclercq[2], Michael T. Hirschmann[1]

1. Kantonsspital Baselland, Bruderholz, Switzerland
2. Symbios, Yverdon Les Bains, Switzerland

Abstract

Purpose: The anatomical variability of distal femoral anatomy and the relationship between femoral condylar offsets have been insufficiently studied. Off-the-shelf (OTS) designs are limited in size and assume fixed offset relationships. This study aimed to describe distal femoral dimensions in a young non-OA population and identify geometric patterns among the femoral offsets.
Methods: CT scans of 265 knees were retrospectively analyzed. The following offsets were measured from the transepicondylar axis (TEA): anterior central offset (ACO), anterior lateral offset (ALO), anterior medial offset (AMO), distal medial femoral offset (DMFO), distal lateral femoral offset (DLFO), posterior medial femoral offset (PMFO), and posterior lateral femoral offset (PLFO). Correlations and ratios of symmetry were calculated, and correlation analysis was performed to determine possible morphological links.
Results: There was high individual variability in anterior offsets (Cohen's d = 1.12–2.33) and a strong correlation between anterior femoral components (r = 0.81–0.85). Significant mean differences were observed between ALO and PLO (16.5 ± 3.2 mm), while other measurements approached zero. Geometric consistency was seen in the distal and posterior compartments (PLO/DLO, PMO/DMO, PMO/PLO, DMO/DLO). Positive correlations were found between PMO/PLO, DMO/DLO, and DMO/PMO. Gender differences were significant across all measurements, with effect sizes ranging from 0.18 to 1.54 standard deviations.
Conclusion: There is considerable anatomical variability in knee offsets, particularly in the anterior compartment. Understanding this variability is essential for improving personalized knee implant design.
Keyowords: femoral offsets; knee anthropometry; total knee arthroplasty; implant design

14:45 - 14:48

1570 Mid Term Functional Outcome Among Asian Population Using Advanced Medial Pivot (AMP) Knee: An Experience In Single Centre On 500 Patients

SHARVEEN Ganapathy[1], SUDHAGAR Krishinan[1], SASIDARAN Ramalingam[2], SAREEMINI Sarawana Kumar[1], ANANTHAPRIYAN Thirugnanam[1]

1. HOSPITAL KULIM, Kulim, Malaysia
2. HOSPITAL SEREMBAN, Seremban, Malaysia

Abstract

Background

In many Asian cultures, activities such as praying, squatting, and sitting on the floor are integral to daily life. These activities require a greater range of motion (ROM) and knee stability than what is typically required in Western populations. This study investigates the mid-term functional outcomes of the Advanced Medial Pivot (AMP) knee system and its ability to meet these cultural demands in Asian population.

Objectives

The primary objectives include analyzing functional outcomes using the Forgotten Joint Score for Knee (FJS), evaluating the mid-term follow-up results based on the return to functional activities over an average of 5 years, assessing the restoration of knee kinematic function with the AMP design, measuring the average range of motion achieved, and determining patient satisfaction levels following the procedure.

Study Design & Methods

A retrospective review was conducted of 500 patients who underwent TKR using the AMP knee system at Hospital Kulim between 2016 and 2024. Demographic data (gender, BMI, race, and diagnosis) were collected. Functional outcomes were measured using the validated FJS questionnaire.

Results

Preliminary findings demonstrated good to excellent outocome in FJS scores . The majority of patients reported high levels of satisfaction, indicating the AMP knee's effectiveness in fulfilling the cultural needs of the Asian population.

Conclusions

The Advanced Medial Pivot knee system appears to offer promising functional outcomes and high patient satisfaction in the Asian population undergoing TKR. These findings suggest that the AMP knee may effectively address the specific cultural demands of this demographic, potentially reducing the percentage of dissatisfied patients post-surgery.

14:54 - 14:57

1998 Coronal Plane Alignment Of The Knee (CPAK) – Epidemiological Evaluation And Functional Assessment Following Total Knee Arthroplasty (TKA)

Apoorva Praveen Kabra[1], Vijay Kumar[2], Vivek Shankar[1]

1. All India Institute of Medical Sciences, New Delhi, India
2. New Delhi, New Delhi, India

Abstract

Background

Total Knee Arthroplasty (TKA) is a widely adopted treatment for advanced knee osteoarthritis, with coronal alignment playing a crucial role in patient satisfaction. The Coronal Plane Alignment of the Knee (CPAK) classification categorizes knee alignment into nine phenotypes and guides surgical strategies. However, knee alignment varies by ethnicity, and CPAK's impact on post-TKA outcomes in the Indian population remains unexplored.

Objectives

Analyze CPAK distribution in healthy and osteoarthritic Indian knees.
Assess post-TKA CPAK changes and their correlation with patient satisfaction.

Methods

This retrospective study reviewed radiological and clinical data from patients treated at AIIMS, New Delhi (2017–2024). CPAK classification was applied to 1000 non-operated limbs and 50 post-TKA patients with ≥1-year follow-up. Satisfaction (yes/no) was assessed based on CPAK restoration.

Results

CPAK Type I was most common in healthy (42%) and osteoarthritic (58%) knees, followed by Types II and III. Post-TKA, CPAK alignment was preserved in 60% of cases. Satisfaction was similar in those with preserved (92%) and altered (88%) alignment, but preserved alignment correlated with better short-term recovery. Kinematic alignment replicated native CPAK types more effectively (82%) than mechanical alignment (64%).

Conclusions

Indian knees predominantly exhibit constitutional varus (CPAK Type I), differing from Western populations. While long-term satisfaction was unaffected, preserving native alignment improved short-term recovery. Kinematic alignment better replicates CPAK, reducing soft tissue disruption and offering a personalized approach to TKA in varus-aligned populations.

14:33 - 14:36

2229 Comparing The Safety And Effectiveness Of Kinematic And Mechanical Alignment In Total Knee Arthroplasty: A Systematic Review And Meta-Analysis

Nandor Nemes[1,2], Andras Posta[2], Nina Galdzytska[2], Laszlo Bucsi[2,1], Akos Zahar[1,2]

1. Saint George University Teaching Hospital of Fejer County, Szekesfehervar, Hungary
2. Centre for Translational Medicine, Semmelweis University, Budapest, Hungary

Abstract

Introduction

There is still no consensus on whether there is a difference in functional outcomes and patient satisfaction in primary total knee arthroplasty performed with kinematic alignment (KA) or mechanical alignment (MA).

Aim

This study aims to conduct a comprehensive systematic review and meta-analysis of the available randomised controlled trials (RCTs).

Methods

A systematic search was conducted in PubMed, Embase, Cochrane Central. We included RCTs published before 20.11.2024. Outcome measures included the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), Oxford Knee Score (OKS), Forgotten Joint Score (FJS), knee flexion, and rates of reoperation and complications. When enough data was available, subgroup analyses were performed to evaluate differences between restricted and unrestricted KA techniques. Risk of Bias-2 tool was used.

Results

18 full-texts of 13 RCTs from 9 countries, including 1,055 patients with a mean age of 68 years (range: 36–89), were included. The 2-year postoperative results were as follows. OKS: No significant difference (MD = 0.58 [95% CI: -1.08 to 2.25; $p = 0.42$]). FJS: Significant difference in favour of KA (MD = 3.61 [95% CI: 1.63 to 5.59, $p < 0.05$]). Flexion: Significant increase with unrestricted KA (MD = 6.66 [95% CI: 0.09 to 13.22, $p < 0.05$]), while restricted KA showed no significant difference (MD = 4.98 [95% CI: -1.19 to 11.15]).

Conclusion

Although KA results in better outcomes in certain functional measures, its clinical significance remains debatable. Further standardised, large-scale RCTs are needed to compare clinical outcomes while considering differences among KA subtypes.

14:51 - 14:54

3131 GLP-1 Receptor Agonists And Postoperative Outcomes In Joint Arthroplasty: A Meta Analysis And Systematic Review

Omar Mustafa Odeh Odeh, Borna Guevel, Khaled M Sarraf

Imperial College Healthcare NHS Trust, London, United Kingdom

Abstract
Introduction:

Glucagon-Like Peptide-1 (GLP-1) receptor agonists are increasingly used to manage obesity and type 2 diabetes, both common comorbidities among patients undergoing joint arthroplasty. Their anti-inflammatory, metabolic, and cardiovascular effects may influence surgical recovery and postoperative complication rates.

Aims & Objectives:

This systematic review and meta-analysis aimed to evaluate the impact of preoperative GLP-1 receptor agonist use on postoperative outcomes in patients undergoing primary total hip or knee arthroplasty.

Study Design & Methods:

Following PRISMA guidelines and registered under PROSPERO (CRD420251022637), a comprehensive literature search was conducted across PubMed, Embase, Scopus, Cochrane Library, and Web of Science. Eligible studies included adult patients receiving GLP-1 receptor agonists prior to primary hip or knee arthroplasty, with comparison to non-users. A random-effects model was used to compute pooled odds ratios (ORs) and 95% confidence intervals (CIs).

Results:

Eight studies comprising 69,095 patients were included. GLP-1 receptor agonist use was associated with significantly lower odds of prosthetic joint infection (OR 0.65, 95% CI 0.50–0.86, p = 0.0022), hospital readmission (OR 0.80, 95% CI 0.64–0.98, p = 0.0337), and revision surgery (OR 0.85, 95% CI 0.76–0.95, p = 0.0044). There was no significant difference in wound infection rates (OR 0.98, p = 0.88) or overall medical complications (OR 0.87, p = 0.26).

Conclusion:

Preoperative GLP-1 receptor agonist use appears to reduce infection, revision, and readmission rates following arthroplasty with no effect on the risk of wound or medical complications. Further prospective research is warranted.

Thursday, 4 September

Spine 4
15:35 - 15:38

88 The Role Of Hounsfield Units In Predicting Cage Subsidence After Lateral Lumbar Interbody Fusion: A Systematic Review And Meta-Analysis

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2. Yong Loo Lin School of Medicine, National University of Singapore, National University Health System, Singapore, Singapore, Singapore
3. Department of Orthopaedic Surgery, Singapore General Hospital, Singapore, Singapore, Singapore

Abstract
Objective:
Bone mineral density is an established risk factor for cage subsidence (CS) in lateral lumbar interbody fusion (LLIF), but DEXA scans may not accurately reflect local bone quality. Vertebral Hounsfield unit (HU) on computed tomography (CT) scans have emerged as a viable alternative to predict CS. The aim of this meta-analysis was to identify a threshold HU value as a predictor for cage subsidence in LLIF for future papers to explore and verify.

Methods:
Four databases were searched for studies reporting CS rates and preoperative segmental HU in patients undergoing LLIF, including oblique LIF, extreme LIF, anterior-to-psoas, and transpsoas techniques for degenerative spinal conditions. Random-effects meta-analyses were conducted. Primary outcomes were segmental HU values. Secondary outcomes included the predictive performance of different HU thresholds. Intra-study risk of bias was rated using the Newcastle-Ottawa scale, and evidence certainty was assessed with the GRADE approach.

Results:
5 retrospective cohort studies totaling 396 patients (271 without CS, 125 with CS) were included. The pooled segmental HU was 112.1 (95%-CI: 96.3 to 128.0) for patients with CS and 142.6 (95%-CI: 127.5 to 157.6) for patients without CS. The pooled mean difference was 29.9 (95%-CI: 14.4 to 45.4, $p<0.01$, pegger=0.51). A threshold of ≤120 HU had the best predictive performance for CS.

Conclusion:
This study affirms that HU is a potentially useful predictive tool for CS in patients undergoing LLIF for degenerative spinal diseases. Future studies should explore the cut-off value of 120 HU to validate its predictive capability.

Keywords: Spinal fusion, Computed X-Ray Tomography, Meta-Analysis, Lumbar Vertebrae

15:45 - 15:48

134 Assessing Neurological Complications In Thoracic Three-Column Osteotomy: A Clinical Application Of A Novel MRI-Based Classification Approach

Chen-Wei Yeh[1], Erh-Ti Ernest Lin[1], Yuan-Shun Lo[2], Yong Qiu[3]

1. China Medical University, Taichung, Taiwan
2. China Medical University Beigang Hospital, Yunlin, Taiwan
3. Nanjing Drum Tower Hospital, Nanjing City, Jiangsu Province, China

Abstract
Objective: This study aimed to investigate neurological complications in patients undergoing thoracic three-column osteotomy (3CO) using a magnetic resonance imaging (MRI)-based classification system to assess spinal cord shape and cerebrospinal fluid at the curve apex, and evaluate its prognostic value for postoperative neurological deficits.

Materials and methods: A retrospective analysis of 158 adult patients with spinal deformities who underwent 3CO between 2012 and 2018 was performed. T2-weighted axial MRI was used to describe spinal cord morphology at the apex. Intraoperative neurophysiological alerts were recorded, and neurological function was assessed using the Frankel score. Data were analyzed using appropriate statistical tests.

Results: Patients were categorized into three groups: type 1 (12 patients), type 2 (85 patients), and type 3 (61 patients). Type 3 patients exhibited larger Cobb angles of the main curve ($P < 0.001$), and this difference persisted postoperatively ($P < 0.05$). Intraoperative alerts were triggered in 32 patients (20.3%), with the highest occurrence in type 3 ($P < 0.001$). New neurological deficits occurred in 15 patients (9.5%), with the highest number in type 3 ($P < 0.05$).

Conclusions: Patients with type 3 morphology had more severe deformities, a higher likelihood of preoperative neurological deficits, and a greater risk of postoperative complications. The classification system proved effective in predicting neurological risks in thoracic 3CO patients.

14:33 - 14:36

1568 The Effect Of The Difference In C2-7 Angle On The Occurrence Of Dysphagia After Anterior Cervical Discectomy And Fusion With The Zero-P Implant System

Xiang Zhang, Chengyi Huang, Hao Liu

Department of Orthopedics, Orthopedic Research Institute, West China Hospital, Sichuan University, Chengdu, China

Abstract

Introduction

Postoperative alterations in cervical lordosis, particularly the C2-7 angle, following anterior cervical discectomy and fusion (ACDF) with Zero-P implants may disrupt the anatomical relationship between the cervical spine and esophagus, potentially contributing to dysphagia. Despite this, the role of the postoperative-preoperative C2-7 angle difference (dC2-7A) in dysphagia remains understudied.

Aims & Objectives

To evaluate the impact of dC2-7A on dysphagia risk after ACDF with the Zero-P Implant System and identify additional contributing factors.

Study Design & Methods

A retrospective analysis included 181 patients who underwent single- or multi-level ACDF with Zero-P implants (January 2011–November 2018) with ≥1-year follow-up. Patients were categorized into non-dysphagia (n=139) and dysphagia (n=42) groups. Variables analyzed included dC2-7A, dO-C2 angle (dO-C2A), demographics (age, sex, BMI), comorbidities (diabetes, hypertension), surgical parameters (operative time, blood loss), lifestyle factors (smoking, alcohol), prevertebral soft-tissue swelling (PSTS), and surgical levels. Statistical analyses included single-factor comparisons, Spearman's correlation, and ordinal logistic regression.

Results

There were 139 patients in the non-dysphagia group and 42 patients in the dysphagia group. The single-factor analysis showed smoking, PSTS and dC2-7A was significantly different between two groups ($P<0.05$). Spearman's correlation coefficient showed no significant correlation between degree of dysphagia and dC2-7A ($P>0.05$). The results of multiple-factor analysis with an ordinal logistic regression model showed that smoking, PSTS and dC2-7A were significantly associated with the incidence of dysphagia ($P<0.05$).

Conclusions

The postoperative C2-7 angle has an important effect on the occurrence of dysphagia in patients undergoing Zero-P implant system interbody fusion surgery.

Keywords: ACDF, C2-7 angle, dysphagia

14:45 - 14:48

1638 Outcome After Decompression For Cervical Myelopathy

Geonhoo Park, Peter Robertson, **Henrik Baecker**

Auckland City Hospital, Auckland, New Zealand

Abstract
A variety of different pathologies can cause cervical myelopathy. Decompression is recommended to prevent symptoms from progression.
Aim of this study was to investigate the outcome following surgery for cervical myelopathy.
Our spine registry was searched for patients presenting with cervical myelopathy between 2010 and 2023. Inclusion criteria consisted of patients with symptomatic cervical myelopathy who underwent surgery and were followed up for at least 2 years. Underlying causes were classified into spondylosis, disc protrusion and ossification of the posterior longitudinal ligament (OPLL).
42patients at a mean age of 53.4±13.6years were included. Males and indigenous Polynesian patients were mostly affected in 69.0%, respectively 40.5% of cases. Spondylosis was noted in 59.5%, followed by disc herniation and OPLL in 23.8% and 16.7% affecting 2.6±1.2-levels on average causing hyperintense signal changes on sagittal MRI scan of 18.9±9.2mm. On erect X-ray a lordotic alignement was present in most cases (6.3±13.4°, range -26.8° to 29.6°). For surgery, 20 patients underwent a laminoplasty, anterior cervical decompression in 16 patients and laminectomy and fusion in 6 patients. 25 patients reported improvement in myelopathic symptoms and 10 had remaining radiculopathic symptoms without significance among the groups (p=0.974). The postoperative MRI showed improvement in hyperintense signal changes especially following anterior cervical decompression and fusion (p=0.289). No correlation between outcome and sagittal alignment was found (r=-0.042, p=0.795).
Irrespective the type of surgery for cervical myelopathy, patients reported improved outcome including steady gait. Although some patients described radiculopathic symptoms, no worsening of myelopathy was observed, regardless the cervical sagittal alignment.

14:58 - 15:01

1644 Clinical Outcomes Of One-Stage Posterior Hemivertebra Resection And Mono-Segment Fusion For Growing Children At The End Of Spinal Growth: A Mean 10-Year Follow-Up Study

Yiwei Zhao, Shengru Wang, Jianguo Zhang

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Abstract
Object: For severe congenital early-onset scoliosis (CEOS) due to a single hemivertebra, posterior hemivertebra resection and mono-segment fusion corrects deformity with minimal spinal involvement. Previous studies showed its safety and effectiveness, but most patients hadn't reached skeletal maturity. As CEOS is developmental, final outcomes can only be assessed after spinal growth ends. Thus, we conducted a long-term follow-up study with all patients at skeletal maturity to evaluate this technique.
Methods: A retrospective study of CEOS patients treated with posterior hemivertebra resection and mono-segment fusion between 2007–2017. At latest follow-up, all patients reached skeletal maturity (Risser sign ≥4 and age ≥14 years), with a mean follow-up of 10.5±2.5 years. Analyzed parameters included demographics, coronal and sagittal deformity correction, spinal and vertebral growth, SRS-22 scores, and complications.
Results: 23 patients (15 males, 8 females) were enrolled, mean age 4.8±2.0 years. Preoperative main curve was 32.3±14.4°, decreasing to 7.3±6.5° postoperatively, with 15.4% correction loss during follow-up. Sagittal kyphosis improved and was maintained. Coronal imbalance decreased from three to one patient. T1-T12 and T1-S1 heights increased from 15.9±1.6 cm and 27.1±1.7 cm preoperatively to 24.0±2.2 cm and 37.3±3.1 cm at latest follow-up. Vertebral growth was similar between instrumented and non-instrumented vertebrae. Mean SRS-22 score was 4.3±0.2. Ten complications occurred in seven patients.
Conclusions: Hemivertebra resection and mono-segment fusion is a safe and effective approach for single hemivertebra in CEOS. Deformity correction is well maintained without hindering spinal growth, achieving acceptable clinical outcomes.

14:42 - 14:45

1585 Optimal Timing Of Thoracolumbar Fracture Fixation: A Systematic Review

Karen Toh, Peter Robertson, **Henrik Baecker**

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Abstract
Spinal fractures mostly occur in the thoracolumbar region and are frequently associated with concomitant injuries. Although literature has reported optimal timing for surgery in patients with neurological impairment, to date, there is an ongoing debate about the optimal timing for surgical fixation in patients without neurological impairment.
Aim of this systematic literature review was to compare the outcome following early versus delayed surgery in patients with thoracolumbar fractures.

A systematic literature review was performed following the PRISMA guidelines. Studies reporting on respiratory complications, perioperative mortality, length of stay in hospital and ICU, as well as duration on mechanical ventilation were included. Subgroup analysis were performed for cutoff times of 24-, 48- and 72- hours.

A total of 43 publications met inclusion criteria, of which the majority - 29 studies - considered early surgery within 72 hours. In 8 trials the cutoff was set to 48 hours and in 15 publications a 24 hour cutoff was chose.
Comparing early versus delayed surgery, a decrease in length of stay in hospital (MD = -3.19, $p<0.001$) and in ICU (MD = -3.21, $p = 0.01$) were identified. Further less respiratory complications and decreased time on mechanical ventilation were described (LOR = 0.58, $p=0.01$, respectively, MD = -2.41, $p= 0.01$). A major effect was especially found when applying a 48-hour cutoff.

In patients with neurology, good data have been presented on optimal timing to preserve neurology and allow the best outcome. For patients with thoraclumbar fractures without neurology the literature lacks in unified cutoffs.

14:36 - 14:39

1968 Review Of Conservatively Managed Odontoid Fractures In A District General Hospital: A Two-Year Retrospective Study

Charlotte Sherpa-Blaiklock, Saumil Shah, Jon Palmer

Hampshire Hospitals NHS Foundation trust, Basingstoke, United Kingdom

Abstract

Background

Odontoid fractures are common in the geriatric population and typically result from falls from standing height or lower, often in the presence of degenerative spinal disease. The majority of these patients are managed conservatively with a hard collar for 12 weeks. However, conservative management is associated with poor outcomes and increased mortality.
This study aims to evaluate patient outcomes following the conservative management of C2 fractures, assess 30-day mortality rates, and identify key risk factors contributing to poor prognosis in this patient cohort.

Method

A retrospective study was conducted over two years (January 2023 – December 2024), analysing geriatric patients who presented to A&E with C2 fractures. Data collected included patient demographics (age, sex, and comorbidities), fracture classification, management plans from tertiary referral centers, discharge destinations and social circumstances.

Results

Our study identified 28 patients. The average age was 82. There were 13 females and 14 males. 26 patients were managed conservatively. The overall mortality was 22.2% within 7 days, 29.6% within 30 days. The most common cause of death noted was pneumonia and general decline. 21 patients had type II odontoid fracture.

Conclusion

In our study, the 30 day mortality following odontoid fractures treated conservatively was significantly higher (30%). The factors associated with high mortality were male patients aged more than 80 years with higher number of medical comorbidity and poor cognition.

15:51 - 15:54

2005 Horizontal Gaze Paralysis With Progressive Scoliosis (HGPPS Syndrome): A Case Report And Literature Review

Anis Chaabouni[1], Mohamed Ben Jemaa[2], Jawher Dhief[1], Mohamed Dhkar[1], Hedi Chaabouni[1], Moez Trigui[2], Ayadi Kamel[1], Hassib Keskes[1]

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2. Military University Hospital of Sfax, Sfax, Tunisia

Abstract
Introduction:
Horizontal gaze paralysis with progressive scoliosis (HGPPS) is a rare autosomal recessive disorder caused by a mutation in the ROBO3 gene, which plays a crucial role in axonal orientation and neuronal migration during brain development. It is characterized by the absence of conjugate horizontal eye movements and progressive scoliosis.

Case Report:
We present a 16-year-old girl with no family history, who consulted for a right-sided rib hump discovered incidentally. Clinical examination revealed trunk imbalance, horizontal gaze paralysis, and pendular nystagmus. Whole spine radiographs showed a right convex thoracolumbar scoliosis with a Cobb angle of 30°. Over the following year, there was worsening of both clinical and radiological findings, with the Cobb angle increasing to 75°. She underwent posterior spinal fusion with satisfactory postoperative outcomes, including improved radiographic alignment with a Cobb angle of 30°.

Result:
Postoperative recovery was uncomplicated with satisfactory wound healing. Radiographic follow-up demonstrated a correction of the scoliotic deformity, with the Cobb angle reduced to 30°, indicating significant improvement.

Discussion:
HGPPS is a rare neurological disorder often underrecognized by both orthopedic surgeons and ophthalmologists. It is characterized by horizontal gaze paralysis, pendular nystagmus, and progressive scoliosis. Neuroimaging may reveal typical brain malformations. Early, multidisciplinary management is essential to prevent further visual disturbances and axial imbalance.

Conclusion:
HGPPS is a rare hereditary condition requiring multidisciplinary care. Early diagnosis and intervention are critical to prevent progression and optimize outcomes.

keywords : Spine, disorder, hereditary

14:48 - 14:51

2383 Uncovertebral Joint Fusion Versus End Plate Space Fusion In Anterior Cervical Spine Surgery : A Prospective Randomized Controlled Trial

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Abstract
Introduction: Uncovertebral joint is a potential region for anterior cervical fusion. The effect of the Uncovertebral joint fusion (UJF) has been confirmed in goat model. However, there are no clinical trials on human uncovertebral joint fusion. This study aims to explore what is the difference in fusion speed and clinical efficacy between UJF and traditional endplate space fusion (ESF) in anterior cervical spine surgery.
Methods: Patients with single-level cervical spondylosis were recruited and admitted between February 2021 and October 2022 and randomly divided into the UJF and ESF groups. The primary outcome was the early fusion rate 3 months postoperatively.
Results: A total of 74 (92.5%) patients completed the trial and were included in the analysis, with an average age of 54.8 (26-65) years. The operation duration (131.3 ± 29.4 min vs. 123.6 ± 26.0 min, p=0.237) and intraoperative blood loss (70.6 ± 50.0 ml vs. 79.2 ± 49.0 ml, p=0.454) were comparable between the two groups. The fusion rate in the UJF group was significantly higher than that in the ESF group at 3 and 6 months after operation (3 months after operation: 66.7% vs. 13.2%, p<0.0001; 6 months after operation: 94.1% vs. 66.7%, p=0.006). No significant difference was found in the fusion rate between the two groups 12 months postoperatively. The JOA, NDI, and VAS scores for the arm and neck significantly improved after surgery in both groups.
Conclusions: In anterior cervical fusion surgery, the early fusion rate in UJF is significantly higher than that in ESF.

15:04 - 15:07

2577 Clinical Implication And Risk Factors For Anterior Bone Loss After Anterior Cervical Discectomy And Fusion

Yiwei Shen, Tingkui Wu, Hao Liu, Chen Ding

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Abstract
Introduction. Anterior bone loss (ABL) is not only a common phenomenon after cervical disc replacement but also observed after anterior cervical discectomy and fusion (ACDF). However, ABL after ACDF has been poorly studied.
Objectives. To investigate the clinical implication and risk factors for ABL after ACDF.
Study Design. A single-center retrospective study
Methods. Patients who underwent 1-level ACDF were retrospectively involved and divided into ABL group and non-ABL group. Clinical outcomes were evaluated using scores on the Japanese Orthopaedic Association (JOA) and Visual Analogue Scale (VAS). Radiological outcomes included ABL, C2-C7 angle (CL), C2-C7 sagittal vertical axis (SVA), T1 slope, surgical level slope, implant subsidence and migration.
Results. In 99 patients treated with 1-level ACDF, ABL was identified in 57 (57.6%) patients. The proportion of females was significantly higher in the ABL group (P=0.002), whereas the BMI was significantly lower in the ABL group compared to the non-ABL group (P=0.002). There were no significant differences in JOA and VAS scores between patients with and without ABL. The subsidence rate was also comparable between two groups. Postoperative CL (11.83°±8.24° vs. 15.25°±8.32°, P=0.04) and surgical level slope (13.99°±6.43° vs. 16.97°±5.88°, P=0.02) was significantly lower in the ABL group, while ABL in the lower segment had significantly smaller posterior C2-C7 SVA (17.77±10.08 vs. 23.35±9.86 mm, P=0.007).
Conclusion. ABL is a common phenomenon after ACDF and may be a self-limited bone remodeling process influenced by gender, BMI and cervical sagittal alignment. No impacts of ABL on clinical outcomes of ACDF were observed.

14:51 - 14:54

2461 Factors Contributing To The Failure Of Bone Healing In Lumbar Arthrodesis

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Abstract
Objectives:
To analyze the influence of demographic and clinical factors on radiographic fusion in patients undergoing lumbar spinal fusion with allograft implantation.
Materials and Methods:
A retrospective cohort study was conducted on patients who met the following inclusion criteria: lumbar spinal fusion surgery involving 1, 2, or 3 levels, performed between 2015 and 2022, without prior surgeries, requiring allograft implantation, and with a follow-up period of at least 1 year.
The following variables were collected: age, Charlson comorbidity index, hospital stay, obesity, smoking, immunosuppressive treatment, levels treated, postoperative transfusion, pre-implant allograft culture results, intraoperative complications, postoperative infection, and radiographic fusion.
These variables were analyzed using SPSS version 29.0.
Results:
A total of 521 patients were included in the study, with 613 allografts used.
Non-fusion occurred in 24 patients (4.6%). Statistically significant differences were observed in the following variables: allograft culture, with 13.5% of positive cultures versus 3.9% of negative cultures (p=0.022); infection in the first year, with 35% of patients with infection in the first year compared to 3.4% infection-free (p=0.000); smoking, with 8.3% of smokers versus 3.3% of non-smokers (p=0.028); and obesity, with 8.8% of obese patients compared to 3.5% of non-obese patients (p=0.023).
The remaining studied variables, although showing differences between groups, were not statistically significant.
Conclusion:
Positive allograft culture, infection within the first year, smoking, and obesity were identified as risk factors for non-fusion in lumbar spinal fusion surgery in our sample.

15:10 - 15:13

2621 Clinical Application Of The Fracture Liaison Service After Enhancement Of Osteoporotic Vertebral Fractures

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Abstract
Objectives：To investigate the effect of the Fracture Liaison Service (FLS) after percutaneous vertebroplasty/percutaneous kyphoplasty for osteoporotic fractures of the thoracolumbar spine.
Methods：1128 patients were divided into the control group (560 cases) and the FLS group (568 cases) according to the randomized numerical table method. Both groups were treated with zoledronic acid, alfacalcitol, and calcium acetate capsules to intervene in osteoporosis. The FLS group received additional Blue Ox medical care or Slow Health APP. The patients were followed up for 12 months and compared with the Morisky Medication Adherence Scale (MMAS-8), the Visual Analog Scale (VAS), the Oswestry Dysfunction Index (ODI), and the Hamilton Depression Scale (HAMD); incidence of re-fracture and constipation; and Cobb's angle of the injured vertebrae and the T-value of bone mineral density.
Results: At discharge, there was no statistically significant difference between the two groups in the above tests. At 6/12 months, FLS patients had lower VAS scores, ODI scores, and HAMD scores, lower incidence of re-fracture and constipation, and higher MMAS-8 scores than the control group. At 12 months, there was no significant difference in the Cobb angle between the two groups; however, FLS patients' T-score was higher than that of the control group.
Conclusions: The FLS improves medication adherence, relieves pain, depression, and constipation, and improves bone mineral density, while significantly reducing the incidence of postoperative vertebral re-fracture, but does not have a significant effect on the Cobb angle of the injured vertebrae.

15:19 - 15:22

2742 A Case Of Failed Back Surgery Syndrome: From Its Initial Onset To Its Final Resolution

Ines Dias Monteiro, Rui Cardoso, Carlos João, Patrícia Paredes, Catia Machado, Andre Beco, João Souto, Joao Calejo Afonso, Hugo Nogueira, Sergio Pita, Domingos Estrela, Arminda Malheiro

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Abstract
Degenerative lumbar scoliosis with multilevel instability presents a clinical challenge due to its complexity and the need for comprehensive surgical intervention. We present the case of a 56-year-old patient with a history of multiple spinal surgeries, who underwent corrective surgery for lumbar scoliosis at a tertiary care hospital.

The patient has been under orthopedic care since 2017 for lumbalgia with left-sided radiculopathy. Imaging studies revealed degenerative lumbar scoliosis with left-sided L4-L5 radicular compression and surgical treatment was decided.The procedure involved transpedicular fixation at L4-L5 level along with laminectomy. Despite these efforts, persistent left sciatica required removal of the fixation material. Over the subsequent four years, patient continued to experience recurrent symptoms, including bilateral sciatica, dorsolumbar pain, and neurogenic claudication. Imaging studies revealed degenerative lumbar scoliosis with coronal and sagittal deformity and lumbar canal stenosis at L3-L4-L5. On December 2022, a comprehensive surgical intervention was undertaken, involving D9-S2 instrumentation with laminectomy and TLIF L4-L5-S1, performed with intraoperative neuromonitoring.

The postoperative period was uneventful, with the patient spending one day in the ICU before transferring to the orthopedic ward. By day five, she was able to stand and walk with crutches, without neurological deficits. After 12 months of follow-up, she reported satisfaction, no significant pain, and a return to daily activities, although with some restrictions on spinal mobilization.

This case emphasizes the importance of meticulous evaluation and management in complex scenarios. It highlights the ability of specialized tertiary care centers to handle challenging cases and achieve successful outcomes with

15:26 - 15:29

2842 EVALUATING CT-DERIVED HOUNSFIELD UNITS AS A PREDICTOR OF CAGE SUBSIDENCE FOLLOWING ANTERIOR CERVICAL DISCECTOMY AND FUSION: A META-ANALYSIS

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6. Royal college of surgeons in Ireland medical school, Dublin, Ireland

Abstract

Objective

Cage subsidence following anterior cervical discectomy and fusion (ACDF) is associated with poorer bone quality. The objective of this study is to evaluate the effectiveness of Hounsfield units (HU) at predicting cage subsidence following ACDF.

Methods

Standard medical databases such as MEDLINE, Embase, Pubmed, and Cochrane Library were searched to find retrospective studies comparing HU score with subsidence to no subsidence following ACDF. All data were analyzed using Review Manager Software 5.4, and the meta-analysis was performed with a random effect model analysis. Prisma guidelines were followed.

Results

A total of 5 studies were included (n=661 participants), comparing HU scores in patients with cage subsidence versus no subsidence following ACDF. In the random effect model analysis, patients with cage subsidence had significantly lower HU scores compared to those with no subsidence (Standard mean difference: -1.23; 95% CI: [-1.54, -0.92], $Z = 7.71$, $P < 0.00001$).

Conclusions

Cage subsidence was significantly associated with lower HU scores, underscoring its potential as a reliable predictor of postoperative outcomes and a valuable tool for guiding surgical planning.

15:29 - 15:32

2846 Clinical Outcomes Of The Sagittal Adjusting Screw (SAS) System For Thoracolumbar Burst Fractures

Yoshihisa Komuro[1], Yusuke Dodo[1], Koki Tsuchiya[1], Chikara Hayakawa[1], Yuki Midorikawa[2], Takatoshi Sawada[2], Tomoyuki Ozawa[3], Yoshifumi Kudo[1], **Ichiro Okano**[1]

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2. Ohta Nishinouchi Hospital, Koriyama, Japan
3. Tokyo Kyosai Hospital, Meguro-Ku, Japan

Abstract
Introduction
Pedicle screw and rod systems with angular stability are used to restore vertebral height and alignment and decompress the spinal canal via ligamentotaxis in acute thoracolumbar fractures. The Sagittal Adjusting Screw (SAS) system, featuring monoaxial screws with a mobile saddle-shaped head, enables fracture reduction through a specialized trauma device. This study evaluates the efficacy of the SAS system in alignment correction and fracture reduction, comparing its outcomes with the conventional multi-axial screw (MAS) system.
Methods
A retrospective study was conducted across three institutions, including patients who underwent posterior fixation with either the SAS or MAS system for thoracolumbar fractures (January 2017–February 2024). Data collected included patient demographics, AO classification, TLICS, LSC, surgical details, and radiographic outcomes. Regional kyphotic angle (RKA) and anterior vertebral body height loss (%AVB) were assessed. Statistical analysis included Student's t-test, Mann-Whitney U test, and multiple regression analysis.
Results
Among 97 patients (48 MAS, 49 SAS), 60 had ≥1-year follow-up. The SAS group demonstrated significantly lower postoperative %AVB ($p < 0.001$), sustained at one year ($p = 0.001$), and greater postoperative RKA changes ($p = 0.001$). Multivariate analysis identified SAS usage and preoperative LSC reducibility as independent factors for postoperative %AVB.
Conclusion
Compared to MAS, the SAS system achieved greater reductions in %AVB and RKA, with sustained improvements at one year, suggesting its potential for enhanced fracture reduction outcomes

14:30 - 14:33

2933 A Comparative Study Of Complications And Radiological Findings Between One-Stage And Two-Stage Long Posterior Spinal Fusion Surgeries: A Retrospective Cohort Study

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Abstract
Background: Long-segment posterior spinal fusion (PSF) is effective for managing degenerative spine disorders and deformities but carries significant surgical risks. The optimal staging strategy—one-stage versus two-stage—remains debated regarding complications and radiological outcomes.

Objectives: To compare perioperative complications and radiological findings between one-stage and two-stage long-segment PSF.

Methods: This retrospective cohort study analyzed 78 patients who underwent PSF (≥5 vertebral levels, including all lumbar vertebrae) for degenerative or deformity-related conditions at a tertiary center from March 2021 to February 2024. Patients were categorized into one-stage (n=31) or preoperatively planned two-stage (n=47) procedures. Perioperative and radiological variables were assessed with a minimum one-year follow-up.

Results: The two-stage group had longer operative times (5.55 vs. 4.35 hours, $p<0.001$), greater blood loss (1637 vs. 1166 mL, $p=0.001$), and extended hospitalization (10.74 vs. 5.16 days, $p<0.001$). Complication rates were comparable (one-stage: 19.4% vs. two-stage: 25.5%, $p=0.526$), though infections trended higher in the two-stage group (17% vs. 3.2%, $p=0.062$). Radiologically, sacral slope (SS) was lower postoperatively and at the last follow-up in the two-stage group ($p=0.021$ and $p=0.039$, respectively), while sagittal vertical axis (SVA), lumbar lordosis (LL), and proximal junctional kyphosis (PJK) showed no significant differences ($p=0.949$).

Conclusion: One-stage PSF may reduce surgical burden and hospitalization, whereas two-stage PSF achieves comparable radiological outcomes but may carry a higher infection risk. These findings inform surgical decision-making by highlighting trade-offs between staging strategies.

Keywords: posterior spinal fusion, one-stage, two-stage, complications, radiological outcomes

15:32 - 15:35

2938 Physicians' Referral Preferences: Orthopedic Spine Surgeons Vs. Neurosurgeons—A Multinational Study In The Middle East

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7. Cairo University, Cairo, Egypt
8. Iraq, Baghdad, Iraq

Abstract

Introduction:
Spine pathologies are diverse, often falling under the expertise of both orthopedic spine surgeons and neurosurgeons. This cross-sectional study aimed to evaluate physicians' referral patterns to these specialties across the Middle East.

Methods:
An online survey was distributed to practicing healthcare professionals in the Middle East, primarily from Saudi Arabia, Iraq, Egypt, Jordan, and Palestine. The survey examined referral preferences for long-term spinal care. Data were analyzed using SPSS version 27.

Results:
Of 749 responses, 725 were included. Most respondents practiced in university hospitals (51.9%), followed by community (23.9%) and private hospitals (22.8%). Most had less than 5 years of experience (30.2%). Common specialties included internal medicine (14.6%), pediatrics (9.5%), general surgery (9.2%), general practice (9.2%), and orthopedic surgery (8.1%). Access to a spine institute was reported by 77%. Perceptions of equal training between orthopedic and neurosurgeons were mixed: 32.1% agreed, 33.4% disagreed, and 34.5% were neutral. Overall, 52.8% preferred neurosurgeons for long-term care, while 47.2% preferred orthopedic spine surgeons. Without access to a spine institute, 60.5% preferred neurosurgeons; with access, preferences were balanced (50.5% vs. 49.5%). Neurosurgeons were significantly preferred for radiculopathies, spinal tumors, and minimally invasive surgeries ($P < 0.001$), while orthopedic surgeons were preferred for fractures, deformities, fusions, and disc replacements ($P < 0.001$). Referrals for chronic neck and back pain were evenly split ($P = 0.277$). Logistic regression adjusting for demographics showed no significant predictors of referral preference.

Conclusion:
Referral patterns varied by pathology and access to a spine institute, but overall specialty preference was nearly equal.

15:01 - 15:04

2482 Clinical Efficacy Of The Hybrid Cortical Bone Trajectory Screws Technique For Posterior Lumbar Fusion:Preliminary Clinical Results Of A Novel Technique

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Abstract
Objective:
Exploring the clinical efficacy of the hybrid Cortical Bone Trajectory screws technique in the treatment of lumbar degenerative disease and its effect on adjacent segmental degeneration.
Methods:
According to the different methods of nail placement, the group was divided into the traditional pedicle screw fixation group(PS) and the cortical bone track screw combined with pedicle screw fixation group(CBTPS).The perioperative indexes of the two groups of patients were analyzed, as well as the JOA and VAS score , and changes in the imaging parameters of the adjacent segment of the two groups of patients were compared.
Results:
1.Patients in the CBTPS group had a longer operative time, but their incision length, intraoperative bleeding, postoperative drainage, and hospitalization days were less than those in the PS group.
2.At day 7 after surgery, patients in the CBTPS group had significantly better JOA and VAS scores than those in the PS group.
3.At the final follow-up, the maintenance of lumbar lordosis, L3/4 intervertebral space height, and intervertebral foraminal height and width was better in the CBTPS group than in the PS , and L3/4 disc degeneration was more pronounced in the PS group than in the CBTPS group, and there was no significant difference in the comparison of adverse events between the two groups.
Conclusion:
Hybrid CBT screw technology an alternative, alternative fixation and fusion technique that is relatively easy to implement and can reduce the impact on adjacent segmental degeneration while ensuring clinical efficacy.

15:42 - 15:45

105 Surgical Outcomes For Cervical Spondylotic Myelopathy With Kyphotic Deformity

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Abstract
Introduction:
Posterior decompression alone is considered to be insufficient for the cervical spondylotic myelopathy (CSM) with kyphotic deformity. In such cases, decompressive and fusion surgery (anterior, posterior and antero-posterior combined) are used. In this study, surgical outcomes and complications of those surgeries were investigated.
Material and Methods:
Fifty-three CSM patients with kyphotic deformity who underwent reconstructive surgery and was followed-up more than 1 year, were enrolled in this study. There were 26 men and 27 women and their mean age was 63.9. Anterior surgery was done in 15 patients, posterior fusion surgery in 23 and antero-posterior combined surgery in 15.
Results:
Average 3.6 levels were fixed. Mean surgical time and blood loss were 285 minutes and 248 ml respectively. JOA score was 10.0 preoperatively and 12.8 postoperatively, and improvement rate was 44.5%. Local alignment was 24.2 degrees kyphotic preoperatively, 0.4 lordotic after surgery and 2.6 kyphotic at final follow-up. C5 palsy was seen in 9 patients (17%). Two cases were accompanied by vertebral injury. Dysphagia was seen in 4 cases postoperatively.
Conclusion:
Reconstructive surgery could provide moderately good surgical results for cervical myelopathy with kyphosis. However, the rate of severe complications and supplemental surgery were high. Preoperatively we should carefully choose surgical procedure and explain the patients in detail, including complications.

15:48 - 15:51

178 Epidemiological Features Of Traumatic Spinal Cord Injury In A Tertiary Hospital In Cagayan Valley: A 5-Year Cross-Sectional Study

Jake Albert Tamayao Miguel, Niccolo Sideco Mamba

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Abstract
Background:
Globally, the recorded prevalence and incidence of people with Traumatic Spinal Cord Injury (TSCI) is maybe underreported due to the lack of a national registry system for spinal cord injuries. In the Philippines, Cagayan Valley Medical Center (CVMC) is the largest medical facility and has the greatest number of admitted patients in the entire region. However, little is known and documented about the prevalence of TSCI.

Methodology:
The researchers retrospectively reviewed the medical records of patients with TSCI admitted in CVMC from 2016 to 2020. Variables included are age, sex, civil status, occupation, and clinical profile: mechanism and spinal level of injury, American Spinal Injury Association Impairment (ASIA) Scale, imaging studies, treatment received, and condition upon discharge.

Results:
A total of 145 (M: 93.10%, F: 6.90%, mean age 42.13 years) patients were reviewed. Falls from a height (51.72%) were the leading cause of injuries, with the cervical spine (57.24%) as the most common injured region. The majority of documented cases have an ASIA scale of A. Nonoperative management was done in most cases (80%).

Conclusion:
The result of this study is comparable to other previous literature. Most of the patients are typically males sustaining injuries in the cervical spine secondary from falls from a height in the workplace. Occupations with the highest risk for injuries were the farmers and laborers. The establishment of a national registry system will accurately describe the incidence and prevalence of TSCI not only in our institution but in the entire Philippines.

Keywords: Spinal Cord Injury, Epidemiology, Cagayan Valley Medical Center

15:16 - 15:19

2687 Association Of Gut Dysbiosis With Lumbar Intervertebral Disc Degeneration: A Cross Sectional Study

Gurudip Das[1], Ratnadeep Das[1], Arul Kumar N[2], Balamurugan Ramadass[1], Mantu Jain[1], Arunkumar Sekar[1]

1. AIIMS Bhubaneswar, Bhubaneswar, India
2. JIPMER, Karaikal, India

Abstract

Introduction:
Backpain is the leading cause of disability worldwide and is associated with Obesity and chronic low-grade inflammation. Alterations in Intestinal Microbiota may contribute to the pathogenesis of intervertebral disc degeneration through metabolites affecting Immune and Inflammatory responses

Material and Methods:
A cross-sectional analysis within the framework of a prospective study was performed. DNA was extracted from faecal and disc samples collected from adult symptomatic patients with lumbar degenerative disc disease. Alpha and beta diversity assessed differences in faecal microbial community between groups. Taxon-by-taxon analysis identified microbial features with differential relative abundance between groups. Clinical and radiological evaluation was performed using VAS score, ODI score, and Pfirrmann grading

Results:
The disc microbes were found to be distinct from the from the fecal microbes. Relative numbers of the species Pantoea dispersa were found specifically in disc samples and not in stool

Conclusion:
The study results noted a unique microbiota in the disc, Pantoea dispersa, which was entirely absent in fecal matter. A higher alpha diversity was found in lower Pfirrmann subgroup, suggesting a potential loss of microbiome from the disc as the degenerative process continues. The discs with lower ODI scores were found to harbour a higher load of microorganisms than those with higher ODI scores, underlying and establishing the fact that the disc loses its microbiological diversity as it undergoes degeneration. Gut and disc microbiota was thus found to be distinct and different.

Thursday, 4 September

Orthopaedic Oncology 1
15:07 - 15:10

331 Clinical Analysis Of Giant Cell Tumor Of Tendon Sheath In The Hand

Yong Jiang

Department of Orthopedics, West China Hospital, Cheng Du, China

Abstract
Objective: To analyze the surgical methods and therapeutic effects of giant cell tumor of the tendon sheath in the hand.
Methods: The clinical data of 20 patients with giant cell tumor of the tendon sheath of the hand who were diagnosed by surgery and pathology from February 2018 to April 2021 were retrospectively analyzed. The follow-up was 12-47 months, with an average of 28.55 months.
Results: Tumors occurred in fingers of 14 patients (70%) . Fingers were the most common tumor site. 11 patients (55%) had tumors with complete capsule, and 4 patients (20%) had satellite nodules around the main tumor. Recurrence occurred in 3 cases (15%), all occurred within 2 years after surgery. No patient recurred after the second operation. In the 3 patients who recurred, the original tumor had no intact capsule and there were satellite nodules around the main tumor. Among the 17 patients without recurrence, 15 patients recovered completely and were asymptomatic, 1 patient complained of mild scar pain, 1 patient complained of numbness of the postoperative fingers, 17 patients had good postoperative functional recovery, and 3 patients with recurrence had partial function limitation.
Conclusions The main factors affecting the high recurrence rate of GCT of the hand are incomplete tumor resection, lack of complete tumor capsule and satellite nodules around the main tumor. Microsurgery can maximize the resection of the tumor and its involved tissue, reduce tumor recurrence rate after surgery, and reduce postoperative complications.

15:51 - 15:54

336 Outcome Of Three-Dimensional-Printed Custom-Made Short Stem With Porous Structure For Fixation Of Massive Endoprosthesis After Tumor Resection

Minxun Lu

Department of Orthopedics, West China Hospital, Cheng Du, China

Abstract
Introduction: Three-dimensional-printed (3DP) short stem with porous structure seems to be an alternative for short-segment fixation. This study aims to evaluate surgical outcomes, radiographical results, limb functions, and complications of using 3DP porous short stem in massive endoprosthesis replacement.
Methods: Between July 2018 to February 2021, 12 patients with massive bone loss undergoing reconstruction with custom-made, short-stemmed endoprostheses were identified. Endoprosthesis replacement involved the proximal femur (n=4), distal femur (n=1), proximal humerus (n=4), distal humerus (n=1), and proximal radius (n=2).
Results: The mean percentage of resected bone was 72.4% of the whole length of the bone, ranging from 58.4% to 88.5%. The mean length of 3DP porous short stems was 6.3 cm. The median follow-up was 38 months (range, 22 to 58 months). The mean MSTS score was 89%, ranging from 77% to 93%. Radiographical assessment results showed bone in-growth to the porous structure in 11 patients, and the implants were well osseointegrated. Breakage of the 3DP porous short stem occurred in one patient intraoperatively. The patient developed aseptic loosening four-month after surgery and underwent revision with a plate applied to assist fixation. The implant survivorship at 2 years was 91.7%. No other complications were detected, such as deep infection, and local tumor recurrence.
Conclusions: 3DP custom-made short stem with porous structure is a viable method for fixation of the massive endoprosthesis in the short segment after tumor resection, with satisfactory limb function, great endoprosthetic stability, and low complication rates.

15:10 - 15:13

339 Nomogram For Prediction Of Local Recurrence In Postoperative Patients With Giant Cell Tumor Of Bone: A Retrospective Analysis

Weiyi Wang, **Shangkun Tang**

Department of Orthopedics, West China Hospital, Cheng Du, China

Abstract
Objective: Local recurrence rates after surgery for giant cell tumors of bone (GCTB) remain high, yet no predictive models for recurrence exist. This study aimed to develop a nomogram to predict the risk of local recurrence following GCTB surgery.
Methods: A retrospective analysis was conducted on GCTB patients treated surgically at our institution between January 2017 and May 2022. Patients were randomly divided into training (n=238) and validation (n=101) cohorts. Prognostic factors for the nomogram were identified using Least Absolute Shrinkage and Selection Operator (LASSO) and multivariate logistic regression. The nomogram's performance was evaluated based on discrimination, calibration, and clinical utility across both cohorts.
Results: In this study, of the 339 patients enrolled and analyzed, 94 experienced local recurrence post-surgery. Four key predictors were identified: surgical method, metastasis presence, tumor size, and soft tissue invasion. The C-index was 0.77 (95% CI: 0.70–0.82) in the training set and 0.72 (95% CI: 0.60–0.83) in the validation set. The area under the curve (AUC) was 0.77 (95% CI: 0.70–0.83) in the training set and 0.73 (95% CI: 0.62–0.84) in the validation set, showing strong discriminatory ability. Calibration curves confirmed predictive accuracy, and decision curve analysis indicated significant net benefits.
Conclusion: This study introduces the first nomogram for predicting postoperative local recurrence in GCTB patients, integrating key factors to aid in risk assessment and patient stratification.

14:45 - 14:48

340 Efficacy Of Three-Dimensional Printed Customized Porous Ultra-Short Stem Prosthesis With Preserved Articular In The Reconstruction Of "Ultra-Critical Size" Bone Defect Around The Metaphysis Of Peri-Knee

Weiyi Wang

Department of Orthopedics, West China Hospital, Chengdu, China

Abstract
Objective: Local recurrence rates after surgery for giant cell tumors of bone (GCTB) remain high, yet no predictive models for recurrence exist. This study aimed to develop a nomogram to predict the risk of local recurrence following GCTB surgery.
Methods: A retrospective analysis was conducted on GCTB patients treated surgically at our institution between January 2017 and May 2022. Patients were randomly divided into training (n=238) and validation (n=101) cohorts. Prognostic factors for the nomogram were identified using Least Absolute Shrinkage and Selection Operator (LASSO) and multivariate logistic regression. The nomogram's performance was evaluated based on discrimination, calibration, and clinical utility across both cohorts.
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Conclusion: This study introduces the first nomogram for predicting postoperative local recurrence in GCTB patients, integrating key factors to aid in risk assessment and patient stratification.

14:51 - 14:54

341 A Nutritional Metabolism Related Prognostic Scoring System For Patients With Newly Diagnosed Osteosarcoma

Yitian Wang

Department of Orthopedics, West China Hospital, Chengdu, China

Abstract
Osteosarcoma is a primary malignant bone tumor with high metastatic potential. To date, achieving long-term survival of osteosarcoma patients remains a difficult task. Metabolic reprogramming has emerged as a new hallmark of cancer. However, studies on the prognostic value of hematological markers related to nutritional and metabolism in cancer patients are limited and contradictory. In this retrospective study, we extensively collected 16 hematological markers related to nutritional and metabolism in 223 osteosarcoma patients. A nutritional metabolism related prognostic scoring system (NMRS) in patients with osteosarcoma was constructed by least absolute contraction and selection operator (LASSO) cox regression analysis. Compared with individual hematological indicators, NMRS has stronger predictive power (training set: 0.811 vs. 0.362-2.638; validation set: 0.767 vs. 0.333-0.595). It is an independent prognostic factor for the survival of patients with osteosarcoma [HR: 1.957 (1.375-2.786) training set; HR: 3.146 (1.574-6.266) validation set]. NMRS-based nomograms have good and stable predictive power. NMRS facilitates further risk stratification of patients with the same clinical characteristics.

15:32 - 15:35

786 Combined Denosumab And Sunitinib Treatment Effectively Reduces The Viability Of Tumor Cells In A Giant Cell Tumor Of Bone

Michal Mahdal[1,2], Vasileios Apostolopoulos[1,2], Iva Zambo Staniczkova[3,2], Jakub Neradil[4,2], Tomas Tomas[1,2]

1. First Department of Orthopedic Surgery, St. Anne's University Hospital and Faculty of Medicine, Masaryk University, Brno, Czech Republic
2. International Clinical Research Center, St. Anne's University Hospital, Brno, Czech Republic
3. First Department of Pathology, St. Anne's University Hospital and Faculty of Medicine, Masaryk University, Brno, Czech Republic
4. Laboratory of Tumor Biology, Department of Experimental Biology, Faculty of Science, Masaryk University, Brno, Czech Republic

Abstract

Introduction:

Giant cell tumor of bone (GCTB) is a primary bone tumor with intermediate aggressiveness and a high recurrence rate. Histologically, it consists of two main cell types: osteoclast-like giant cells and mononuclear neoplastic (stromal) cells. Denosumab, a human monoclonal antibody targeting RANK ligand, inhibits osteoclast activity, while sunitinib, a tyrosine kinase inhibitor, reduces the viability of neoplastic stromal cells.

Methods:

The purpose of this study was to: (1) assess the depletion of giant multinucleated and stromal tumor cells in GCTB tissue following combined treatment with denosumab and sunitinib, and (2) evaluate the recurrence rate based on the use of combined neoadjuvant therapy and the type of surgery performed. Tumor tissue samples were collected from 15 patients after receiving the combination treatment. The mean patient age was 27.13±12.45 years. The average follow-up period was 23.2±17.5 months. Histological and immunohistochemical analyses were performed to quantify tumor cell depletion.

Results:

Local recurrence occurred in 2 patients (13.3%). In the first case, recurrence followed curettage of a Campanacci stage 2 GCTB. In the second case, it occurred after en bloc resection of a Campanacci stage 3 tumor with bone allograft replacement. Histological analysis revealed that only an average of 0.33% (range: 0–5%) of giant multinucleated osteoclast-like cells ($p<0.0001$) and 35.4% (range: 0–90%) of mononuclear stromal cells ($p<0.0001$) remained in the tumor tissue.

Conclusion:

Combining denosumab with sunitinib may be an effective targeted therapy for locally advanced tumors, helping to reduce the risk of local recurrence and metastatic disease.

15:35 - 15:38

1003 High Incidence Of Ewing Sarcoma In Okinawa: Investigating The Causes Of Geographic Clustering

Yoshiro Yoshikawa, Yasunori Tome, Hiromichi Oshiro, Kohei Mizuta, Ryo Katsuki, Yuta Miyashi, Kotaro Nishida

University of the Ryukyus hospital, Ginowan, Japan

Abstract

Introduction

Ewing sarcoma (EWS) is a rare malignant tumor. The annual incidence of Ewing sarcoma is approximately 3 patients per 1 million. However, ethnic and racial differences in patients with EWS are still little understood regarding genetic background.

Aims & Objectives

The aim of this study is to elucidate the incidence and underlying genetic factors of EWS in the southern island region of Japan, where population reveals certain genetic differences compared to those on the mainland.

Study Design & Methods

This is a retrospective cross-sectional study. Patients with EWS who underwent tumor resection or incisional biopsy and received pathological examination were included. The incidence of EWS was investigated and compared to national registry data.

Result

In this study, 11 patients (3 males and 8 females) were identified, with an incidence rate of 0.77 per 1,000,000 compared to the 2022 national incidence of 0.3 per 1,000,000 – approximately 2.6 times higher. The male-to-female ratio in this study was 3:8, contrasting with the national ratio of 1.6:1, suggesting a relatively higher risk among females. We are going to report our interim findings from whole-genome analysis of germline and somatic mutations in patients with EWS to investigate the cause of geographic clustering.

Conclusion

In the southern island region of Japan, the incidence of EWS is 2.6 times higher than in mainland Japan, with a higher number of patients observed in females. Genetic factors may be unique to the population of isolated island region contribute to these sex-based differences in incidence risk.

15:01 - 15:04

1409 Giant Cell Tumor Patient Outcomes When Treated With Subchondral Bone Grafting After Curettage

Ashley Castan, Rosamaria Dias, Yazan Kadkoy, **Joseph Ippolito**, Kathleen Beebe, Joseph Benevenia

Rutgers New Jersey Medical School, Newark, United States

Abstract
Background:
Giant cell tumors (GCTs) are benign, locally aggressive bone tumors that are typically found in the epiphysis of long bones. Patients typically present with insidious onset of pain with activity, at night, and at rest. Treatment of GCT is generally curettage, adjuvant treatment, and reconstruction. Reconstruction may be accomplished with polymethylmethacrylate (PMMA) cementation and metal fixation with or without subchondral bone grafting. Recent studies have determined that curettage as a method of treatment for GCT is not associated with an increase in the development of osteoarthritis.

Question/Purpose:
We sought to answer the following question: Does the use of subchondral bone grafting affect rates of fracture, arthritis, and/or recurrence?

Methods:
Medical records of 68 patients after exclusion treated for GCT were retrospectively reviewed for outcomes such as fracture, arthritis, and recurrence. The presence of osteoarthritis was determined using Kellgren-Lawrence score of 3.

Results:
The mean age was 34.5 years old and was comparable. Mean follow-up for patients treated with only PMMA was 97.6 months and 69.6 months for those treated with bone graft. A trend in increase in fracture (OR 2.1) and arthritis (OR 2.0) was found in patients treated with PMMA only. There was a trend in increased recurrence amongst the group that received both PMMA and bone graft (OR 2.0).

Conclusion:
Use of bone graft, in conjunction with PMMA, may delay or decrease the need for later surgical revision. Larger studies are needed to elucidate the difference in outcomes with the addition of bone graft.

15:23 - 15:26

1413 Arthrodesis To Avoid Amputation In Patients With Massive Bone Loss Due To Infection At The Knee: A Single Institution Review

Ashley Castan, Rosamaria Dias, Yazan Kadkoy, Joseph Ippolito, Kathleen Beebe

Rutgers New Jersey Medical School, Newark, United States

Abstract

Background

Prosthetic joint infection (PJI) at the knee is among the most common indications for revision in patients undergoing limb salvage surgery. An arthrodesis allows for immediate weightbearing and lessens the likelihood of future revision surgeries. At our institution, we reserve this option for patients with massive bone loss, greater than 4-6cm of deficit.

Methods

We conducted a thorough chart review of patients who received an arthrodesis with either the Intercalary Knee Arthrodesis (IKA) system or the femoral-tibia arthrodesis nail between 2018 and 2023 at our institution. 15 patients were included in this analysis and divided into which arthrodesis system they received. Defect size was measured using mechanical axis studies. We also analyzed the organism profiles, outcomes of each patient, and calculated MSTS scores.

Results

Twelve (80%) patients underwent IKA, with mean defect of 7.14cm. Three (20%) patients underwent femoral-tibia arthrodesis nail, with mean defect of 17.66cm. Eleven (73%) patients retained their fusion without complication. Three (20%) patients experienced complication requiring return to the operating room. One patient was converted successfully to an articulating construct. The mean MSTS score improved from 14.4 to 20.2 post-arthrodesis ($P<0.05$).

Discussion

In this series, a majority (73%) of patients retained their fusion with improved functional outcomes and immediate weightbearing.

15:04 - 15:07

1549 Intercalary Endoprosthetic Reconstruction At The Humerus: A Multi-Institutional Analysis Of Complications

Ashley Castan[1], Rosamaria Dias[1], David Ahn[1], Justin Leonard[2], Joseph Ippolito[1], Kathleen Beebe[1], Francis Patterson[2], Joseph Benevenia[1]

1. Rutgers New Jersey Medical School, Newark, United States
2. Hackensack University Medical Center, Hackensack, United States

Abstract

Introduction:
Intercalary endoprosthetic reconstruction at the humerus provides a joint-sparing solution following resection of diaphyseal tumors. Bony bridging has been suggested as a protective finding against risk for implant failure.

Methods:
Eighteen patients were treated with intercalary endoprosthesis reconstruction (OsteoBridge IDSF) at the humerus following tumor from 2008-2024 at two institutions. A modified radiographic union score for tibia (mRUST) was utilized to assess the degree of bony bridging around the intercalary device at one year post-operatively or at latest follow-up. Complications were reported and categorized according to Henderson's failure modes.

Results:
Mean age at the time of surgery was 63 years old with mean follow-up of 27.4 months. Seventeen (94%) patients were treated for metastatic disease. One patient was treated for Osteosarcoma. Mean intercalary defect was 6.2 cm. Complications were reported in five (28% patients. Patients with minimal or no bony bridging (mRUST < 2) were more likely to develop aseptic loosening [OR 3.00, p=0.603].] Having the cylinder located in the midshaft of the humerus was associated with decreased likelihood of bony bridging [OR 1.125, p = 0.906]. Cylinder placement in the distal portion of the humerus was associated with an increased likelihood of aseptic loosening [OR 6.5, p = 0.201)]. The mean MSTS score for patients in this study was 81%.

Conclusions
Intercalary endoprosthetic reconstruction provides a viable option for limb salvage and immediate weightbearing in patients diaphyseal tumors at the humerus. Patients with minimal or no bony bridging were at increased risk for aseptic loosening.

14:48 - 14:51

1769 Oligometastases And Solitary Metastases: A Unified Surgical Approach Based On A Study Of 120 Cases

Rouag Nasreddine[1], Leila Nebchi[1], Atika Mazari[1], Nadia Menasri[1], Zoubir Kara[2], Reda Harrar[1]

1. Specialized Hospital Salim Zemirli, Baraki, Algeria
2. Mustapha Bacha University Hospital, Algiers., Baraki, Algeria

Abstract
Introduction : Proximal femoral metastases are a frequent site of tumour dissemination. Surgical treatment aims to relieve pain, preserve or restore joint function, and prevent or treat pathological fractures. Bone oligometastases, defined as 3 to 5 metastases, share a prognosis similar to that of solitary metastases, provided there are no visceral metastases. This study evaluates the impact of surgical treatment of proximal femoral metastases on prognosis and quality of life, comparing 31 patients with solitary metastases, 33 with oligometastases, and 64 with multiple metastases.
Patients and Methods: This was a retrospective and prospective analysis of 120 patients treated surgically between January 2018 and December 2023. Procedures included resections with reconstruction as well as extramedullary and intramedullary osteosynthesis.
Results: Patients with solitary metastases or oligometastases showed significantly better overall survival compared with patients with multiple metastases ($p < 0.000$). Those undergoing resection with reconstruction had better survival ($p < 0.000$). The group treated with osteosynthesis, particularly extramedullary osteosynthesis, experienced more mechanical complications, while patients with prostheses had a higher incidence of infections.
Discussion: Improved medical control of cancer has increased the incidence of bone metastases. Oligometastases and solitary metastases share a comparable survival prognosis in the absence of visceral metastases, which worsen the prognosis.
Conclusions: Patients with oligometastases should be treated similarly to those with solitary lesions, with ambitious surgery (wide resection and prosthetic reconstruction). Intramedullary nailing remains appropriate for advanced stages, while extramedullary osteosynthesis, associated with a high rate of complications, should be abandoned.

15:17 - 15:23

2041 Dorsal Fusion Using Carbon Fibre-Reinforced PEEK Implants For Tumors Of The Spine

Markus Hanna, George Abdel Nour, Minas Ibrahim, Reinhard Windhager, **Philipp Theodor Funovics**

Medical University of Vienna Department of Orthopaedics and Trauma Surgery, Vienna, Austria

Abstract
Introduction
Carbon fibre-reinforced polyetheretherketone (CFR-PEEK) implants are a valuable option in spinal tumor surgery, offering structural integrity, minimizing interference with diagnostic and therapeutic interventions. We aimed to evaluate outcomes of CFR-PEEK implants, focusing on spinal stability, neurological recovery, pain relief and survival in patients with spinal tumors.
Materials and Methods
This retrospective analysis included 83 patients (52 males, mean age 59.9 years, range 18–88) treated between 2018 and 2024. 22 patients had primary and 61 secondary tumors, most commonly chordoma (6) and renal cell carcinoma (16). Surgical interventions involved the cervical (12), thoracic (42), and lumbar (29) spine. Mean surgery time was 207 minutes, with an average of 5 fusion levels. Pre- and postoperative outcomes (Frankel-, VAS Score), SINS-Score, and oncological follow-up were analysed using Wilcoxon and Mann-Whitney-U tests.
Results
Mean follow-up was 13 months (range 0–55). Postoperative mortality (34%) was associated with local recurrence in 10 patients ($p = 0.008$). Significant neurological (Frankel Score from 40% to 62%, $p < 0.001$), and VAS improvements (mean of 3 points, SD 2.5, $p < 0.001$) were observed. SINS Score classified 26% as unstable, but without correlating with complications, neurological outcomes, or VAS improvement. Complications occurred in 19 patients, including 6 with wound healing disorders and 3 with implant loosening; 3 complications, including 2 dural tears, occurred intraoperatively.
Conclusion
CFR-PEEK implants demonstrate effective spinal stabilization, significant neurological and functional improvements, as well as manageable complication rates, supporting their use as a reliable option for spinal fusion in tumor surgery.

15:41 - 15:44

2165 Diagnostics And Tactics For Surgical Treatment Of Cervical Spine Neoplasms With Involvement Of The Vertebral Artery In Children

Dmitrii Glukhov[1], Alexander Mushkin[2,3]

1. Saint Petersburg State University Hospital, Saint Petersburg, Russia
2. Saint Petersburg Research Institute of Phthisiopulmonology, Saint Petersburg, Russia
3. First Pavlov State Medical University of St. Petersburg, Saint Petersburg, Russia

Abstract
Aim. To analyze results of treatment of children with cervical spine tumors with vertebral artery involvement.
Material and Methods. A single center 20-years retro- and prospective cohort includes the data of 14 children with cervical spine tumors with the involvement of vertebral arteries. Demographic parameters, duration of diagnosis, clinical and radiological manifestations, features of surgical treatment, morphology, postoperative outcomes were studied. The features of vascular visualization, pre- and intraoperative manipulations on the vertebral artery were evaluated.
Results. The median age of patients was 7 (6,25; 14,75) years old, and the median duration of diagnosis was 7 months before the surgery. The cervicalgia was the prevalent complaint followed by the neurological deficit. A malignant process was confirmed in 3 cases. Before a primary surgical treatment patients underwent diagnostics with vascular visualization. The examinations revealed that the pathological tissue completely surrounded the vertebral artery in 7 patients (the involvement of the both arteries was in 2 cases), partially surrounded - 3 and adjacent to the artery – 4. The temporary balloon occlusion test and subsequent endovascular embolization of the involved artery were performed in 1 case preoperatively; intraoperative ligation was done in 2 cases, 2 arteries was damaged and tamponaded. There were not neurological complications associated with the artery sacrifice after surgery.
Conclusion. The decision making algorithm for surgical treatment in patients with tumors in the area of the vertebral artery is proposed.

15:26 - 15:29

530 Pasteurization Of Bone For Reconstruction Of Malignant Bone Tumors Around The Ankle

ADEL Refaat Ahmed, NOUURHAN Adel Mohamed, YOUSSEF Adel Mohamed

ALEXANDRIA UNIVERSITY, Alexandria, Egypt

Abstract
Objectives: Surgical treatment of malignant bone tumors comprises tumor resection and reconstruction.
Prosthetic replacement is a commonly used reconstruction method which achieves good early function, but has a high long-term incidence of complications. Another reconstruction option is
autologous bone replantation after devitalization of the living cells , which has the advantages of
anatomical matching and no need for large bone bank support. Is Pasteurized autograft a good
alternative method of biologic reconstruction for managing bone defects after tumor resection.
Methods: In this retrospective study between 2005 and 2020 we analyzed 10 patients of malignant bone tumors
around the ankle with a follow-up of 2-15 years who underwent a surgical treatment in our institution.
Epidemiological data, radiographic and histological examinations, complications, local recurrence,
radiographic and functional outcome were evaluated. The affected segment was excised with appropriate safety margins, pasteurized and replanted and fixed with locked plates.
Results and Conclusion: Results: The study includes 8 males (80%) and 2 females (20%), with a mean age of 29 (18-40) years.
The most common pathology was conventional osteosarcoma (70%) with one patient had fibular
osteosarcoma and six patients had tibial osteosarcoma with one of them had osteosarcoma on top of
fibrous dysplasia. Two patients had tibial chondrosarcoma (20%) and one patient had tibial Ewing's
sarcoma (10%). Seven cases had intercalary segment affection and three cases had osteoarticular
reconstruction. All cases had sound union with no infection. One osteosarcoma patient developed local
recurrence and treated with below knee amputation. One Ewing s sarcoma patient developed disseminated metastasis to the chest and skull.
Conclusion: Pasteurized bone graft is a viable option for ankle reconstruction.

15:48 - 15:51

507 Extra-Corporeal Radiation Therapy (ECRT) Followed By Re-Implantation In Bone Tumours: Assessment Of Factors Affecting Union, And Feasibility Of The Procedure

Raja Bhaskara Rajasekaran, Sunil Kumar T, Pushpa Bhari T, Devendra Agraharam, Rajasekaran Shanmuganathan

Ganga Medical Centre & Hospitals Pvt. Ltd, Coimbatore, India

Abstract
Background: Extracorporeal Radiation and Re-Implantation (ECRT) of bone tumours is a well described technique for managing malignant bone tumours. We analysed the results of our series of cases managed with ECRT, and reported the Complications and feasibility of this procedure.
Methods: 19 Patients with Malignant tumours of bone (Biopsy proven) were managed following Oncological principles using ECRT and Re-implantation using LCPs. Outcomes were managed using complications including Local recurrence, Bone union status, and Functional Outcomes. Factors affecting the unions were assessed.
Results: At the latest follow-up, a complete union of bony ends was seen in 17 Patients. Two Patients required additional procedures for bony union. 4 Patients (21%) developed complications requiring further treatment. Local recurrence of the disease was seen in 1 patient. Functional outcome scores improved in all Patients. On univariate analysis, age, and use of additional plate at diaphyseal osteotomy had a significantly faster time to union, while gender, tumour type, bone involved, resection length, chemotherapy, type of fixation, and use of intra-medullary fibula did not influence union time. In multivariate analysis, use of additional plate at diaphyseal ostetomy were the independent factors with favourable time to union.
Conclusion: Our results show that ECRT followed by Re-implantation is a useful option for managing malignant tumours. Proper planning of Margins, will give good oncological clearance of the disease. Use of additional plate helped achieve union.

14:54 - 14:57

368 Imaging Differences Between Enchondroma And Atypical Cartilaginous Tumor: Insights From A Reference Center

Gonçalo Vieira Da Silva[1], Filipe Vargas[2], Pedro Neto[1], Francisco Serra[1], João Nelas[1], Catarina Souto[1], Manuel Pedro Carrapatoso[1], Pedro Cardoso[1,2], Vânia Oliveira[1,2]

1. Centro Hospitalar Universitário de Santo António, Porto, Portugal
2. ICBAS - School of Medical and Biomedical Sciences, Universidade do Porto, Porto, Portugal

Abstract
Introduction: Differentiating enchondromas from atypical cartilaginous tumors (ACTs) is crucial for optimal patient management, as ACTs often require surgical intervention or surveillance, whereas enchondromas are typically managed conservatively.
Aims & Objectives: This study aims to identify imaging markers that aid in distinguishing these entities through a comprehensive analysis of radiographic and magnetic resonance imaging (MRI) features.
Study Design & Methods: This retrospective study included 50 patients diagnosed with ACT or enchondroma between 2013 and 2024. Imaging variables analyzed included tumor size, lobulation, matrix calcification, endosteal scalloping, periosteal reaction, cortical expansion, fat entrapment, T2-weighted hypersignal, heterogeneity, and cortical discontinuity. The distribution in short and long bones was also assessed. Statistical analysis used the Chi-square test for categorical variables and the Kruskal-Wallis test for continuous variables.
Results: Regarding final diagnosis, most patients had enchondromas (72%, n=36), followed by ACTs (20%, n=10) and chondrosarcomas (8%, n=4). ACTs showed a significant increase in tumor size and a preference for long bones ($p < 0.05$) compared to enchondromas. Endosteal scalloping demonstrated a strong trend toward significance ($p = 0.051$). Other radiologic characteristics had no significant difference.
Conclusion: Tumor size and endosteal scalloping emerge as key markers in differentiating ACTs from enchondromas. However, the limited sample size and borderline statistical significance in some variables highlight the need for further research.
Keywords: Atypical cartilaginous tumor, enchondroma, imaging characteristics, chondrosarcoma

15:38 - 15:41

2144 Long-Term Survival Analysis Beyond 10 Years In Patients With Unanticipated Malignant Masses In The Inguinal Region: A Surgical Outcome Study

Okan Yigit[1], Mert Gundogdu[2], Veysel Burak Ozmusul[2], Evrim Sirin[2], Omer Sofulu[2], Bulent Erol[3]

1. Kartal Lutfi Kirdar City Hospital, Istanbul, Türkiye
2. Marmara University Pendik Training and Research Hospital, Istanbul, Türkiye
3. Pendik Medical Park Hospital, Istanbul, Türkiye

Abstract
Introduction: Masses located in the inguinal region constitute soft tissue tumors that are more frequently observed in the middle-aged to elderly population. Due to their location, they are often misdiagnosed as various pathologies, which can delay surgical planning and potentially negatively affect long-term survival.
Aims and Objectives: Our study aims to compare the incidence of masses located in this region, patient survival, and long-term clinical outcomes.
Study Design and Methods: Patients presenting with groin pain and swelling were retrospectively analyzed. A total of 73 patients diagnosed between 2009 and 2015 were included in the study. Age, gender, histopathological subtype, bone invasion, history of neoadjuvant and/or adjuvant therapy, need for reconstruction, metastasis status, recurrence, and other complications, albumin levels, and smoking history were examined. Clinical and functional assessment was performed using the MSTS score.
Results: In the survival analysis of the patients, univariate analysis revealed that histopathological subtype, preoperative and postoperative radiotherapy and/or chemotherapy, metastasis, recurrence, and complication status were statistically significant ($p=0.011$; $p=0.003$; $p=0.003$; $p<0.001$; $p=0.001$; $p<0.001$; $p=0.020$; $p=0.004$). In the multivariate regression model, neoadjuvant radiotherapy and chemotherapy, as well as adjuvant radiotherapy, were statistically significant ($p=0.010$; $p=0.037$; $p=0.008$).
Conclusion: Early diagnosis and treatment planning according to the subtype of inguinal masses in patients presenting with groin pain are crucial for long-term survival. In the long-term analysis, adjuvant chemotherapy stands out with its positive effect, particularly when compared to other neoadjuvant-adjuvant therapies and the other mentioned variables.
Keywords: inguinal masses, sarcoma, long-term survival

Friday, 5 September

Paediatrics 3
08:49 - 08:52

431 Preoperative Imaging Predictors Of Type IV Pediatric Supracondylar Humeral Fractures And Early Guidance For Surgical Management

Zhiqiang Zhang

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Abstract
Objectives: To identify predictive preoperative imaging indicators for type IV fractures and provide early guidance for subsequent diagnosis and treatment.
Methodology: Pediatric patients diagnosed with supracondylar humeral fractures and treated surgically at our hospital between January 2019 and January 2023 were included. Preoperative and intraoperative clinical data were collected and analyzed. Binary and multivariate logistic regression analyses were used to construct a predictive model for type IV fractures, while Lasso regression was applied to identify the most significant predictive features.
Results: A total of 266 children with supracondylar humeral fractures were included in the study, comprising 233 type III cases and 33 type IV cases. Significant differences were found in intraoperative variables, including conversion from closed to open surgery, leverage reduction, use of medial pins, operative time, and intraoperative blood loss. Combined regression analysis indicated that lateral oblique fractures combined with either fracture displacement or lateral displacement of the distal fragment were significant risk factors. Lasso regression identified the lateral oblique fractures as the most significant predictor of type IV fractures.
Conclusions: In type III supracondylar humeral fractures with lateral oblique fractures, the probability of type IV fractures increases regardless of the presence of fracture displacement or lateral displacement of the distal fragment. Early intraoperative planning and preparation are recommended for such cases, as type IV fractures are associated with longer operative times, greater blood loss, and a higher likelihood of requiring medial pin fixation compared to type III fractures.

09:24 - 09:27

1337 Outcome Of Titanium Elastic Intramedullary Nailing System In Children With Diaphyseal Forearm Fractures : A Retrospective Study

Sarmad Khalil

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Abstract
Objectives:
To evaluate the functional and radiological outcomes of Titanium Elastic Intramedullary Nailing System (TENS) in paediatric diaphyseal forearm fractures.

Study design :
Retrospective observational study

Methodology :
A total of 53 paediatric patients with closed diaphyseal forearm fractures were identified from hospital records (Jan 2018 till Dec 2023), of whom 40 with complete follow up data were included. Paediatric patients, treated with TENS, were retrospectively analysed. Data on demographics, fracture characteristics , and functional/radiological outcomes were collected. Outcomes were assessed at follow ups using Grace and Eversmann Scoring System , evaluating supination/ pronation , elbow range of movement , and radiological union. Statistical analysis was performed using SPSS version 25, with categorical and continous variables analysed as frequencies, percentages and mea. + - standard deviation (SD).

Results :
The mean age of the patients was 10.18 + - 2.04 years, with males comprising 80% of the cohort. The middle third of the forearm was the most common fracture site (62.5%) , and falls were the leading cause (97.5%). Radiological union was achieved in 100 % of patients, with a mean union time of 14.72 + - 2.70 weeks. The overall Grace and Eversmann scores averaged 9.05 + - 1.34 with 92.5% achieving excellent or good outcomes in functional assessments.

Conclusion:
TENS demonstrated excellent functional and radiological outcomes in paediatric diaphyseal forearm fractures with high union rates and minimal complications. These findings support TENS as a safe and effective treatment.

09:02 - 09:05

1657 Analysis Of Risk Factors For Cubitus Varus Following Surgical Management Of Pediatric Supracondylar Humeral Fractures

Zhe Wang

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Abstract
Objective: To identify independent risk factors for postoperative cubitus varus in children with surgically treated supracondylar humeral fractures and to establish a predictive model for clinical decision-making.
Methods: This retrospective cohort study included 553 pediatric patients undergoing surgical fixation for supracondylar humeral fractures between January 2018 and June 2024. Based on postoperative carrying angle measurements (case group: <0°, n=32; control group: ≥0°, n=521), we applied Lasso regression for variable selection and multivariate logistic regression for risk factor identification. Model discrimination was assessed via area under the receiver operating characteristic curve (AUC).
Results: Four predictors were screened by Lasso regression: flexion-type fracture morphology, suboptimal intraoperative reduction, medial condylar column collapse, and premature postoperative weight-bearing. Multivariable analysis confirmed flexion-type fracture (OR=2.3, 95% CI: 1.5-2.8), inadequate reduction (OR=1.8, 95% CI: 1.2-2.6), and medial column collapse (OR=4.2, 95% CI: 2.5-5.6) as independent risk factors (all $p<0.05$). The prediction model demonstrated strong discriminative capacity (AUC=0.85, 95% CI: 0.79-0.91) with 82.1% sensitivity and 76.5% specificity.
Conclusion: Fracture configuration, reduction precision, and medial column integrity are pivotal determinants of postoperative cubitus varus. The integrated Lasso-logistic regression model enables individualized risk stratification and rehabilitation protocol optimization, offering potential to mitigate this debilitating complication.

Keywords: Supracondylar humeral fracture; Cubitus varus; Risk factors; Predictive modeling

09:05 - 09:08

1702 Forearm Osteotomy For Congenital Radioulnar Synostosis: Is Single Bone Osteotomy Adequate?

Jaideep Dhamele, Taral Nagda, Sushant Sudhir Srivastava

IPOD, Mumbai, India

Abstract
Introduction:Congenital proximal radio-ulnar synostosis (CRUS) is a rare congenital anomaly that is disabling, especially when it is bilateral or fixed in pronation. Management of congenital Radioulnar synostosis aims at changing the forearm position from fixed pronation to functional position. We describe a technique of correction of pronation deformity by single osteotomy of Radius and internal fixation with intramedullary k wire. Purpose of this study is to see the effectiveness and complications of this procedure in children with CRUS under 9 years of age.Material and methods : 22 patients with Congenital proximal radioulnar synostosis were operated from 2019 to 2023. Out of which 16 boys and 6 girls less than 9 years of age (Average 5.4 years). Children with functional limitations secondary to excessive pronation were indicated for surgery with a goal of correction to 10 to 20 degrees of supination. The operative technique consisted of derotation osteotomy at the shaft of the radius at mid forearm and with intramedullary k wire fixation with long arm cast to maintain 30 supination position. Pre op and post op forearm range of movements were recorded and function was assessed by Failla classification system.Results:Based on the Failla classification system, before surgery 2 forearms were rated as good, 14 were rated as fair, and 6 were rated as poor preoperatively. At the final follow-up, 20 forearms were rated as excellent and 2 were rated as good. Conclusion:Single bone derotation osteotomy at the shaft of the radius with intramedullary K wire fixation is effective .

08:36 - 08:39

1736 Radial Osteotomy & Gradual Ulnar Lengthening : A Safe And Reliable Procedure For The Treatment Of Forearm Deformity In Hereditary Multiple Exostosis

Jaideep Dhamele, Taral Nagda, Sushant Sudhir Srivastava

IPOD, Mumbai, India

Abstract
Introduction:- Multiple hereditary exostoses of the forearm typically form in the distal ulna, causing disturbances in the growth of the ulna and functional disability. Multiple hereditary exostoses inhibit the growth of the ulna, leading to an acquisition of a varus deformity in the radius, which sometimes leads to dislocation of the radial head, the development of limitations in the pronation-supination of the forearm, and cosmetic problems.Materials and Method:- We retrospectively reviewed the 13 patients who had deformities of the forearm associated with multiple hereditary exostoses.Radiographic assessment included measurement of radial articular angle, carpal slip, and ulnar shortening. Clinical evaluation included range of motion, assessment function of the extremity as described by Stanton, the visual analog scale for pain.Results:–We evaluated 13 patients with average fallow up periods 48 months.The pre-operative average VAS ranged from 8.2 to 2.3 , pronation and supination improved from a preoperative average value of 35.6 and 51.3 to 70 and 80.6 respectively, at the most recent follow-up visit. Flexion and extension ranged respectively from 130 to 5 and 135 to 4 , Ulnar shortening improved from 24 mm preoperative to 3 mm, and radial articular angle varied from 37.7 preoperative to 26 at the last follow-up.Conclusions:- Radial osteotomy , gradual Ulnar lengthening is a safe and reliable procedure for the treatment of HME that provides good to excellent results to correct forearm deformity and reduces radial head dislocation.

09:08 - 09:11

1828 Pediatrics Radial Neck Fractures: A Simple Percutaneous Leverage Technique For Minimizing Radiation Exposure With Zero Incidences Of Posterior Interosseous Nerve Injury

Yiming Zheng

Children's Hospital of Fudan University, Shanghai, China

Abstract

- Background

The most widely used technique in the treatment of displaced radial neck fractures is the percutaneous pin leverage technique. However, this technique may result in a significant risk of radiation exposure and be associated with posterior interosseous nerve injury.

- Objective

To introduce a simple percutaneous leverage technique to minimize radiation exposure and posterior interosseous nerve injury in pediatric patients with radial neck fractures and to evaluate the clinical outcome.

- Methodology

Forty-one children with a radial neck fracture, who were treated using the percutaneous leverage technique, were included in the study. In all the cases, the lateral middle lines of the upper arms and forearms were marked in an elbow flexion 90 degrees, forearm supination position to determine the percutaneous point. Without the need for the guidance of fluoroscopy or ultrasound, fractures were reduced with the percutaneous pin leverage technique followed by advancing the pin. Then 2 times of fluoroscopy (anteroposterior and lateral) were performed to ensure the reduction and fixation. A long arm cast was applied for 3-4 weeks. We used the Métaizeau classification as a radiologic result and the Mayo Elbow Performance Score as a clinical outcome.

- Results

The average intraoperative fluoroscopy was 2.8±0.8 times. There was no occurrence of posterior interosseous nerve palsy. According to the Métaizeau classification, 32 cases were classified as excellent, 8 as good, and 1 as fair. The average Mayo Elbow Performance Score was 96.7 points.

- Conclusion

The new percutaneous leverage technique can be considered a good option in the treatment of pediatric radial neck fractures.

09:11 - 09:14

2343 Improving Hand Function In Children With Neurodevelopmental Delay Through Web Space Stabilisation

Jyoti Santosh Jeevannavar[1], Anushka Anona Botelho[2]

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Abstract
Introduction: The hand is crucial for coordinated movements, essential for various activities. Children with neurodevelopmental delay may exhibit abnormal hand postures, like thumb adduction or limited wrist extension, leading to a closed web space during functional tasks, which may affect hand function during tasks. Thus, web space stabilisation may significantly influence hand function.

Aims & Objectives: This study aimed to evaluate the effect of web space stabilization on hand function in children with neurodevelopmental delay.

Study Design: Randomised Control Trial

Method: 70 children meeting inclusion and exclusion criteria were randomly assigned to two groups, with 35 children in each group. Hand function was evaluated at baseline and immediately after either sham taping or experimental taping, as per the allocated protocol.

Results: Sham taping did not show any change in scores of mean scores for grasp component of QUEST, BBT, and NHPT from baseline at a P-value=0.05. However, experimental taping showed a significant change in mean scores for grasp component of QUEST, BBT, and NHPT from baseline at a P-value=0.05 when subject to Student T-test. Also the effect size was moderate to large across all the outcome measures when compared between experimental and sham taping.

Conclusion: Web space stabilisation significantly improved hand function, potentially reducing caregiving burdens and helping therapists train children for greater independence in daily activities.

Keywords: Webspace Stabilisation; Neurodevelopment Delay; Hand Function; Grasp; Dissociated Movement; Quality of Upper Extremity Skill Test (QUEST); Nine Hole Peg Test (NHPT); Box And Blocks Test (BBT)

08:55 - 08:58

2346 IPSILATERAL FOOT DROP POST FIXATION: A RARE OCCASION

MUHAMAD Effyzie Daud, NUR Hamizah Zainal

HOSPITAL TUANKU JA'AFAR SEREMBAN, Seremban, Malaysia

Abstract
INTRODUCTION:
Femoral shaft fracture fixation options includes intramedullary nailing. However, for one to sustained one of the devastated complication post fixation which is foot drop, is rare. We share our case report on a patient who sustained foot drop post femur fixation.

REPORT:
A 15-year-old boy presented to casualty following motor vehicle accident sustained open fracture distal third left femur. Primary survey and neurovascular examination unremarkable. Operation done was debridement and temporary femur external fixation prior definitive fixation which is intramedullary nailing of femur.

Intraoperative findings otherwise uneventful. Patient was put on supine position with fractured limb on traction. The unaffected leg is positioned in 30 degree hip extension position to facilitate reduction. Lateral approach is made for the trochanteric entry, with no difficulties encountered intraoperatively. Femoral length restored with good aligment without malrotation. Post operation, revealed that he had intact neurology and was discharge home. Subsequent follow up reveals he developed ipsilateral foot drop. Further investigation for MRI and nerve conduction study planned for this patient. For the time being, he was referred to Occupational therapy for Ankle Foot Orthosis (AFO) and started on vitamin B12.

CONCLUSION:
The causes of the ipsilateral foot drop need to be explored further as it may be due to multiple complications. In an effort to reduce further traction-related complications, it is recommended to release traction after the interlocking screw insertion.

REFERENCES:
1. Alzahrani et al.(2023). Ipsilateral Foot Drop After Leg Traction on Fracture Table for Mid-Shaft Femur Fracture Nailing: A Rare Case Report.

08:30 - 08:33

2397 Radial Head Fracture In Pediatric Age: When Open Reduction Is Necessary

Mariana Sousa, Maria Clara Correia, Joana Pereira, Júlio Marinheiro, Jorge Mendes

ULS Tâmega e Sousa, Penafiel, Portugal

Abstract
Radial head fractures in children are rare, accounting for 1% of all fractures and 5–10% of elbow fractures. Treatment varies depending on the severity of the fracture, with surgery reserved for more displaced fractures. The authors present a case of a radial head fracture requiring open reduction and internal fixation.

Male, 9 years old, suffered a fall with trauma to the left elbow. A fracture of the radial head Judet IVb was diagnosed. After an attempt at closed reduction, he underwent open reduction and fixation with 2 Kirschner wires. He remained immobilized in a plaster cast for 3 weeks and with the wires for 6 weeks. After this period, he began free mobilization of the elbow, maintaining restriction on sports activity until 3 months. At 6 months post-op, he is completely asymptomatic.

The Judet classification identifies 4 types of fracture depending on the displacement/angulation of the radial head. Several surgical techniques have been described. Complications after displaced fractures are common and include limited range of motion, premature closure of the physis, cubitus valgus, overgrowth of the radial head and avascular necrosis.
Open reduction may be necessary if closed or minimally invasive techniques are unsuccessful, however it is associated with worse outcomes and complications.

The main causes of unfavorable outcomes in radial head fractures in children appear to be related to the energy of the trauma and the initial degree of displacement rather than whether the reduction was open or closed.

09:21 - 09:24

3006 SCAPHOID FRACTURES IN ADOLESCENTS: CONSERVATIVE TREATMENT AND FACTORS INFLUENCING TIME TO UNION

Antoaneta Grigorieva Stoimenova, Yavor Biserov Pukalski

UMHATEM N.I.Pirogov, Sofia, Bulgaria

Abstract
Introduction: Scaphoid fractures in paediatric population are uncommon and predominantly involved the distal pole. Usually, they require conservative treatment and not extended follow-up, contrary to the adults. However, in the last decade there is changing in the patient characteristics that may appear to reflect on the fracture epidemiology and treatment.

Aim: Our aim was to evaluate the effect of fracture characteristics, demographic distribution and conservative treatment in adolescents with scaphoid fractures and to identify the risk factors influencing union.

Materials and Methods: This was a retrospective study include 311 patients with clinical signs of scaphoid fracture that had been treated for 5 years /2019 - 2024/. Complete follow-up data were available for 263 patients in adolescent age. Only 32.3% /n=87/were X-ray positive at the time of the first visit. Mean age at the time of incident was 14.6 y /range 13-18/.

Results: Predominant localization was the scaphoid waist in 49% /n=87/. Fractures of the waist and proximal pole were associated with high-energy mechanism , high BMI and occurred more often in boys with closed physis. Union rates after conservative treatment were 84.7% reached for 9.5 weeks/range 6w-12w/.

Discussion: Scaphoid fracture characteristics in adolescents are much more similar to these in adults. Main factor that may influence union rates was time from injury. One -third of the adolescents are presented late and that factor should be taken in consideration when to convert to surgical fixation.

08:46 - 08:49

381 Correlation Between Inner Epiphysis Ulna Radius Length Ratio And Prognosis Of Monteggia Fractures In Children: A Multicenter Study

Siyin Feng[1], Yangfei Yi[2], Zhenqi Song[3], Qingfeng Zhou[4], Junjie Lu[5], Zhong-Wen Tang[1], **Jie Wen**[1], Sheng Xiao[1]

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2. Hunan Normal University, Changsha, China
3. People’s Hospital of Ningxiang City, Changsha, China
4. People’s Hospital of Yuanling City, Huaihua, China
5. People’s Hospital of Dongan City, Yongzhou, China

Abstract
Objective：This study aims to identify a reliable method for evaluating the lengths of the ulna and radius in children, establish normal values for the ratio of the epiphyseal plate lengths of these bones, examine this ratio in children with Monteggia fractures, and investigate its role in determining forearm function in the pediatric population.
Methods：This multicenter study involved 432 normal children under 15 years of age as controls. A retrospective analysis was conducted on anteroposterior and lateral radiographs from 58 children with Monteggia fractures after surgery. The correlation between the inner-epiphysis ulna-radius length ratio, postoperative Mayo elbow joint function score, and radiographic reduction quality of the brachioradial joint was analyzed.
Results：The mean inner-epiphysis ulna-radius length ratio was 1.094, with a standard deviation of 0.024. The maximum value ranged from 1.0336 to 1.168. The medical reference range, with a 95% confidence level, was calculated as 1.047 to 1.141. In children with Monteggia fractures, the postoperative inner-epiphysis ulna-radius length ratio showed significant correlations ($P < 0.05$) with postoperative imaging reduction quality, as well as the range of pronation, supination, flexion, and extension, and the Mayo elbow score.
Conclusions：In normal children, the inner-epiphysis ulna-radius length ratio ranges from 1.0336 to 1.168, with a medical reference range of 1.047 to 1.141 at a 95% confidence level. Restoring this ratio (1.047–1.141) in children with Monteggia fractures can improve elbow function and radiographic radiocapitellar joint reduction quality.

08:33 - 08:36

1063 Waddell Triad In A 11 Year Old Child Suffering Polytrauma Due To Motor Vehicle Injury

Kaunteya Ghosh[1,2]

1. KPC Medical College and Hospital , Jadavpur, Kolkata, India
2. Park Clinic, Kolkata, India

Abstract
An 11 year old girl (automobile passenger)was flung from an e-rickshaw / tuktuk following impact with a mini truck . Upon being extruded from the vehicle she had hit her head on a tree and fell down . During transit to ER she was treated by the EMS with a Thomas Splint for a deformed thigh , on reaching ER she was diagnosed as having a tension pneumothorax for which she was promptly treated . She was diagnosed as having a intracranial bleed for which she underwent decompressive craniotomy . She was also diagnosed as having shaft femur and proximal humerus fracture for which she underwent TENS . She made a full recovery due to the prompt multidisciplinary approach and early institution of ATLS protocols . She also underwent free flap cover for a soft tissue laceration over the scalp . She underwent early rehabilitation from day 2 post op and was mobile without support by 6 weeks .

08:39 - 08:42

924 A Particular Entity Of Staged Trauma Of The Thoracic Limb In Children, The Association Of Fracture Of The Distal Humerus And Distal Radius In 54 Cases

Rabah Atia

Université Badji Mokhtar - Faculté de Médecine de Annaba - Algérie. CHU Annaba - Service d'Orthopédie - Hôpital Ibn Rochd - Annaba - Algérie, Annaba, Algeria

Abstract
Introduction: The association of distal humerus and distal radius fracture in children is a particularity in terms of its management and morbidity
Material and Methods: Retrospective study (1995-2020): 54 files Clinical assessment and therapeutic strategy and classification of TEMTE Surgery in most cases and especially for distal humerus and distal radius fractures
Results: TEMTE constitute 0.17% of all trauma occurring mainly in older school-age children with an average age of 7 and a half years with extremes ranging from 2 to 15 years and with a male predominance in relation to the turbulent age of boys; 37% are city dwellers, 41.86% following a trivial fall These injuries are rarely complicated. The elbow-forearm association is the most observed, of which monoarticular involvement is the most frequent. The treatment was much more orthopedic 58.13% than surgical
Discussion: TEMTE poses few problems but special attention must be paid to the fact that two fractures on a limb can easily lead to a compressive syndrome, hence the most urgent possible management is necessary Surgical treatment for the humerus and distal radius entity allows at best a result and especially better monitoring
Conclusion: TEMTE constitute serious injuries in children, their initial management must be carried out by experienced surgeons in order to achieve complete and definitive treatment. The proposed classification offers several advantages due to its simplicity and its use by the healthcare team, it allows to evaluate the functional prognosis, to correctly code the files.

09:18 - 09:21

2394 Imaging Classification And Individualized Surgical Management Of Congenital High Scapula In Children

Dahui Wang

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Abstract
Objective: To propose an imaging-based classification system for congenital high scapula (Sprengel deformity) and evaluate the efficacy of individualized surgical strategies guided by this classification.
Methods: A retrospective analysis was conducted on 37 patients (42 affected shoulders) treated between 2015 and 2023. Preoperative imaging classified deformities into four types: Type I (rotational), Type II (elevated), Type IIIA/B (elevated-rotational), and Type IV (bilateral). Surgical techniques, including Green and Woodward procedures, were tailored based on scapular morphology, muscle development, and associated soft tissue constraints. Postoperative outcomes were assessed using Cavendish grading and shoulder abduction range.
Results: Postoperative Cavendish grading improved by an average of 2 degrees, with 31 shoulders achieving Grade I (no residual elevation). Shoulder abduction increased from a preoperative average of 91° to 140° at 1-year follow-up. Complications included one transient brachial plexus injury (fully resolved) and no instances of winged scapula. Age >8 years correlated with higher residual deformity rates (50% vs. 0% in younger cohorts).
Conclusion: Individualized surgical planning, guided by imaging classification and intraoperative muscle assessment, optimizes functional and cosmetic outcomes while minimizing complications. Early intervention (3–8 years) is recommended to mitigate recurrence risks.

Friday, 5 September

Research 2
08:30 - 08:33

58 Magnetic And Piezoelectric Dual-Modality Hydrogel For Targeted Rotator Cuff Interface Repair

Lang Bai

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Abstract
Background: Chronic rotator cuff injuries often resist traditional treatments, leading to high recurrence and prolonged disability due to the inability to replicate the complex tendon-bone interface.
Purpose: To evaluate a novel dual-modality hydrogel scaffold combining PVDF-TrFE piezoelectric nanofibers and magnetic orientation, aimed at enhancing the structural and functional repair of the rotator cuff.
Materials and Methods: Using electrohydrodynamic printing, we fabricated scaffolds that align therapeutic agents and structural fibers through magnetic fields. The efficacy of these scaffolds was tested in rat models with induced rotator cuff injuries, comparing them against standard scaffolds and untreated controls.
Results: Treatment with the dual-modality scaffolds resulted in a 40% increase in collagen alignment and a 25% increase in tensile strength at the injury site. Histological analysis confirmed enhanced cellular infiltration and organized matrix formation.
Conclusions: The innovative scaffold not only supports but actively guides tissue regeneration, significantly improving the outcomes of rotator cuff repairs. This approach could potentially reduce the necessity for repeat surgeries and enhance the quality of life for patients with chronic injuries.

09:40 - 09:43

164 Predictors Of Clinical Outcomes In Necrotizing Fasciitis: A 10 Year Study

Jegathesan T[1], Sean Wei Loong Ho[1], **Sherlyn Yen Yu Tham**[2], Michelle Lay Teng Ang[3]

1. Tan Tock Seng Hospital, National Healthcare Group, Singapore, Singapore
2. Ministry of Health Holdings, Singapore, Singapore
3. National Public Health Laboratory, National Centre of Infectious Diseases, Singapore, Singapore

Abstract

Introduction

Necrotizing fasciitis (NF) is a rapidly progressive disease associated with significant morbidity and mortality. Limited studies have identified risk factors for adverse outcomes. This study aims to determine predictors of key clinical outcomes in NF to better guide decision-making and patient counseling regarding outcomes during the crucial initial phase of this time sensitive disease process.

Methods

A retrospective review of NF cases involving upper and lower extremities was conducted over a 10-year period from January 2008 to December 2017 in our tertiary institution. Patient demographics, clinical parameters, microbiological data, and outcomes were analyzed using multivariate regression analysis. Primary outcomes included mortality, major amputation (proximal to the wrist or ankle), prolonged ICU stay (>7 days), and prolonged hospital stay (>30 days).

Results

Among 191 patients, mortality was 17%, with significant predictors including age > 65 years (OR: 3.04, p=0.024), female gender (OR: 3.04, p=0.017), peripheral vascular disease (OR: 8.94, p=0.003), renal impairment (OR: 5.10, p=0.002), MAP<60mmHg (OR: 3.06, p=0.040), and bacteremia (OR: 3.11, p=0.032). Major amputation (n=61) was associated with peripheral vascular disease (OR:4.45, p=0.042), lower limb involvement (OR:5.67, p<0.001), soft tissue gas on x-ray (OR:5.78, p=0.013), and bacteraemia (OR:5.20, p<0.001). Predictors for prolonged ICU admission were female gender (OR: 2.55, p=0.016) and creatinine>140μmol/L (OR: 3.44, p=0.002).

Conclusion

Identification of these risk factors enables timely recognition of high-risk patients prone to specific complications, improves accuracy in patient counselling and better aligns patient expectations regarding outcomes in NF cases.

09:50 - 09:53

626 A New Treatment For Chronic Non-Bacterial Osteomyelitis In Children With Zoledronic Acid And Its Pathogenetic Effects

Gazinur Nailevich Tairov, Alexander Alekseevich Ochkurenko, Alexander Alekseevich Kuleshov

Priorov National Medical Research Center of Traumatology and Orthopedics, Moscow, Russia

Abstract
Relevance. Chronic nonbacterial osteomyelitis (CNO) is an orphan autoinflammatory bone disease that affects mainly children and adolescents, with the peak onset of the pathological process between 7 and 12 years, but can occur in all age groups. Currently, there is no etiotropic therapy for this disease. Existing therapeutic approaches are imperfect, and the question of treatment strategy remains unresolved.
Objective. To demonstrate the effectiveness of zoledronic acid therapy in the treatment of chronic nonbacterial osteomyelitis and it`s effects on the pathogenesis of the disease
Materials and methods. Therapy was initiated in 29 children 9 to 17 years of age with chronic recurrent multifocal osteomyelitis. The patients underwent treatment developed by us in the form of: zoledronic acid 0.05 mg / kg of weight once every 3 months №3 in combination with alfacalcidol, native vitamin D, calcium preparations.
Results. Therapy for CNO using zoledronic acid demonstrates a statistically significant decrease in the number of bone tissue edema foci in the dynamics after treatment according to the results of whole-body MRI in DWIBS mode. As well as rapid relief of pain.
Conclusion. Zoledronic acid quickly inhibits osteoclast activity, which leads to clinical and radiographic remission in the form of reduced pain and bone tissue edema on MRI. In addition, this therapy has shown its effect on the pathogenesis of the disease in the form of a statistically significant decrease in the levels of proinflammatory interleukins (IL-1, IL-6, IL-8, TNF-α), which determine the development of this disease.

09:56 - 09:59

873 All-Trans Retinoic Acid Promotes Macrophage Efferocytosis To Treat Periprosthetic Joint Infection

Shutao Zhang, Bing Yue

Renji Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai, China

Abstract
Objective: To investigate the effects of all-trans retinoic acid (ATRA) on macrophage efferocytosis in the microenvironment of periprosthetic joint infection (PJI) and to elucidate the underlying molecular mechanisms.

Methods: Male, specific-pathogen-free C57BL/6 mice were randomly assigned to four groups in a Staphylococcus aureus-induced PJI model: a saline control group, an ATRA group, a levofloxacin group, and a combined ATRA and levofloxacin group. Treatments were administered daily for four weeks post-infection. Bone and joint infection status was evaluated weekly using small-animal X-ray and micro-CT imaging. After euthanasia, tissue homogenates were analyzed to determine bacterial load and inflammatory cytokine levels (IL-6, IL-1β, IL-10). In vitro, mouse bone marrow-derived macrophages were co-cultured with apoptotic, infected osteoblasts. Efferocytosis rates were assessed via flow cytometry and confocal laser scanning microscopy. Expression of efferocytosis-related genes (Axl, Gas6, MerTK) and proteins was quantified using qPCR and Western blotting.

Results: The combined ATRA and levofloxacin group exhibited significantly reduced inflammatory bone loss compared to the saline and levofloxacin monotherapy groups, as evidenced by increased bone density and bone volume fraction, along with decreased levels of pro-inflammatory cytokines. This group also showed a reduced bacterial burden, enhanced bacterial clearance, and increased macrophage efferocytosis. In vitro experiments confirmed that ATRA treatment upregulated the expression of efferocytosis-related genes (Axl, Gas6, MerTK) in BMDMs compared to controls.

Conclusion: ATRA enhances bacterial clearance and mitigates inflammatory osteolysis in PJI by promoting macrophage efferocytosis, ultimately improving therapeutic outcomes and bone repair. This study introduces a promising new strategy for PJI management.

09:53 - 09:56

987 A New Method To Estimate The Anteversion Angle Of The Femur From Femoral Head Size

OLASODE Israel Akinmokun, UTIBEABASI Edem

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Abstract
INTRODUCTION:
Femoral neck anteversion (FNA) is the degree of torsion of the femur. This study proposed a new method to estimate FNA
METHODS
FNA of 40 dry femoral bones were measured. Digital photography of proximal femurs were taken in two positions: in anatomical position (P1) (the two condyles were in contact with the table; head was lifted off; and the version corrected position (P2) (the head was in contact with the table; the lateral condyle was lifted.) For each bone, two proximal femoral images were obtained. Femoral Head (FH) diameters of both images were measured.

RESULTS
FH Diameters obtained at P1 were persistently larger than those at P2. (Means: 46.1 ± 3mm and 43.7 ± 2.7mm respectively). The differences between FH diameters at P1 and P2 for each bone ranged from 0.5mm to 6.5mm. The differences were larger as the FNA increased. (p value = 0.0001) Regression analysis yielded an equation:
Anteversion angle(0) = (2*difference in head diameters at P1 and P2) + 13.

CONCLUSION
This study revealed that the position of the proximal femur at the point of radiological investigations could alter FH Diameters and lead to inaccuracies when FH diameter is measured.
This study also revealed that FNA can be estimated using the equation
Anteversion angle0 = (2*difference in head diameters at P1 and P2) + 13
This is applicable by taking two plain x rays of the pelvis, without and with correction of the anteversion. The difference is substituted into the equation to obtain an estimated value

08:39 - 08:41

993 Pre-Operative Estimation Of Femoral Head Diameter: A New Method To Predict Femoral Head Size

OLASODE Israel Akinmokun, UTIBEABASI Edem

LAGOS UNIVERSITY TEACHING HOSPITAL, Lagos, Nigeria

Abstract
Introduction
Pre-operative determination of femoral head diameter (FHD) is an important steps in preparing patient for hemiarthroplasty. However, a new method was propounded. This method involved the use of an equation "femoral head size (mm) = (0.7*Trochanteric length (cm) + 16) ± 5 " This study was done validate the use of the equation.
Patients and Methods
This was a prospective descriptive study that spanned 36 months. Femoral heads retrieved at surgeries was measured with ring gauge and compared with the estimation made prior the surgery. Trochanteric lengths of the femur were measured pre-op and used in the equation to estimate the range for the femoral head diameters to be retrieved. 'Trochanteric length' is the maximum distance from the tip of the greater trochanter to the most distal part of lateral femoral condyle.
Results
Seventy-eight hip were studied. The mean for actual femoral head (AFH) size was 47.4±3.4mm. (Range 40mm – 56mm) The mean for estimated femoral head size was 46.8±3.8mm. (Range 41mm – 55mm) The Pearson's correlation coefficient was 0.7221. Without the use of ±5mm range, only 11(14.1%) AFH were predicted but with ±5mm range, 78 (100%) of the AFH sizes fell within the range provided by the equation.
CONCLUSION
The study showed the use of equation "Femoral head(mm) = (0.7*Trochanteric length(cm)+16) ±5" can be used to estimate the FHD prior to hemiarthroplasty. With ±5 range, the predictive value was 100%. It is useful in low and middle income countries where implants are not usually stocked.

10:13 - 10:16

1146 Myoblasts-Based Muscle Regeneration In Volumetric Muscle Loss Model Of BALB/C Nude Mice

Hong Seok Kim, Sang Yoon Kang, Jeong Joon Yoo

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Abstract
Introduction:
Tendon injuries are common in sports and daily life, yet their limited healing capacity makes complete recovery challenging. While surgical treatments like autografts and allografts have limitations, tissue engineering offers a promising alternative. Adipose-derived stem cells (ADSCs) are ideal for tendon regeneration due to their easy harvestability, but efficient differentiation and delivery remain challenging. This study evaluates the effectiveness of PLGA mesh and fibrin gel scaffolds in delivering tenogenic-differentiated ADSCs in a rat Achilles tendinopathy model.

Methods:
Human ADSCs were obtained during hip arthroplasty, expanded in tenogenic differentiation media (TGF-β1 + ascorbic acid), and seeded onto PLGA mesh or fibrin gel scaffolds. Acute and chronic tendinopathy models were established in Sprague-Dawley rats. Scaffolds were implanted, and tendon healing was assessed through gross examination and histological analysis at 4 and 8 weeks.

Results:
In the acute model, the PLGA mesh group exhibited gradual healing at both time points, whereas the fibrin gel group showed minimal improvement. In the chronic model, the mesh group displayed advanced healing, with inflammatory cell recruitment indicative of active repair. The fibrin gel group lacked structural support, resulting in frail tendon integrity.

Discussion:
PLGA mesh facilitated tendon healing by providing structural support, whereas fibrin gel alone was insufficient. This study highlights the importance of scaffold selection in tendon tissue engineering, demonstrating that physical constraints are crucial for ADSC-mediated tendon regeneration. Optimizing scaffold design could enhance clinical tendon repair strategies.

08:45 - 08:48

1174 Neutrophil-Surface Markers After Polytrauma - Results From A Pilot Study For Point-Of-Care Neutrophil Analysis

Christian Thomas Hübner[1], Roman Pfeifer[1], Emma De Fraiture[2], Nathalie Piaz[1], Leo Koendermann[3], Falco Hietbrink[2], Paolo Cinelli[1], Michel Teuben[1], Hans-Christoph Pape[1]

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Abstract

Introduction

Changes in cell surface receptors on circulation neutrophils provide valuable insights into the post-traumatic immune response. Recent advances in point-of-care (POC) technologies allow for rapid on-site neutrophil analysis. In a pilot study we identified three surface antibodies on neutrophils, which correlate with trauma severity, measured by ISS.

Methods:

We established a trauma bay POC neutrophil analysis system at a Level 1 trauma center. Polytrauma patients (ISS>25) were included and flow studies on systemic neutrophils were conducted using a AQUIOS Flow Cytometer with optimized settings. We analyzed the neutrophil surface patterns CD10, CD11b and CD62L and compared expression levels with the Injury severity score (ISS).

Results:

23 Polytrauma patients with a median ISS of 27.8 were included. Mean time between accident and measurement was 181min. There were no failed samples. Circulating neutrophil counts, as well as cellular activation status, measured by CD10, CD11b and CD62L correlated with ISS. These findings were consistent with findings from both standardized animal studies and clinical analysis at another study center.

Conclusion

This study demonstrates the successful establishing of a POC neutrophil analysis infrastructure at a level 1 trauma center. This has the potential to pave the way for advanced immunomonitoring that could significantly improve clinical decision-making and patient's outcomes.

10:02 - 10:05

1178 Alterations In Neutrophil Cell Surface Receptors After Trauma: A Systematic Literature Review

Christian Thomas Hübner, Lukas Schulte, Felix Karl-Ludwig Klingebiel, Yannik Kalbas, Alba Shehu, Roman Pfeifer, Hans-Christoph Pape, Michel Paul Johan Teuben

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Abstract

Purpose

Neutrophils play a key role in the immune response after trauma. While receptor expression changes over time have been described in the literature, effective monitoring strategies remain lacking. This systematic review analyzes clinical research on neutrophil receptor expression after trauma to characterize the post-traumatic neutrophil profile.

Methods

A systematic literature search on MEDLINE and Embase was conducted, focusing on clinical studies from 1995 to 2023 that reported neutrophil receptor expression after injury. Study characteristics, patient data, trauma details, and receptor alterations were extracted and analyzed.

Results

A total of 1266 publications were identified and screened for eligibility. Finally, 34 articles reporting clinical studies with neutrophil receptor expression analysis, were included. The most analyzed receptor was integrin Mac-1/CD11b (25 studies), followed by L-selectin/CD62L (9 studies). Fifteen studies examined post-traumatic Fcγ-receptor family changes. CD11b increases after moderate to severe trauma, peaking at 24 hours, then declines, with prolonged elevation in severe cases up to six weeks, returning to baseline by six months. L-selectin fluctuates early, while CD16 consistently decreases post-trauma. CD64, however, shows a uniform increase across all studies immediately after trauma.

Conclusion

This systematic review identifies a unique multi-parameter neutrophil receptor expression pattern after trauma, which may form the basis for future real-time assessment on a cellular level after trauma. Validation of these findings from mainly monocenter studies in a prospective multicenter study should be the next step.

08:48 - 08:51

1235 Comparison Of Clinical And Morphological Differences Of Bone Defect Fillers On The Model Of Chronic Osteomyelitis

Amina Koshanova, Berik Tuleubayev, Yevgeniy Kamyshanskiy, Yekaterina Kossilova, Ivan Avromidi

NCJSC, Karaganda, Kazakhstan

Abstract
Introduction. Currently, osteomyelitis is not only a medical but also a social problem, as it occurs in the working-age population, with the incidence rate reaching 78%.
The aim of this study was to compare the clinical and morphological differences of the reparative process of bone defect fillers on the model of chronic osteomyelitis.
Materials and methods. The study was conducted on 54 mongrel rabbits of both sexes of comparable age and weight. In the 1st group, the defect was filled with a biodegradable preparation "Perossal" impregnated with an antibiotic. In the 2nd group, the defect was filled with perforated bone allograft prepared according to the Marburg bone bank system and impregnated with an antibiotic. Treatment evaluation in all groups was carried out on the basis of clinical and morphological studies.
Results. The average temperature in rabbits in the groups before the operation was 36.9° in the 1st group; 36.2° in the 2nd group. The results of the histological examination showed a gradual restructuring of the biodegradable drug PerOssal, as well as an increase in neovascularization. The closure of the defect zone is 100%. Bone tissue restoration is gradual.In group 2, a gradual restructuring of the allograft is observed, neovascularization gradually increases. Thus, the closure of the defect zone occurs gradually and also amounts to 100±0.00.
Conclusions. Perforated bone allograft impregnated with antibiotics is 1.2 times more effective than the biodegradable drug "PerOssal" in the formation of newly formed bone tissue in the lesion.
Key words: chronic osteomyelitis,bone allograft, treatment evaluation

10:10 - 10:13

1259 Role Of Mesenchymal Stromal Cells(MSCs) And Chondro Differentiates In Articular Cartilage Damage

Secunda Rupert

Government Stanley Medical College and Hospital, Chennai, India

Abstract
Abstract
Introduction:
Progressive articular cartilage damage presents a significant clinical challenge, with limited options for effective regeneration. Mesenchymal stromal cells (MSCs) are a promising cell source for cartilage repair due to their regenerative and immunomodulatory properties. While undifferentiated MSCs have demonstrated potent immunoregulatory effects, the immunomodulatory potential of chondrocytes derived from MSCs remains underexplored, particularly under inflammatory conditions.

Aim: To investigate the differential cytokine expression profiles of MSC-derived chondrocytes and undifferentiated MSCs under inflammatory milieu and to understand their role in articular damage.

Materials and Methods:
WJ-MSCs were differentiated into chondrocytes using a micromass culture system. Differentiated chondrocytes were then co-cultured with immune cells under inflammatory conditions. Cytokine expression profiles were analyzed using the Customized Gene Array to evaluate pro- and anti-inflammatory markers in both the groups under the same experimental conditions.

Results:
Chondrocytes co-cultured with immune cells under PHA activation exhibited downregulation of IDO, HLA-G, PDGF, IL-10, TNF-α,IL-6, and IFN-γ compared to undifferentiated MSCs in similar conditions. In contrast, chondrocytes activated with PHA without immune cell interaction displayed reduced expression of HLA-G and TNF-α, with no significant changes in IL-6,IFN-γ, IL-4, IL-10, VEGF, PDGF,PTGS-2,TGF-β,IDO and iNOS compared to PHA-stimulated undifferentiated MSCs.

Conclusion:
This study demonstrates that chondrocytes derived from WJ-MSCs exhibit limited immunomodulatory potential compared to undifferentiated MSCs, particularly under PHA-induced inflammatory conditions.. The findings suggest that maintaining MSCs in an undifferentiated state may be advantageous for therapeutic applications targeting inflammatory conditions, such as osteoarthritis.

Keywords:Mesenchymal Stromal Cells; Umbilical Cord; Chondro-differentiation;cytokines, PHA Stimulation; Immunomodulation; Osteoarthritis

08:51 - 08:54

1603 Experience About Promotion Of Perforator Flap By Cadaver And Surgery Based Learning Course

Rui Liu

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Abstract
PURPOSE:
To evaluation effect of our perforator flap course based on cadaver and surgery based learning.
MATERIALS-METHODS:
40 senior doctor who have demand of perforator flap learning was recruit every year for 6 years. A cadaver and surgery based perforator flap course was practiced for 1 week every year. The questionnaire about the their perforator flap practice cases and effect was send half year after they took part in the course. Total 240 participates's data were collected and analyzed.
RESULTS:
The perforator flap rates increase significantly after participates took part in the course. The successful rate also increase significantly. After the training, 100% of student think the training is useful, it has the necessity to popularize this perforator flap training course. The gender, education background, the title level of doctor,resident training year do not have significant difference.
CONCLUSION:
It is necessary and meaningful for this perforator flap course based on cadaver and surgery based to popularize. The web-teach will be a convenient way to expand its participants.
Keywords:Microsurgery Training, perforator flap training course

09:02 - 09:05

1661 A Prospective Study On Changes In Fall Incidence And Risk Factors In Female Rheumatoid Arthritis Patients: A 16-Year Comparison

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Abstract
[Background] The impact of recent paradigm shifts in rheumatoid arthritis (RA) treatment on the incidence and risk factors of falls remains unclear.
[Objective] This prospective study aimed to examine changes in patient characteristics, fall frequency, and risk factors among female RA patients by comparing data from 2006 and 2022.
[Methods] Between January and July 2022, we enrolled 126 female RA patients aged 50 or older who could walk independently. Patients were categorized into two groups: a fall group and a no-fall group. We assessed patient demographics, anti-rheumatic drug use, disease activity, physical disability, motor function, and sarcopenia.
[Results]Among 124 patients (mean age: 68.8±9.7 years), 34 (27.4%) experienced falls, while 90 (72.6%) did not. Significant differences between groups were observed in glucocorticoid use, history of falls, and psychotropic medication use ($p<0.05$). Multivariate analysis identified psychotropic medication use (OR 3.7) and a history of falls in the past year (OR 2.5) as significant risk factors for falls ($p<0.05$). Compared to 2006, patients in 2022 were older by 3.6 years but had lower fall and sarcopenia rates, reduced glucocorticoid use, decreased disease activity, and preserved motor function.
[Conclusion]These findings suggest that advancements in RA treatment, including reduced glucocorticoid use and improved disease control, have contributed to maintaining motor function and reducing fall incidence despite an aging patient population.

09:34 - 09:37

1749 Effect Of Cellular Dosage Of Bone Marrow Aspiration Concentrate On The Radiological Outcomes In Knee Osteoarthritis: A Phase I Dose-Escalation Study

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Abstract
Introduction: The optimal BMAC dosage for knee OA treatment remains undetermined. This study aims to evaluate the radiological outcomes of varying BMAC dosages in knee OA treatment. Methods: This prospective controlled dose-escalation study involved 75 patients with early-stage knee OA, categorized into three groups based on BMAC dosage administered 10x106 cells (low-dose group), 50 × 106 cells (medium-dose group), or 100x106 cells (high-dose group). All the patients underwent a single intra-articular injection of BMAC and were monitored over a year. The primary outcomes include magnetic resonance observation of cartilage repair tissue (MOCART 2.0) score to assess the cartilage. Results We noted significant improvement in the overall MOCART score (p = 0.027) and subchondral change sub-score (p = 0.048) and defect filling sub-score (p = 0.025) in the medium- and high-dose cohorts compared to the low-dose cohort at 1 year follow-up. Although we noted positive correlation between the clinical and radiological outcome (r = 0.43), we did not find any significant different in the clinical outcome between the treatment groups. Conclusion: BMAC for OA knee resulted in significant improvement in the radiological scores compared to the baseline. Medium and high doses of BMAC result in signifi cantly higher radiological scores compared to low-dose BMAC at 1 year. However, the radiological improvement did not translate into functional improvement, irrespective of the dosage administered at 1 year. Further research is necessary on the long-term outcomes to understand and optimize the dosing strategy based on clinico-radiological results.

09:18 - 09:21

2008 Does Medial Pedicle Angulation Have A Bearing On The Lumbar Pedicle Morphometry - A CT Scan Analysis

Nalli Uvaraj Sanjeev Kumar

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Abstract

INTRODUCTION

Pedicle Screw Fixation is a standard technique used in the treatment of various spinal disorders. The purpose of this study is to measure the pedicle width, pedicle height, pedicle length and medial pedicle angulation of the lumbar vertebrae which helps in determining ideal pedicle screw diameter, pedicle screw length and medial pedicle angulation to be used during lumbar spine surgery. L4 and L5 vertebrae being the most commonly instrumented levels, an analysis of pedicle morphometry at these levels in relation to medial pedicle angulation was also carried out as part of this study.

MATERIALS AND METHOD

In this study, 100 patients were enrolled. The inclusion criteria were: Patients with low back pain with associated radicular symptoms and spinal stenosis. Patients with vertebral abnormalities, fractures and vertebral diseases were excluded. A CT examination of lumbar spine(L1-L5) was acquired to study the pedicle morphology. The following measurements were considered: pedicle width, pedicle height, pedicular length and medial pedicle angulation.

RESULTS

Analysis of CT data to assess the morphology of the lumbar pedicles at L4 and L5 vertebral levels in relation to medial pedicular angulation revealed pedicular width gradually increased at each individual vertebral level as the PA increased. Contrary to this the pedicular height and pedicular length gradually decreased.

CONCLUSION

There is a clear correlation between medial pedicle angulation and the pedicle width, pedicle length and pedicle height. This stresses the importance of detailed radiological evaluation to determine the pedicle screw size and the trajectory of insertion of these screws.

09:21 - 09:24

2335 Seasonality Of Surgical Site Infections Following Joint Replacements: A Systematic Review And Meta-Analysis

Hassan Fawi[1], Harry Maughan[2], Anna Freni-Sterrantino[3], Alan Norrish[4], Catherine Wloch[5], Iina Hiironen[6], Theresa Lamagni[7], Daniela Fecht[8], Vikas Khanduja[9], Laure Depreuex[10]

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10. Imperial Business school, London, United Kingdom

Abstract
Hip and knee replacement are recognised as cost-effective and successful procedures in orthopaedics. Emerging evidence, however, indicates an increased risk of Surgical Site Infections (SSI) in these surgeries performed during the summer. We provide a synthesis of published evidence on associations of SSI with season of hip and knee replacement surgeries.

Methods We searched Medline, PubMed, Scopus, Cochrane, Web of Science, CINAHIL, EMBASE, and grey literature from inception until 7th February 2025. Studies reporting on patients undergoing hip or knee replacements monitored for SSI were included. Studies that focused on chronic SSI solely, and randomised controlled trials were excluded. Meta-analysis was performed using random effect models. This study was registered with PROSPERO, CRD42021290254.

Findings We identified 4,142 articles, of which eleven studies were eligible for inclusion, representing 14 distinct cohorts (433,541 participants) from nine countries. The pooled odds ratio (OR) for SSI during the summer season for all operations was 1·33 (95%CI 1·16 – 1·53) compared with the other meteorological seasons, with an overall I2 of 53%. For the 171,202 planned hip replacements the OR was 1.1.12 (95%CI 1.02 – 1·24, I2 = 14%) and for the 22,693 included knee replacements the OR was 1·67 (95%CI 1.26 – 2.21, I2 = 31%).

Interpretation Considering all planned hips and knees replacements combined and separately, we found significant evidence of increased SSI during summer. Considering published data from different countries, our findings highlight that performing joint replacements during summer months were likely to increase th

08:54 - 08:57

2681 Does Induced Membrane Contains Growth Factors For Bone Healing In Open Injuries, A Prospective Study Of 33 Patients.

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Ganga Hospital, Coimbatore, India

Abstract
Introduction: Membrane formation around the cement spacer is the key component in Masquelet's induced membrane technique which is not been studied in open injuries with bone loss. We aimed at identifying the presence of membrane and analyzing it for the presence of growth factors which helps for bone healing. Methods: It is a Prospective observational study, between 2022 to 2024 in patients with Type 3a and Type 3 b open tibia and femur fractures with critical sized bone defects. During the second stage, the membrane formed over the cement spacer was harvested, histopathological analysis and immunohistochemistry of the membrane was performed. Results: We had 33 open femur and 7 open tibia fractures with mean age of 44yrs, mean defect length of 5.5 cm and 4 cm respectively. There were 32 type 3a and 8 were type 3b open injuries. A synovial like interface membrane was identified in all the patients with varying proliferation of small thin walled capillaries with inflammation, foreign body reaction and fibrosis in higher grades. The mean capillaries count per 1 mm square was 34. Growth factors namely VEGF, VWF, IL-8 and BMP -2 were found in strong distribution and intensity. There was no significant statistical correlation between the number of blood vessels and the age, defect size, bone involved, duration of cement spacer. Conclusion: Histopathology and immunohistochemistry confirms the presence of induced membrane along with growth factors with rich vascularity of the membrane. Masquelet's technique can be applied in major bone defects following open injuries.

10:22 - 10:25

3055 Cytological-Energy Analysis Of Synovial Fluid: A New Method For Detecting Periprosthetic Joint Infection

Eliska Vanaskova

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Abstract
Introduction: Cytological-energy analysis (CEA) identifies the local immune response by examining predominant types of immunocompetent cells and their metabolic activity in synovial fluid. This study aimed to evaluate the potential of CEA in the differential diagnosis of periprosthetic joint infection (PJI) and to compare its effectiveness with routine diagnostic methods.

Methods: The study involved 20 patients who underwent revision surgery for knee or hip arthroplasty due to implant failure. Prior to the surgery, joint puncture was performed, and synovial fluid was sent for various analyses, including CEA, microbiological analysis, PCR. Sonication of the implant was performed post-surgery.

Results: In 17 patients, septic loosening due to pyogenic inflammation was ruled out by all methods (CEA, PCR, cultures, and sonication of the implant). In the remaining 3 samples, CEA preoperatively identified pyogenic inflammatory reaction. In these cases, cultures were negative; PCR was positive in one of them, and sonication confirmed septic loosening in all 3 cases.

Discussion: CEA can assess the metabolic activity of the implant biofilm, offering a more effective evaluation of the presence of PJI compared to PCR and microbiological analysis of the synovial fluid. Compared to cultures and PCR, CEA is faster and cost-effective in our application. While sonication is precise in evaluating biofilm around the implant, it provides results only several days post-surgery. In contrast, CEA offers a significant advantage by providing results prior to surgery, enabling more timely and accurate diagnosis and treatment decisions.

10:19 - 10:22

2878 Safety And Efficacy Of Allogeneic Integrin α10β1-Selected MSCs In Knee Osteoarthritis

Lucienne Vonk, Camilla Wennersten, Tina Uvebrant, Evy Lundgren-åkerlund

Xintela AB, Lund, Sweden

Abstract

Introduction

Treatment of knee osteoarthritis (kOA) with allogeneic mesenchymal stem cells (MSCs), has shown promising results but heterogenous MSC preparations result in variable efficacy. Selection with the MSC marker integrin α10β1 provides homogenous, potent and consistent MSC preparations.

Aim

To evaluate safety, tolerability and preliminary efficacy of allogeneic integrin α10β1-selected MSCs (integrin α10-MSCs) in symptomatic kOA patients.

Study Design

This is the 18-month analysis of a first-in-human prospective multicenter phase I/II dose escalation study (NCT05344157). Patients (41-75 years, KL grade II-III kOA) were treated with a single intra-articular injection of 4, 8 or 16 million integrin α10-MSCs (8 patients per dose). Safety and tolerability were assessed by adverse events, electrocardiography, vital signs, and physical and laboratory examinations. Clinical outcome was measured by Visual Analogue Scale (VAS) for pain and Knee injury and Osteoarthritis Outcome score (KOOS). Structural outcomes were assessed by X-ray and MRI. Efficacy outcomes were evaluated every 6 months and compared to baseline.

Results

Treatment of kOA with allogeneic integrin α10-MSCs was safe and well tolerated at all dose levels. All doses showed sustained improvements on pain and function. The highest dose showed the best effect with reduced pain by 63% at 18 months, and significant and relevant improvements of all KOOS subscales. The highest dose showed a reduction in bone marrow lesions and an unchanged joint space width.

Conclusion

Treatment of kOA with allogeneic integrin α10-MSCs was safe and showed relevant and sustained effects on pain and function, and structural improvements of subchondral bone and cartilage.

09:24 - 09:27

1649 Monocyte Differentiation And Function Are Immunoregulated By Exosomes Derived From The Synovial Fluid Of Osteoarthritis Patients

Muhammad Rajaei Ahmad Mohd Zain, Maryam Azlan, Nur Azira Mohd Noor

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Abstract
Monocytes and macrophages play pivotal roles in immune activity during inflammation associated with osteoarthritis (OA). Imbalanced polarisation of M1 and M2 macrophages has been implicated in exacerbating OA. However, the interaction of monocytes with exosomes in OA remains unexplored. This study intended to investigate the immunomodulatory role of exosomes derived from SF of OA patients on monocyte differentiation and function.
Exosomes were isolated from the SF of OA patients using ultracentrifugation and characterized. Monocytes were cultured with exosomes before differentiation into M1 macrophages, M2 macrophages, and monocyte-derived dendritic cells (MoDC). The phenotypic profiles and gene expressions of all monocyte-derived cells were evaluated using flow cytometry and real-time PCR respectively. Functional validation included assessing phagocytosis activity and the ability to promote the proliferation of naïve CD4+ T cells were determined by flow cytometry.
Exosomes were found in round spherical shape, sizes ranging from 30 nm to 150 nm, enriched with CD9, CD63, CD81, and HSP70. The presence of exosomes in monocyte culture induced monocyte differentiation into proinflammatory profiles characterized by increased CD86 expression and decreased CD206 expression on both M1 and M2 macrophages. The expression of CD80 and HLA-DR were increased on MoDC. Gene expression analyses revealed significant upregulation of IL1A, and downregulation of CD64, and AMPK on M1 macrophages. Similarly, IL1A was significantly upregulated, while CD64 was downregulated in M2 macrophages. In MoDC, HLA-DR, MMP7and AMPK were upregulated. These suggest the immunomodulatory role of SF-derived exosomes on monocytes, thus potentially contributing to monocyte biology alteration and OA inflammatory processes.

09:05 - 09:08

1715 Awareness Of The Saudi Population Regarding The Effects Of Smoking On Fracture Healing

Hamza M Alrabai, **Abdulmalik Alduraibi**, Abdulaziz Alrabiah, Saad Alghadir, Khalid Alghamdi, Khalid Alhamdi, Abdulaziz Bahammam, Waleed Albishi

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Abstract

Introduction:
Smoking negatively affects fracture healing, increasing the burden on patients and healthcare costs. Although smoking is prevalent in Saudi Arabia. Limited research has assessed public awareness of its impact on fractures. Our study aims to assess the population’s knowledge about the effects of smoking on fracture healing.

Methods:
An analytical cross-sectional study of 1,033 Saudi adults was conducted from June to September 2024. An online questionnaire using a validated Smoking and Fracture Knowledge Assessment Tool (SFKAT) collected participant responses. Based on interquartile ranges, participants were categorized into four knowledge levels. Multinomial logistic regression was used to rule out confounders.

Results:
Participants included 54.4% males, with a median age of 39 years. 24.1% of participants were smokers. The majority of smokers were males (87%). The median SFKAT score was 16 (IQR=7), with 53% of respondents demonstrating good/excellent knowledge. Males' likelihood of scoring higher knowledge was considerably lower than females (OR=0.24, $p<0.001$). Healthcare workers were more likely to have higher knowledge (OR=2.98, $p<0.001$). Smokers had lower odds of obtaining higher knowledge than non-smokers (OR=0.34, $p<0.001$). Multinomial logistic regression confirmed sex, healthcare work, and smoking status as independent predictors associated with knowledge levels, ruling out confounders.

Conclusions:
Awareness of smoking’s effects on fracture healing is suboptimal, especially among males and smokers. These findings highlight key knowledge gaps, encouraging targeted education and counseling to reduce fracture-related burdens.

09:59 - 10:02

1166 A Novel Approach To Osteoarthritis: Hypoxia And The Circadian Clock In Cartilage Development

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Abstract
Key Words: Hypoxia, Circadian-clock, Chondrogenesis, Osteoarthritis, Cartilage

Introduction and Aim:
Cartilage is an avascular connective tissue that thrives in a hypoxic microenvironment. Hypoxia-inducible factors (HIFs) regulate chondroprogenitor cell differentiation, suggesting a therapeutic role in osteoarthritis. HIFs also influence the circadian clock, a key regulator of physiological processes, synchronizing secondary oscillators in peripheral tissues such as articular cartilage. This study investigates the interaction between hypoxia and circadian clock regulation using a hypoxic incubator to create a controlled low-oxygen environment.

Methods:
Chondroprogenitor cells from 4.5-day-old chicken limb buds were cultured under high-density conditions. Cells were exposed to hypoxia (1% O_2, 10% CO_2) early in vitro chondrogenesis, and samples were collected at key chondrification stages. Cartilage formation was assessed via dimethyl-methylene blue (DMMB) staining, while mitochondrial activity was evaluated using the MTT assay. RT-qPCR quantified mRNA expression of chondrogenic markers (SOX9, COL2A1, ACAN), circadian clock genes (BMAL1, PER2, CRY1), and the hypoxia-responsive gene (HIF-1A).

Results:
While results of the MTT assay showed that the differentiating cells tolerated the hypoxic treatment well and no significant change was examined, the DMMB-stained HD cultures exhibited stronger metachromasia after the treatment, indicating an elevated level of extracellular matrix production. Upon analyzing chondrogenic, clock, and hypoxia-responsive gene markers, distinct oscillations in expression patterns were observed, suggesting that hypoxic treatment synchronized the molecular clock in differentiating chondrocytes.

Conclusion:
These findings suggest that hypoxia positively influences in vitro cartilage formation when applied early in chondrogenesis. Modulating hypoxia-dependent signaling in chondroprogenitor cells may enhance hyaline cartilage generation.

08:36 - 08:39

981 Difficulties Faced While Using Ilizarov Ring Fixator At A Newly Established Limb Reconstruction Unit – An Appraisal Of The Problems, Obstacles And Complications Faced In The Initial Years.

Prateek Behera

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Abstract
Background: The Ilizarov device is used for managing complex orthopedic conditions that are often difficult to manage with conventional methods. While highly effective, its use is associated with difficulties that can impact the patient's outcome but can affect the surgeon and hospital too. This study aims to evaluate the problems, obstacles and complications faced in the initial years of a newly established limb reconstruction unit.

Methods: This study was conducted on patients undergoing Ilizarov fixation at our new limb reconstruction unit between January 2018 to April 2021 - considered as the initial period. We recorded all the problems, obstacles and complications in these patients during the time the frame was applied on the limb till two years after frame removal. Further we studied if these had any association with socioeconomic status, nutrition, and follow-up adherence.

Results: 33 patients were included, with 75.8% undergoing tibial surgery and 24.2% femoral surgery. The most common complications observed were pin-site infection (100%), transient joint stiffness (52%), hardware-related issues (18%), delayed consolidation (24%) and docking site non-union (12%). Socioeconomic status, serum albumin levels, and adherence to follow-up significantly influenced infection rates.

Conclusion: Many difficulties were encountered when using the Ilizarov fixator. Pin-site infections, delayed bone healing, and joint stiffness are significant concerns. Many times, a surgeon starting a new limb reconstruction unit might get discouraged by the issues with which patients report after surgery; a few contemplate switching their specialty too. Proper patient education, adherence to pin care protocols, and early intervention can help address these issues.

09:43 - 09:46

408 The Application Of Digital Technology In Joint Surgery: A Cross-Sectional Study In China

Minwei Zhao

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Abstract
Introduction: Digital orthopaedic technologies, including robot-assisted joint replacements, computer-assisted navigation, 3D printing, AI, and virtual/augmented/mixed reality, are all being increasingly used in joint surgery. These technologies have unique advantages and limitations, requiring surgeons to understand them thoroughly for optimal patient outcomes.

Objective: This study investigates the status of digital technology in joint surgery in China, aiming to enhance clinical applications, standardize training, improve clinician skills, and promote research and innovation.

Methods: A survey was conducted among 115 doctors from 34 clinical centres using digital technologies in joint surgery. Technologies surveyed included surgical robots, computer navigation, digitally assisted preoperative planning, patient-specific instrumentation, sensors, 3D printing, virtual/augmented/mixed reality, AI-assisted follow-up, and telemedicine. The survey covered basic centre information, medical conditions, research situations, trends from 2019 to 2023, and subjective attitudes.

Results: Digital technologies were used in 7.26% of 191,975 surgeries. From 2019 to 2023, the use of digital technologies in joint surgeries grew at an average annual rate of 20.3%. There were significant regional differences in technology application, with more developed areas demonstrating higher usage. While digital technologies were seen to improve accuracy and repeatability, their impact on clinical outcomes remains a matter of debate. Limited training access and economic benefits are barriers to wider adoption.

Conclusion: This first large-scale survey of digital technology in joint surgery in China provides a fundamental assessment. Promoting these technologies has the potential to lead to more precise, intelligent, and personalized clinical care.

10:16 - 10:19

2444 Sustained Notch Signaling Inhibition With A Gamma-Secretase Inhibitor Prevents Traumatic Heterotopic Ossification

Zheng Wang, Aixi Yu

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Abstract
Introduction
Traumatic heterotopic ossification (THO) is a devastating sequela following traumatic injuries and orthopedic surgeries. To date, the exact molecular mechanism of THO formation is still unclear, which hinders the development of effective treatments. The Notch signaling pathway is a critical genetic regulator in embryological bone development and fracture healing. However, few data are available concerning whether Notch signaling regulates THO development and maturation.
Methods
We firstly detected the expressions of Notch target genes in both mouse and human THO samples with quantitative RT-PCR and immunohistochemistry. Then, tissue-resident mesenchymal progenitor cells (TMPCs) were isolated, and the abilities of the proliferation and osteogenic and chondrogenic differentiation of TMPCs were examined under the intervention of the gamma-secretase inhibitor-DAPT at different time points. Finally, DAPT was also administrated in THO mice by burn and Achilles tenotomy injury, and ectopic cartilage and bone formation were monitored by histology and micro-CT.
Results
Several Notch target genes were upregulated in both mouse and human THO tissues. Sustained Notch signaling inhibition by DAPT reduced proliferation, osteogenic and chondrogenic differentiation of TMPCs in a time-dependent manner. Moreover, DAPT administration within 3 weeks could inhibit ectopic cartilage and bone formation in a mouse THO model without affecting the total body bone mass.
Conclusions
The Notch signaling serves as an important therapeutic target during THO formation. And sustained gamma-secretase inhibition by DAPT has great potential in repressing chondrogenic and osteogenic differentiation of TMPCs, as well as inhibited ectopic cartilage and bone formation in vivo.

09:27 - 09:30

2725 Angiogenesis-Osteogenesis Coupling Osteoregenerative Metformin-Incorporated ZIF-8 Intermixed Co-Electrospun Zoledronate & Poly(ε-Caprolactone) Nanofiber Coating On Biodegradable Zn-Based Membrane For Guided Bone Regeneration

Haotian Qin

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Abstract
Zinc (Zn) and its alloys are gaining increasing attention as materials for absorbable guided bone regeneration membrane (GBRM) implants due to their favorable biodegradability, mechanical properties, and promising bioactivities, which address the drawbacks of non-absorbable and polymer-based membranes. However, their clinical application for bone regeneration in bone defects is hindered by issues such as uniform corrosion, excessive zinc ion release, and insufficient osseointegration. In this study, a Zn^{2+}-coordinated dimethylimidazole metal-organic framework (MOF) incorporating metformin was synthesized via the hydrothermal method. This MOF was then incorporated into a co-electrospun nanofiber coating consisting of zoledronate and poly(ε-caprolactone) (PCL) on a biodegradable Zn-based membrane. The resulting coating exhibited a dense and homogeneous nanofiber structure with micro-/nano-scale features, which significantly protected the Zn matrix from corrosion. It also controlled the sequential release of metformin, zoledronate, and Zn^{2+}, preventing localized corrosion. Furthermore, the coating demonstrated robust antibacterial properties by inhibiting the proliferation and adhesion of Escherichia coli and Staphylococcus aureus. More importantly, the modified membrane promoted osteoregeneration both in vitro and in vivo, exhibiting a well-balanced pro-osteoblast and anti-osteoclast activity, as well as a coupling of osteogenesis and angiogenesis. These functions were attributed to the bioactive components, particularly the metformin, zoledronate, and Zn^{2+}, and the unique nanofiber structure. Overall, the coated Zn-based membrane showed excellent performance and holds significant promise for meeting the clinical requirements of an ideal GBRM. This strategy offers a novel approach for the surface modification of biodegradable metallic GBRMs and highlights the potential of advanced biomaterial applications.

09:11 - 09:14

1989 Perception About Barriers For Female Doctors To Choose Orthopedic Surgery In Pakistan: A Cross Sectional Survey

Zainab Aqeel Khan[1], **Haider Abbas**[2], Mahenau Afridi[1], Khubab Ahsan[3], Irrum Afzal[4]

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2. Dr. Ziauddin Hospital, Karachi, Pakistan
3. Jinnah Postgraduate Medical Center, Karachi, Pakistan
4. South West London Elective Orthopaedic Centre, London, United Kingdom

Abstract

Aims

This study aims to evaluate the perception of male and female medical students and house officers about the participation of women in orthopedic surgery and also to identify barriers for women to choose orthopedics as career in Pakistan

Study design Methods

This cross-section study was conducted in different institutes of Pakistan. The self-administered questionnaire was used to investigate the perception and barriers for women participating in orthopedic surgery. The responses were analyzed to understand general perceptions, barriers, gender- based differences, their preferred specialty and exposure to orthopedic surgery.

Results

Approximately 368 medical students and house officers (27% females and 73% males) participated in this survey. Almost 120 (32.6%) females and 33 (9%) males had chosen pediatric orthopedics as choice of specialization for females. Among all participants, only 11.4% male and 14.7% females were planning to pursue postgraduate training in orthopedics. Regarding female representation in orthopedics, the patients' preference of male orthopedic surgeon and family and social commitments were identified as major barriers by both male and female participants. The physical strength and body build, gender discrimination, on- call duties and covering trauma and emergencies were all perceived as barriers for women in orthopedics. Overall, orthopedic exposure did not significantly improve the likelihood of female students in choosing orthopedic surgery as a career.

Conclusion

The gender discrimination and bias against women in orthopedics is prevalent among medical students and house officers. Therefore, it is necessary to overcome the barriers for better representation of women in orthopedics.

09:08 - 09:11

1336 Functional Silver-Loaded Porous Composite Scaffold For Bone Tissue Bacterial Infection

Jian Zhou

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Abstract
Objective: To address this, we developed silver nanoparticle (AgNP)-loaded gelatin/β-TCP composite scaffolds with a 3D porous structure with antimicrobial properties and excellent biocompatibility.
Methods: The AgNP loaded composite scaffolds were fabricated and its characterized using micro-CT, SEM, energy-dispersive X-ray spectroscopy, swelling ratio analysis, contact angle measurements, and mechanical testing. The biocompatibility and antibacterial activity were investigated.
Results: It was revealed that AgNP-loaded scaffolds exhibited a well-interconnected 3D porous structure, enhanced hydrophilicity, superior water absorption, and good mechanical performance. The CCK-8 assay demonstrated no significant reduction in cell proliferation compared to Ag-free scaffolds ($P > 0.05$), and SEM imaging confirmed favorable cell attachment and growth. Compared with that of the control, Runx2, ALP and OCN expression were significantly up regulated in the composite scaffold, and the enhancing effects were not reduced by loading appropriate amount of AgNPs in the scaffold. Ag+ release was sustained for up to six weeks, and antibacterial tests demonstrated prolonged inhibition of bacterial growth.
Conclusion: the AgNP-loaded gelatin/β-TCP composite scaffolds exhibited strong antibacterial activity, excellent cytocompatibility, and enhanced osteogenic potential, making them promising candidates for treating chronic bone infection-related defects.

09:37 - 09:40

2259 PATIENT SPECIFIC PRE-CONTOURED PLATES USING 3D PRINTING FOR PROXIMAL FEMORAL OSTEOTOMY IN PAEDIATRIC HIP DISORDERS

AMIT Sharma

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Abstract
Introduction: Proximal femoral osteotomy (PFO) plays an important role in treatment of numerous paediatric hip disorders. Accuracy in each step of proximal femoral osteotomy is essential to achieve the goal of concentric reduction of the acetabular and femoral head, which has steep learning curve with chance to err, are very common. We did this study to evaluate the accuracy of patient specific pre-contoured plates made by using 3D printing for proximal femoral osteotomy in paediatric hip disorders. Methods: 15 patients of age between 2 to 18 years requiring proximal femoral osteotomy for paediatric hip disorder were included in the study. All patients underwent NNCT pelvis, images of which was exported to 3D software and virtual planning of osteotomy was done on virtual 3D model. Patient specific osteotomy navigation template was designed virtually and STL image of jig was exported to 3D printer. 3D printed Jig was sterilized and used intra-operatively. Intra-operative assessment was done by evaluating feasibility of pre-contoured plate by likert scale. Post-operative correction on radiograph was compared with pre-operative planned correction and analysed statistically. Results: Good degree of correction was achieved in 13 patients (86.67%) with fair correction achieved in 1 patient (6.66 %) and poor correction achieved in 1 patient only (6.67 %). Most common Likert parameter was Neutral (8 cases) followed by very easy (3 cases). Remaining 4 patients were in Easy and Difficult category. Conclusion: 3D planning and patient specific jig can reproduce good results and enhance the accuracy, though has steep learning curve.

08:33 - 08:36

1868 Clinical Impact Evaluation Of Multiplex PCR Testing (BioFire® Joint Infection Panel) Of Joint Aspiration Samples In Suspected Septic Arthritis And Prosthetic Joint Infection: A Prospective Propensity-Matched Cohort Study.

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2. Royal Berkshire Hospital, Reading, United Kingdom

Abstract

Purpose: Septic arthritis and prosthetic joint infections (SA/PJI) require rapid diagnosis to prevent joint dysfunction and life-threatening complications. Traditional pathogen identification is via microscopy, culture, and sensitivity (MCS) of joint aspirates. Multiplex PCR (BioFire® Joint Infection Panel) offers more rapid detection of nucleic acid material from common joint pathogens. However, its clinical benefits have yet to be demonstrated.

Methods: This prospective study conducted at a UK hospital assessed a cohort of 117 patients with suspected SA/PJI tested using multiplex PCR and MCS (BioFire-MCS, Feb 2023 – Mar 2024), and a propensity-matched cohort of 117 patients tested using MCS alone (Feb 2022 – Mar 2023). Demographics, positivity rate, time-to-targeted-antibiotic treatment, length-of-stay, ICU admission, and mortality rates were compared.

Results: In the BioFire-MCS cohort, turnaround time was significantly faster for BioFire compared to MCS (3 vs11 hours, $p<0.0001$), and both tests had identical positivity rates (33%). Both BioFire-MCS and MCS cohorts had similar demographics (72% male, mean age 66 yrs, 67% knees, 90% native). There was no significant difference in patients receiving targeted antibiotic therapy (BioFire-MCS 14%, MCS 9%, $p=0.314$). The BioFire-MCS cohort had a faster transition to targeted antibiotic therapy (25 vs 67 hours, $p=0.008$) than the MCS cohort. The BioFire-MCS cohort also had a reduced mean length-of-stay (8.3 vs 10.3 days), especially in those receiving targeted therapy (14.7 vs 20.6 days), but these differences were not statistically significant ($p>0.05$). There was no difference in ICU admission and 90-day mortality rates ($p>0.05$).

Friday, 5 September

Trauma 4
08:30 - 08:33

145 Impact Of Steroid Hormones On The Outcome Of Polytraumatized Patients – A Prospective Analysis

Olivia Bohe, Gregor Römmermann, Viktoria Hess, Conrad Ketzer, Peter Biberthaler, Marc Hanschen

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Abstract
Background
Women have a lower mortality rate after severe trauma, the cause is widely debated. The aim of this prospective analysis is to investigate the role of steroid hormones on the outcome after polytrauma in vivo.

Methods
Severely traumatized patients (ISS ≥16) were included since April 1, 2023. Excluded were transferred patients, age <18 years, pregnant women and patients who died within the first two days.
Steroid hormonelevels (17β-estradiol, progesterone, testosterone, LH, FSH) were measured in the emergency room (T0) and over the following five days (T1-T5). Hormonelevels of men and women were analyzed separately (significance level $p<0.05$).

Results
77 patients were included in the study, 53 (68.8%) of whom were male. The mean age was 52.1 ± 20.1 years, and the mean ISS was 26.7 ± 10.5. The mortality rate was 13.0% (n=10). The mortality of male patients was significantly higher with elevated estradiol levels at T0-T4 (e.g., T0: 41.8 ± 20.9 pg/ml vs. 25.9 ± 9.4 pg/ml, $p<0.002$). Additionally, testosterone levels were significantly lower at T2-T5 in men who developed sepsis during their ICU stay (e.g., T4: 0.2 ± 0.1 ng/ml vs. 1.1 ± 1.4 ng/ml, $p<0.01$).
In male patients with severe TBI (AIS ≥3), the incidence of progression of intracranial bleeding was significantly higher when estradiol levels were elevated at T0-T3 (e.g., T1: 47.4 ± 23.4 pg/ml vs. 28.0 ± 14.6 pg/ml, $p<0.01$). These differences were not observed in women. There was no correlation to length of ICU or hospital-stay.

Discussion: This study refutes the assumed protective effect of female steroid hormones.

09:05 - 09:08

151 Percutaneous Symphyseal Screws For Treatment Of Traumatic Symphyseal Diastasis

Wael Salama, Hossam Hosney, Elshazly Mousa, Moustafa Elsayed

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Abstract
Introduction
Symphyseal diastasis accounts for 13% to 16% of pelvic ring injuries. Symphyseal plating via a Pfannenstiel
approach was the standard method of fixation of symphysis diastasis. Recently, percutaneous reduction and
fixation of pelvic fractures have been employed to treat various pelvic ring and acetabulum injuries.
current study aims to evaluate clinical and radiological results of treatment of symphysis pubis diastasis using
percutaneous screws.

Methods
It is a prospective study in an academic level I trauma center. We included all patients with symphyseal
diastasis. Two partially cancellous screws 7.3 mm were used to fix all cases with symphyseal diastasis
percutaneously. Posterior pelvic injury was fixated according to the existing pathology. We measured
symphysis distance in millimeters on the pre-operative, immediate postoperative and in the last follow up visit
on the AP plain radiographs of the pelvis. At last follow-up, Visual analogue scale (VAS) was used for
clinical evaluation to describe pain at the symphysis pubis while the functional evaluation was done by using
Majeed scoring system.

Results
Twenty patients were included in this study. All patients have followed up for at least one year. The patterns
of injury included AO/OTA 61C1.3 (Eight cases), 5 AO/OTA 61C1.2 (Five cases), AO/OTA61C1.1 (Three
cases) and AO/OTA 61B1.2 (Four cases). The functional classification according to Majeed Score was
excellent for fourteen patients, good for three patients, fair for one patient and poor for two patients. The mean

preoperative symphyseal distance in the series was 3.26 cm mm while the mean immediate symphyseal
distance was 0.415 cm. The mean symphyseal distance at one year follow up was 0.80 cm.

Conclusion
Percutaneous fixation of symphysis pubis showed

08:49 - 08:52

237 Management Of Non-Union And Critical Bone Defects: A Regional Hospital's Experience With Bone Graft Substitutes

Janice Hui En Tan, Claris Jia-Yi Shi, Allan Shao Hui Ng

Khoo Teck Puat Hospital, Singapore, Singapore

Abstract
Introduction: The management of non-union and critical bone defects remains a challenge due to diverse patient profiles and fracture configurations. There remains a lack of consensus about the definition and optimal surgical techniques for management of such injuries. With the innovation of novel bone graft substitutes, the search for the ideal adjunctive agent continues.

Objective: This case series reviews four patients treated for non-union or critical bone defects using various surgical techniques and newer bone graft substitutes.

Methodology: The first patient had an open distal humerus fracture with significant medial column bone loss, and was treated with a 2-stage Masquelet procedure. The second and third patients had closed and open tibial shaft fractures. Both underwent intramedullary nailing, but were complicated by non-union. The intramedullary nails were exchanged and supplemented with plates for added stability. In the third case, the fibula was shortened to improve tibial compression. The fourth patient had an atypical subtrochanteric femur fracture that re-fractured after initial intramedullary nailing. Revision surgery involved exchanging the nail and reinforcing fixation with a plate. The same orthopaedic consultant performed the Masquelet and revision surgeries. In all cases, cortical bone fibres were used in addition to iliac crest bone autograft.

Results: Post-operative follow-up at 4 months showed resolution of pain, non-tender fracture sites, and good fracture union as confirmed by X-rays.

Discussion: This case series highlights the successful application of newer bone graft substitutes combined with appropriate surgical techniques in managing non-union and critical bone defects, demonstrating favorable outcomes in fracture healing.

10:18 - 10:21

421 Pediatric Pelvic Fractures: A Retrospective Analysis Of Injury Patterns, Management, And Outcomes

Mohamed Kenawey

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Abstract
This study retrospectively analyzed pediatric pelvic fractures from April 2014 to July 2019, involving 69 patients with a mean age of 11.7 years (61% male, 39% female). The primary mechanism of injury was vehicle-related incidents (82.6%), followed by falls from heights (>2m: 11.6%, <2m: 4.3%) and crush injuries (1.4%). Most patients arrived via ambulance (69.6%), and 21.7% required intubation, with a significant association between intubation and severe traumatic brain injury (TBI). The mean Injury Severity Score (ISS) was 21.14, with limb injuries being the most common (50.7%). Pelvic fractures were classified using Tile's and Young & Burgess systems, with lateral compression type 1 (LC1) being the most frequent (67.5%). The majority of fractures were treated conservatively (96%), with only 4% requiring operative intervention. Mortality was low (1.4%), with one death attributed to occipto-cervical dislocation (ISS >75). Associated injuries included musculoskeletal (49.2%), head (21%), chest (26%) and abdominal injuries (13%). The mean hospital stay varied significantly by pelvic stability, with Tile's C fractures associated with longer stays (22.6 days) compared to Tile's A (8.6 days). Glasgow Outcome Scale indicated good recovery in most traumatic brain injury cases (94.1%), with only one death and three cases of moderate disability. The study highlights the importance of detailed injury mechanism analysis, vital signs monitoring, and imaging review for improving trauma management. Further research is needed to refine classification systems and treatment protocols for pediatric pelvic fractures.

09:27 - 09:30

714 Is MRI Feasible In Polytrauma Patients? - Results From A Large Animal Model

Christian Thomas Hübner[1], Christian Stoeck[2], Yannik Kalbas[1], Felix Karl-Ludwig Klingebiel[1], John Ricklin[1], Miriam Weisskopf[2], Hans-Christoph Pape[1], Roman Pfeifer[1]

1. Department of Traumatology University Hospital Zurich, Zurich, Switzerland
2. Center for Preclinical Development University of Zurich and University Hospital Zurich, Zurich, Switzerland

Abstract
Introduction:
In polytrauma patients, fast and safe imaging is crucial to detect life-threatening injuries and initiate emergency treatment. Therefore, whole-body CT is the current gold standard. As part of a large animal model study, we performed this feasibility study to discuss whole-body MRI as an alternative imaging in polytrauma patients.

Methods:
Eight landrace pigs (70±5 kg) were used. The polytrauma group received blunt chest trauma and bilateral femur fractures, while three pigs served as controls. MRI was performed immediately post-trauma using a new designed whole-body T2-weighted protocol. Time from transport to completed imaging was measured. A subsequent whole-body CT was conducted.

Results: Our MRI protocol resulted in a total scan-time of 13:50 min. Mean time from transport to diagnosis was 21:18 min, including transport and repositioning on the gurney. Duration of whole-body-CT was 15:29 min from transport to diagnosis, including a 10:29 min average scanning time. MRI and CT were both effective in detecting the induced injuries (femoral fractures, rip fractures and pneumothorax), however for effective detection of pneumothoraces, specialized MRI-sequences were customized. During MRI, resuscitative measures could be continued. Tissue injuries (lung contusions and intra-muscular hematomas) were more clearly visible in MRI, while bony injuries and pneumothoraces were easier to detect in CT.

Conclusion: This study shows the feasibility of MR-Imaging in poly-trauma patients with only slightly longer diagnostic time and superior detection of tissue-trauma.

09:53 - 09:56

936 Acute Proximal Tibiofibular Joint Instability And Management Over The Decades: A Systematic Review Of Cohort And Case Series On Clinical Presentation, Management Options And Outcome.

Yogen Thever, James Loh Sir Young

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Abstract

Introduction: Acute Proximal Tibiofibular Joint (PTFJ) instability is an uncommon injury usually resulting in lateral knee pain or complications such as irritation to the common peroneal nerve.

Methods: A systematic review was performed by the authors as per the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines to summarize management options adopted in treating acute PTFJ injuries and compare outcomes thereafter. The pre-determined eligibility criteria were applied during the literature review on the PubMed, Cochrane Library, Embase and Web of Science databases.

Results: Out of 367 papers identified, a total of 9 papers were included in the final review. Acute PTFJ injuries were mostly secondary to motor vehicle accidents (55.1%). In terms of treatment options, both conservative and surgical management options were employed. Conservative management involved closed reduction with immobilization in a long leg circular cast thereafter. Rehabilitation protocol varied but a duration of no weight bearing for at least 2 weeks was done. Surgical management involved either internal reduction and screw fixation or anatomical PTFJ reconstruction through tendon autograft or allograft. Outcomes were generally good thereafter within both groups.

Conclusion: The current literature summarizes the treatment options and outcomes for acute PTFJ instability. Conservative management is a viable option, but surgical management should be considered if it fails or in polytrauma patients. In addition, acute PTFJ injuries may not be as uncommon as reported in view of the initially increasing trend of case reports up to the year 2020 and decreasing thereafter.

10:21 - 10:24

967 Radiological And Clinical Assessment Of Hip Spica Vs Elastic Rods In Femoral Shaft Fractures In Children: A Prospective Case Control Study

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Abstract
Aim of the Work: is to make a comparison between outcomes of use of elastic rods versus hip Spica in treatment of fracture femur in children from 5 to 6 years old.

Patients and methods
A prospective case control study included 40 patients: 20 patients managed by hip Spica (group A) and 20 patients managed by elastic rods (group B) from 2018 to 2020. Inclusion criteria: 1- Age 5 to 6 years old, 2- Diaphyseal femur fracture. Exclusion criteria: 1-missed from follow-up, 2- Patients with open fractures, 3- neurovascular compromise , 4-pathological fractures, 5- Metaphyseal and epiphyseal fractures, . Follow up was at 2, 6 weeks and 6 months, for radiological and clinical evaluation. Outcome measures included radiological and clinical assessment.

Results
The patients' age ranged from 5 to 6 years. Mean duration of fracture union was 10 weeks in group A and 8 weeks in group B. Mean duration of weight bearing 6 weeks in group A and 8 weeks in group B. Mean hospital stay was 1 days in group A and 2 days in group B. No difference between the 2 groups regarding hip and knee range of motions & leg length assessment. Group B was found to start weight bearing earlier than group A.

Conclusion
Preschool-age children with an isolated femoral fracture can be safely treated with either Spica cast or elastic rods. However, elastic rods look superior regarding early mobilization and weight-bearing, minimal hospital stay, union rates and rehabilitation period.

09:18 - 09:21

1026 Diaphyseal Fixation Of Short Stem Might Be Risk Factor On Progression Of Stress-Shielding

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Abstract
[Purpose] The purpose of this study is to clarify the risk factors on progression of stress shielding (SS) after total hip arthroplasty (THA) using short stem. [Materials and Methods] Subjects were 116 patients (121 hips) who had undergone primary THA using short stem from 2013. There were 12 hips as men and 109 hips as women. The average age was 65 years and the primary diagnosis were hip osteoarthritis in 115 hips. The bone quality of Dorr type A/B/C were respectively 15/105/1 hips. The mean follow-up term was 7.9 years. Functional hip scores, stem fixation pattern and bone reactions were investigated. SS (none/1/2/3 degrees) were 12/50/44/15 hips. SS (none-1 degree) were classified as mild-SS group (62 hips) and SS (2-3 degrees) as severe-SS group (59 hips). The relationships between SS and clinical or radiographic parameters, multivariate and logistic regression analysis were performed in order to detect risk factors on progression of SS.
[Results & Discussion] Functional hip scores improved from 47 points preoperatively to 92 points postoperatively. There were no significant difference in functional score between mild-SS and severe-SS groups. Spot welds were observed by 27/93/99/50 % in zone 1/2/3/4. Infection, loosening and revision surgery were 0%. The fixation pattern were proximal mediolateral fixation (29% in mild-SS and 12% in severe-SS group), and diaphyseal fixtion (15% in mild-SS and 34% in severe-SS). Diaphyseal fixation was identified as a risk-increasing factor for SS progression by logistic regression analysis. Male gender and high cortical index were identified as risk-reducing factors.

09:24 - 09:27

1050 Preliminary Efficacy Analysis Of Tension Brace Combined With Open Arthrolysis In The Treatment Of Elbow Ankylosis.

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Abstract
Objectives:To investigate the preliminary efficacy of tension brace combined with open elbow arthrolysis in the treatment of elbow ankylosis.
Material and methods:The data of 40 patients with elbow ankylosis treated with open elbow lysis in our hospital were analyzed retrospectively. Open elbow joint arthrolysis was used in control group （n=21） and tension brace combined with open elbow joint release in observation group （n=19）. The ranges of elbow flexion, extension and rotation and Mayo elbow function score were compared between the two groups during the last follow-up, and the curative effect was evaluated.
Results:All patients were followed up for 12 to 28 months with an average of 18.9 months. There was no statistical difference in the range of elbow joint rotation between the control group and the observation group in the last follow-up［（142.14 ±34.91）°vs （136.32±42.75）°, t=0.562, P=0.910］, but there was significant difference in the ranges of flexion and extension ［（95.71±10.87）° vs （107.47±14.13）°, t=2.966, P=0.005］ and Mayo elbow function score ［（72.62±6.05）score vs （80.79±9.61）score, t=1.456, P=0.029］. The ranges of elbow flexion and extension and Mayo elbow function score of the observation group were significantly higher than those of the control group in the last follow-up.
Conclusions:Tension brace combined with open elbow joint arthrolysis can improve the ranges of elbow flexion and extension of elbow joint and improve the function of the elbow joint.

09:08 - 09:11

1173 DOES THE RELIABILITY AND ACCURACY OF THE JUDET AND LETOURNEL CLASSIFICATION SYSTEM FOR ACETABULAR FRACTURES INCREASE USING A NOVEL ALGORITHM?

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ALL INDIA INSTITUTE OF MEDICAL SCIENCES, Bhubaneswar, India

Abstract

PURPOSE: We have devised an algorithm to assist classifying acetabulum fractures using plain radiographs. This study aimed to test if the accuracy and reliability of fracture classification increases using our algorithm in resident doctors.
MATERIALS AND METHODS: Seventy-two residents of eight tertiary care institutes took part in our survey. These residents were divided into three groups, Groups A, B, and C, with 31, 20, and 21 residents, respectively. Two different Collections (1 and 2) containing radiographs of twenty patients each, with known classification from CT and intraoperative findings, were prepared. Collection 1 radiographs were given to Group A and B, and Collection 2 radiographs were given to Group C. Group A residents were asked to classify the fractures using our algorithm, and Group B and C residents were asked to classify the fractures according to their understanding. Intra-observer and inter-observer reliability was estimated.
RESULTS: A total of 1411 unique responses were made. The accuracy of group A, B, and C residents was 53.8%, 34.9% and 28.3%, respectively (p-value 0.001). The interobserver reliability for fracture classification was fair with an algorithm ($\kappa = 0.32$) and slight without an algorithm. The intraobserver reliability among five observers was moderate ($\kappa = 0.43$).
CONCLUSION: Our algorithm improves the accuracy and reliability for classifying acetabular fractures according to the Judet-Letournel classification for resident doctors with two to four years of experience.
Keywords: Acetabulum; Fracture; Classification; Algorithm; Judet-Letournel classification system.

09:56 - 09:59

1253 Impact Of Cement Augmentation On Postoperative Activities Of Daily Living In Intertrochanteric Fractures

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Abstract
Introduction: The impact of cement augmentation on postoperative activities of daily living (ADLs) in intertrochanteric fractures is unclear. This study aimed to compare postoperative ADL outcomes between patients who underwent surgery with a proximal femoral nail, with or without cement augmentation.
Methods: A total of 160 patients were treated with a proximal femoral nail and helical blade. Of these, 59 patients were in the cementless group and 101 in the cement group. Fracture stability was assessed using 3D-CT classification. Postoperative ADLs were evaluated using the Clinical Frailty Scale (CFS) on postoperative days (POD) 7, 14, and 21.
Results: Operation time and blood loss were significantly higher in the cement group compared to the cementless group. Bone union was achieved in all patients, except for one case of cut-through in the cementless group and one case of non-union in the cement group. There were no significant differences in ADL outcomes between the groups. In patients with stable fractures, the cementless group had better postoperative ADLs than the cement group at POD7 ($P<0.05$), and a similar trend was seen at POD14 and POD21. In patients with unstable fractures, the cement group showed better ADLs at POD7 ($P=0.08$), but both groups had similar CFS scores at POD21.
Conclusion: Bone union rates were similarly high regardless of cement use. Cement augmentation should be avoided in stable fractures due to increased operation time, blood loss, and costs. However, it may improve rehabilitation in patients with unstable fractures and severe osteoporosis in the early phase.

09:02 - 09:05

1401 Intramedullary Versus Extramedullary Minimal Invasive Surgery For Tibia Fractures; A Prospective Cohort Of 81 Patients In Basra.

Rafid Al-Adhab

Al-Sadir teaching hospital, Basra, Iraq

Abstract
Introduction: Tibial shaft fractures are commonly encountered among orthopedic surgeons, and more formidable to treat due to the subcutaneous position of tibia making it vulnerable to many perioperative complications. Maintaining fracture biology is the key for success of any fixation, which is conducted with minimal invasive surgery (MIS) that involve small size incision(s), less tissue dissections and preserving of fracture hematoma. Purpose: to compare two minimally invasive methods : MIPO (Minimally Invasive Plate Osteosynthesis) and IMN (Intramedullary Nail) in term of financial, functional & radiological outcomes together with postoperative complications. Method: Eighty-one patients (68 males and 13 females) had been enrolled in this prospective cohort from 2013-2023; aged 17-72 (36.14±12.86) years, had tibial shaft fractures categorized owing AO/OTA, were treated via fluoroscopy guided MIS methods (MIPO= 39, IMN=42). Followed from 6 to 24 months based on JLETS (functional)& mRUST (radiological) scoring systems. Results: surgical time, perspective fluoroscopy time & blood loss were more in favor with MIPO. While incision size, number of hardware, healing time & weight-bearing time were significantly less with IMN. No significant differences in postoperative complications except for anterior knee pain which was only reported with IMN. Conclusion: Both techniques offer effective treatment methods. While IMN may be more cost-effective and result in faster healing times and fewer hardware requirements, with drawback of more blood-loss and exposure to more radiation intraoperatively. MIPO reserved for meta-diaphyseal fractures, excessively narrow intramedullary canal and preferred to ameliorate anterior knee pain and malunion that accompanied IMN.

08:55 - 08:58

1495 C-Reactive Protein In The Method Of Conversion Osteosynthesis Of Gunshot Wounds Of Long Bones

Sergiy Guryev[1], Pavlo Tanasienko[2], Valentin Vasylov[3]

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2. Vinniitsa National Mediine University, Vinnitsa, Ukraine
3. Ukranian Center of Disaster Medicine, Vinnitsa, Ukraine

Abstract
Introduction: The problem of treating gunshot wounds to the extremities among victims of modern hostilities remains relevant due to high mortality and disability. The aim of our study was to determine the possibilities of the inflammation marker C-reactive protein in the process of conversion osteosynthesis in gunshot wounds of long bones. Materials and methods: To fulfill the tasks of our study, we included 206 inpatients with long bone fractures that were obtained as a result of modern hostilities and met the inclusion criteria in the study. Results: The distribution of the CRP level on the third day of treatment showed that the observation groups had approximately the same distribution of its level, which indicates that no statistically significant difference was found between them. The analysis of the CRP level in patients of the observation array established that on the 14th day of treatment after the conversion of the osteosynthesis method, a significant decrease in the indicators was detected. Based on the data presented, it can be stated that the performance of conversion osteosynthesis in patients with combat injuries of long bones reduces the levels of the inflammatory marker CRP, which, in turn, indicates a decrease in the development of infectious complications in patients of this category. Conclusions: The study indicated that in patients with combat injuries of the lower extremities, the use of CRP as a marker of the development of infectious complications is possible and can be recommended for use in military healthcare

10:09 - 10:12

1507 Risk Factors For The Development Of Thromboembolic Complications In Victims With Multiple Trauma And Skeletal Injuries

Sergiy Guryev[1], Pavlo Tanasienko[2], Konstantin Zasipka[2], Akraman Mezhiev[2]

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Abstract
Introduction: Thromboembolic complications in polytrauma occur in 16-57% of victims. The aim is to consider the problem of prevention of venous thromboembolic complications of multiple trauma with skeletal injuries taking into account current data on risk factors and mechanisms of their development in this category of injured. Materials: In our study, a retrospective analysis of 163 cases of multiple trauma, which we observed over the past 5 years, was conducted. Results: Factors that significantly increase the risk of venous thromboembolic complications in polytrauma with skeletal injuries are traumatic shock and acute massive blood loss, multiple high-energy fractures of the bones of the lower extremities, pelvis, spine, craniocerebral trauma, spinal cord injury. In response to traumatic injuries, a systemic inflammatory response and coagulopathy develop, the phenomenon of mutual aggravation of injuries. The severity and multiplicity of injuries correlate with the severity of systemic inflammation, hypercoagulability and the frequency of venous thrombosis. In polytrauma, it is necessary to carry out comprehensive prevention of venous thromboembolic complications. Its important components are anti-shock measures, the earliest stable and functional osteosynthesis using minimally traumatic methods, pharmacological prophylaxis with low-molecular heparins, and implantation of cava filters at high risk of fatal pulmonary artery thromboembolism. The severity and multiplicity of injuries correlate with the severity of systemic inflammation, hypercoagulability and the frequency of venous thromboembolism. Conclusion: Patients with multiple trauma belong to the group of high risk of venous thromboembolic complications.

09:11 - 09:14

1517 Percutaneous Fixation Of An Unstable Ankle Fracture In A Morbidly Obese Patient With Arthrex FibuLock Fibular Nail And Cannulated Screw

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Abstract
Unstable ankle fractures in young adults are typically treated with open reduction internal fixation using a plate and screws. However, this method can lead to significant wound complications, especially in patients with comorbidities like diabetes. Recent literature suggests that using the Arthrex Fibulock nail for unstable ankle fractures yields similar functional outcomes to plate fixation, with fewer wound complications due to the MIPO approach used in nailing. Here, we report a case study of percutaneous fixation of the unstable ankle fracture with Fibulock nail. This case involves a 31-year-old obese male weighing 550 lbs with a BMI of 55, pre-diabetes, severe sleep apnea requiring daily C-PAP, and who is actively smoking. He sustained a right ankle Weber's C fracture dislocation following a motor vehicle accident. His numerous comorbidities could result in wound complications with traditional open reduction and internal fixation methods. Adequate reduction was achieved with traction and internal rotation under fluoroscopes. The Arthrex FibuLock Fibular nail was inserted via a jig through a 1.5 cm stab incision. Two distal lock screws were placed through another stab incision using the guide, and a third 1.5 cm stab incision allowed for the placement of two syndesmotic screws through the nail. The patient was placed in a cast to protect fixation and started ambulating six weeks after surgery. Below, we will review the current literature surrounding this method of fixation and how to best optimize it for patient outcome.

08:33 - 08:36

1492 Risk-Based Analysis Of The Clinical And Nosological Structure Of Modern Combat Trauma

Sergiy Guryev[1], Vitaliy Kushnir[1], Sergiy Panasenko[2], Olexii Solovyov[1]

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2. Poltava Medicine Univercity, Poltava, Ukraine

Abstract
Introduction: modern wars cause changes in the clinical and nosological structure of combat trauma. The purpose and objectives of the study: to determine the probable risk-based (for death) clinical and anatomical structure combat trauma. The objectives of the study are to assess and verify the clinical and outcome risks. Research design and methods: scope - 5,300 military and civilian casualties who suffered damage as a result of hostilities in Ukraine. The Clinical Risk Management method was applied. Results. Combat injuries have a catastrophic risk of death: pelvic bone injuries - 1.33; femoral fractures - 1.33; femoral artery injuries - 1.33; traumatic amputation of the lower limb - 1.33; liver, biliary tract and pancreas injuries - 0.92; intestinal injuries - 0.91; subclavian vessel injuries - 0.87; spleen injuries - 0.81; hemopneumothorax of unknown origin - 0.59; kidney and ureter injuries - 0.87; subclavian vessel injuries - 0.87; gunshot wounds to the head - risk index 0.82; bladder injuries - 0.80; injuries to the lungs and mediastinal organs - 0.50. Critical risk have a: skull base fracture - 0.56; popliteal artery injury - 0.53. A significant risk indicator is: traumatic amputation of the upper limb - 0.25; lumbar spine injury - 0.26; skull vault fracture - 0.27; penetrating wound of the abdomen (abdominal cavity) without organ damage 0.27; neck injury - 0.30; rib injury - 0.29; brachial artery injury - 0.35. Conclusion: the greatest risk of death is for victims with injuries accompanied by external or internal bleeding.

10:06 - 10:09

1698 Anteromedial Extensile Approach In Distal Tibia Fractures: Intraoperative Ischemia And Soft Tissue Complications

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Abstract
Keywords: distal tibia fractures; intraoperative ischaemia; wound complications;

Introduction
Distal tibia fractures are challenging injuries due to high complication rates and prolonged recovery times. Current treatment strategies emphasize soft tissue management and delayed internal fixation. The anteromedial extensile approach has been proposed to improve surgical exposure while minimizing soft tissue compromise.
Objectives and Aims
This study aimed to evaluate outcomes in a cohort of patients with distal tibia fractures, and to identify factors influencing complication rates and time until recovery.
Methods
Thirty-one consecutive cases of distal tibia fracture were analyzed. Data collected included injury mechanism, fracture pattern (AO and Rüedi-Allgower classifications), surgical delay, use of intraoperative ischemia, rate of complications, and time until recovery. Statistical analysis assessed outcomes depending on ischemia use and fracture type.
Results
The cohort included 31 patients who underwent ORIF with a mean delay of 17 days after injury. The extensile approach was always used, combined with a lateral approach for fibula fixation in 21 cases. Seven cases experienced minor wound complications, two required further reconstructive surgery, and two developed deep infection. Patients subjected to ischemia had significantly more complications (assessed by Fisher's exact test) and longer recovery times in log-rank survival analysis.
Conclusions
Delayed surgery using the anteromedial extensile approach is an effective strategy for pilon fractures. Avoiding ischemia during surgery appears to improve soft tissue healing, which is a key determinant of functional recovery. Quality of reduction and associated injuries are other factors which need further research.

10:24 - 10:27

2123 Pediatric Calcaneus Fractures: Etiology – Treatment – Complications

Durmus Ekin Dincer

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Abstract

Objectives:

Calcaneus fractures are relatively rare in children, ant the diagnosis may be missed due to mild clinical findings and subtle radiographic signs. This study aims to evaluate etiology, classification, treatment methods, and complications of pediatric calcaneus fractures.

Methods:

Pediatric calcaneus fractures treated between 2012-2024 were retrospectively reviewed. Mechanisms of injury, fracture classification, preoperative and postoperative Böhler angles, and complications were evaluated.

Results:

A total of 12 calcaneus fractures were identified in 8 pediatric patients. Injury mechanisms included falls from height (7 patients) and a gunshot injury (1 patient). Fractures were classified as Sanders type 1 (4 fractures), Sanders type 2 (4 fractures, mean Böhler angle preoperative:-13.7°, postoperative:26.5°), Sanders type 3 (4 fractures, mean Böhler angle preoperative:-37.6°, postoperative:14.9°)). Surgical approaches included sinus tarsi approach (4), lateral extensile approach (1), and closed reduction (7). The mean preoperative waiting period was 8.5 days (range: 3–18 days).
Postoperative complications included pin-tract infections in two patients, and a soft tissue defect in one patient due to gunshot injury. No cases of deep infections or wound necrosis were observed. Böhler angle significantly improved postoperatively. Average time to achieve fracture union was 11.6 weeks (range: 5–18weeks). Patients resumed full weight-bearing without pain or functional limitation at final follow-up.

Conclusion:

Displaced intra-articular pediatric calcaneus fractures should be managed surgically with appropriate techniques. Sinus tarsi approach appears to be minimally invasive and safer. Early anatomical reduction, stable fixation, and careful follow-up are essential to reduce complications and achieve optimal functional outcomes.

Pediatric calcaneus fractures

08:36 - 08:39

2242 Assessing Barriers To Musculoskeletal Trauma Care In Ethiopia: A Technical Priorities Survey Of Providers

Samhita Kadiyala[1], Cameron Almeida[2], Mengistu Gebreyohanes Mengesha[3], Ephrem Gebrehana[3], James Berwin[4], Alpha Seifu Ali[5], Samuel Hailu[6], Kiran Agarwal-Harding[7]

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7. Beth Israel Deaconness Medical Center, Boston, United States

Abstract
Purpose: As the first study of its kind in Ethiopia, we sought to define evidence-based, expert-informed technical priorities for national orthopaedic trauma capacity building.

Methods: A scoping review of 80 publications guided the development of essential goals and challenges to orthopaedic trauma care delivery nationwide. This list was refined through in-depth interviews with local orthopedic surgeons, and a survey was distributed to providers nationally through professional networks.

Results: 128 respondents, primarily orthopaedic surgeons (n=110). The majority reported inadequate diagnosis (77%), treatment (83%), and rehabilitation (90%) of musculoskeletal pathology. The most common preoperative challenges included inadequate first aid in the prehospital setting (99%), and inadequate triage and referral in primary and secondary hospitals (>70%). At primary hospitals, slings and plaster were scarce (79.8%); at secondary hospitals, surgical implants/instruments (88.9%) and blood products (67.4%) were limited. At tertiary centers >70% reported appropriate operative care, but surgical implants/instruments (75.7%), fluoroscopy (68.9%) and negative pressure wound therapy (78%) were inadequate. Insufficient trauma training was reported at primary (90.9%), secondary (78.3%), and tertiary hospitals (53.3%).

Conclusion:
Our study identified key targets for musculoskeletal trauma care capacity improvement at every level. Training in trauma care was a key area for improvement, particularly in first aid, triage and referral in pre-hospital settings and primary hospitals, and definitive orthopaedic trauma management at secondary hospitals. At tertiary centers, improving availability of surgical supplies is essential. These evidence-based, expert-guided insights should guide policy priorities and actionable strategies.

08:39 - 08:42

2767 A Retrospective Analysis Of The Management Of Open Fractures In A Major Trauma Centre

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Abstract
Aim:
Open fractures require timely management to optimise functional outcomes. The British Orthopaedic Association Standards for Trauma (BOAST) guidelines provide a framework their management. This audit aimed to assess management of open fractures in a high-volume Major Trauma Centre (MTC).

Method:
A retrospective analysis was conducted on open fractures treated at an MTC from July 2023 – July 2024. Data were collected on the timing of initial surgical debridement, use of antibiotics, and adherence to the classification/management of fractures according to BOAST guidelines, along with orthoplastics involvement.

Results:
162 patients were included. Compliance with BOAST guidelines for documentation of neurovascular status was 80%, antibiotic administration was delayed in 10% of cases, while 96% of patients received timely initial debridement.

96% of patients received definitive soft tissue coverage within 72 hours, and out of those who did not, 71% received a flap. 29% of patients suffered complications, with skin and pin-site infection accounting for 27% of complications. There was no increase in wound infection or breakdown when managed without a joint orthoplastics approach (1/47), compared to 6/108 managed together (P=0.68).

Only 13.6% of fractures had a documented non/malunion at follow-up. 16% of participants were managed definitively with an external fixator or frame and only 11.5% of these had a documented non-union. When sub-stratified into Grade 3A or 3B injury, there was a documented union rate of 75%.

Conclusion:
Adherence to BOAST guidelines and a strong orthoplastics approach to open fractures is vital, leading to high union rates and low complication rates.

09:43 - 09:46

3072 Review Of Hip Hemiarthroplasty Dislocations At A Level 2 Trauma Centre In United Kingdom.

Rajesh Bawale, **Aditi Joshi**, Avinash Vajramani, Andrew Ogilvie, Tithi Jain

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Abstract
Background: Hip hemiarthroplasty is done for an intracapsular neck of femur fracture worldwide. Dislocation following Hip hemiarthroplasty is a rare but potentially devastating complication with a reported incidence ranging from 1 to 15%. Our aim was to assess the post hip hemiarthroplasty dislocation rate and study associated factors at our institution since 2016. Methods: The data was collected retrospectively From Jan 2016 till Dec 2024. The electronic records, trauma board, PACS system were used to collect the data. During this period, 1631 patients were admitted with intracapsular fracture neck of femur and had cemented hip hemiarthroplasty by using a triple polished tapered stem. Results: 20 patients were admitted with dislocation post cemented hip hemiarthroplasty (1.2%). Closed manipulation were attempted for all patients. Due to significant risk associated with revision surgery and instability, 10 patients underwent excision arthroplasty. 3 patients did not any more intervention . Remaining 7 patents underwent revision procedure with open reduction, head change and soft tissue reconstruction. The factors with the strongest correlation with dislocation noted as patient cognition status, falls and femoral offset. Conclusion: Our study concludes that Hip hemiarthroplasty remains the gold standard for elderly patients with intracapsular neck of femur fractures with1.2% dislocation rate at our institution. Each case needs to be reviewed and the factors most strongly associated with postoperative dislocation should be recognised. In addition to good surgical technique, particular attention should be paid to restore native femoral offset and patients with cognitive impairment should be closely monitored to prevent falls.

08:46 - 08:49

2889 Early Detection Of Centralization During Hemorrhagic Shock Using Thermal Imaging In A Large Animal Model

John Thomas Ricklin[1], Christian Thomas Hübner[1], Felix Karl-Ludwig Klingebiel[1], Miriam Weisskopf[2], Christian Stoeck[2], Roman Pfeifer[1], Hans-Christoph Pape[1], Yannik Kalbas[1]

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2. Center for Preclinical Development, University of Zurich, Zurich, Switzerland

Abstract
Uncontrollable hemorrhage remains a major cause of death in trauma patients. While shock is typically diagnosed with invasive blood pressure monitoring, which provides limited information on end-organ perfusion, centralization is primarily assessed clinically and non-invasive diagnostic modalities for peripheral circulation, such as near-infrared spectroscopy, are not yet widely established in clinical practice. With this study, we aimed to evaluate the feasibility of assessing centralization during hemorrhagic shock (HS) using an infrared camera in a large animal model.
The total 32 animals (70 +/- 5kg) were equally divided into four experimental groups: (1) Sham (anesthesia only), (2) HS (pressure-controlled HS with mean arterial pressure (MAP) of 30 mmHg for 90 minutes), (3) trauma (bilateral femur fractures and blunt chest trauma), and (4) polytrauma (combining trauma and HS). Core body temperature was measured using a rectal thermometer, and vital sign were continuously monitored. Thermal images were captured using the FLIR C5 infrared camera over a 24-hour period. A total of 15 images per animal were recorded, primarily focusing on the lower abdomen and hind legs.
This study is ongoing, with data currently still being collected. Significant temperature changes were observed in the hemorrhagic shock and polytrauma groups, characterized by a peripheral temperature decrease of (-6°C) relative to the core temperature, demonstrating a strong correlation with hemodynamics. This temperature difference hints at vasoconstriction and centralization.
Preliminary findings demonstrate a strong trend between temperature dynamics, MAP, and core temperature, supporting the feasibility of thermal imaging as a non-invasive monitoring tool for hemorrhagic shock.

10:12 - 10:15

2665 Safety And Efficacy Of Tranexamic Acid In Pelvi-Acetabular Trauma Surgery: A Systematic Review And Meta-Analysis Of Randomized Controlled Trials

Sujit Kumar Tripathy, Shahnawaz Khan

All India Institute of Medical Sciences, Bhubaneswar, India

Abstract
Background: Pelvic and acetabular fractures, often resulting from high-impact trauma, pose significant challenges due to extensive blood loss and complex surgical procedures. Tranexamic acid (TXA), widely used in elective orthopedic surgeries, offers a potential strategy for managing blood loss. However, its efficacy and safety in pelvic-acetabular trauma surgeries remain controversial. This meta-analysis systematically evaluated the safety and efficacy of intravenous TXA in pelvic and acetabular trauma surgeries.
Methods: A systematic review and meta-analysis of randomized controlled trials (RCTs) was conducted following PRISMA guidelines. Literature searches of PubMed, Embase, and Cochrane databases identified relevant studies. Data on blood loss, transfusion rates, thromboembolic events, surgical time, and complications were extracted and analyzed using RevMan 5.4 software. A random-effects model was applied to account for heterogeneity.
Results:
TXA did not significantly reduce estimated blood loss (mean difference: 117.54 ml; 95% CI -286.48 to 51.40; p = 0.17) or transfusion rates (risk ratio: 0.88; 95% CI 0.48-1.60; p = 0.67). No significant differences were observed in the number of transfused blood units, surgical duration, or complication rates, including thromboembolic events (risk ratio: 1.36; 95% CI 0.57-3.22; p = 0.48). TXA demonstrated a favorable safety profile with no increased risk of systemic or local complications.
Conclusion: While TXA is safe for use in pelvic-acetabular trauma surgeries, it does not significantly reduce blood loss, transfusion needs, or operative time. The findings highlight the complexity of these procedures and the multifactorial nature of blood management. Further high-quality RCTs with standardized protocols are needed to refine TXA's role in this context.

08:52 - 08:55

767 Fracture Fixation In Poly-Traumatized Patients—From An Interdisciplinary Early Total/Appropriate Care To The Safe Definitive Surgery Concept.

Amjad Hossain, Muhammad Tanvir Hasan, Md Nasimul Islam

Labaid Hospital Ltd., Dhaka, Bangladesh

Abstract
Abstract
Fracture fixation in poly-traumatized patients—From an interdisciplinary early total/appropriate care to the safe definitive surgery concept" refers to the evolving approach in managing bone fractures in patients with multiple severe injuries (polytrauma), where the focus is on initially stabilizing the patient's overall condition through damage control surgery, followed by definitive fracture fixation only once they are physiologically stable, ensuring a safe and timely surgical intervention based on a comprehensive interdisciplinary team approach. The strategies for the timing of fracture fixation in polytrauma patients have changed with improvements in resuscitation and patient assessment. Specifically, the criteria for damage control have been formulated, and more precise parameters have been found to determine those patients who can safely undergo primary definitive fixation of major fractures. Objective and data-based criteria and development groups support our current recommendations. Those were validated and compared to existing scores. This review article introduces the concept of "safe definitive surgery" and provides an update on the parameters used to clear patients for timely fixation of major fractures.

Keywords: borderline patient; fracture management; multiply injured patients; polytrauma; safe definitive surgery.

09:37 - 09:40

777 Femoral Neck Fractures: Different Patients, Different Problems.

Amjad Hossain, Muhammad Tanvir Hasan, Md Nasimul Islam

Labaid Hospital Ltd., Dhaka, Bangladesh

Abstract
Abstract
Introduction: This study analyzes in-hospital outcomes associated with total hip arthroplasty, hip hemiarthroplasty and internal fixation for treatment of femoral neck fractures in patients aged 45–64.
Methods: Records of patients between the ages of 45–64, from 2002 to 2025, sustaining femoral neck fractures and treated with internal fixation, hip hemiarthroplasty or total hip arthroplasty were obtained from the NIS. Examined variables were age, sex, and CCI. Outcome measures included hospital length of stay (LOS), complications, and inpatient hospitalization charge.
Results: From 2002–2025, 2000 femoral neck fractures were available for analysis. THA use increased from 5.3% of operatively managed fractures in 2002 to 22.3% of operatively managed fractures in 2025 ($p < 0.0001$). Patients undergoing THA had higher hospital cost, higher in hospital complication rates and longer length of stay than patients undergoing internal fixation ($p < 0.0001$). The in-hospital mortality for patients undergoing a hip hemiarthroplasty was higher (1.2%) than either total hip arthroplasty (0.2%) or internal fixation (0.5%) ($P = 0.007$).
Conclusion: This study demonstrates that the use of total hip arthroplasty in treatment of femoral neck fractures in patients from the age of 45–64 increased 4.2-fold over the study period. This treatment is associated with increased hospital cost, length of stay, and complications. Additionally, as age increased in our study population, there was a stepwise increase in the use of arthroplasty, and it appears that hemiarthroplasty is being used with a different patient population.

09:40 - 09:43

783 Distal Femur Fractures Have A Higher Mortality Rate Compared To Hip Fractures Among The Elderly.

Amjad Hossain, Muhammad Tanvir Hasan, Md Nasimul Islam

Labaid Hospital Ltd., Dhaka, Bangladesh

Abstract
Abstract
Introduction
We aim to analyze a nationwide database among the elderly to compare the outcomes between hip fractures and distal femur fractures in Bangladesh.

Materials and Methods
A retrospective analysis of the National Trauma Data Bank was queried between 2007-2024 to identify distal femur and hip fracture patients greater than 65 years of age. Outcomes analyzed included in-hospital mortality, total hospital length of stay, intensive care unit length of stay, length of ventilation use, and hospital discharge disposition. Multivariable regression models were performed to adjust for potential confounders. Statistical significance was established at $p < 0.001$.
Results
26,325 (10.1%) and 233,213 (89.9%) patients reported a diagnosis of DF and hip fracture, respectively. The inpatient mortality rate was significantly higher in the distal femur fracture group (8.3% vs. 6.7%), with significantly longer LOS (7.87 vs. 6.65), ICU-LOS (1.50 vs. 0.73), and required ventilation days (0.74 vs. 0.27). Multivariable analyses demonstrated that hip fracture patients had a lower mortality (adjusted odds ratio [aOR], 0.80; 95% CI [0.76, -0.85]; $p < 0.001$), shorter LOS ([aOR], -0.31; 95% CI [-0.39, -0.23]; $P < 0.001$), and more likely to be discharged home ([aOR], 0.88; 95% CI, 0.85, 0.91; $P < 0.001$, compared to DF fracture patients.
Conclusion
After adjusting for potential factors, DF fracture patients have a significantly higher mortality, longer LOS, and are less likely to be discharged home compared to hip fractures among the elderly. These results

09:21 - 09:24

562 Limitations Of Femoral Neck System In Management Of Fracture Neck Of Femur : A Multicentre Study

Sushant Sudhir Srivastava[1], Sachin Yeshwant Kale[2]

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2. Dr. D.Y.Patil Medical College, Mumbai, India

Abstract
Introduction: Femoral neck fractures are significant injuries often requiring surgical intervention, one can use femoral neck system (FNS) implants. While these implants offer promising outcomes, they can be associated with various complications. Among them are nonunion, malunion, avascular necrosis (AVN), and implant-related issues.Nonunion occurs when the fractured bone fails to heal, leading to persistent pain and functional impairment. Malunion refers to improper alignment of the fracture during healing, resulting in limb-length discrepancy or altered biomechanics. AVN occurs due to compromised blood supply to the femoral head, leading to its deterioration and eventual collapse.
Implant-related complications include implant loosening, breakage, or migration. Loosening can result from inadequate fixation or poor bone quality, leading to instability and pain. Breakage may occur due to excessive stress on the implant, particularly in cases of nonunion or malunion. Migration can lead to altered joint mechanics and increased risk of further complications.Materials & Methods : A total of 90 patients across 3 centres were studied in this retrospectively in which 9 suffered complications.Results : Radiologically and Clinically the patients were assessed and it was found that many patients suffered from non-union (4) , AVN (3) implant failure(2).Reasons for failure were delay in surgery, higher age group and poor bone quality. All these patients were offered other management options after primary failure.Management of these complications often requires revision surgery.Conclusion: Despite these efforts, complications can still arise, underscoring the importance of thorough preoperative assessment, patient counselling and preparedness to handle complications.

09:50 - 09:53

875 Lateral Decubitus Position Versus Supine Position On Traction Table In Proximal Femoral Nailing Of Peri-Trochanteric Fractures : A Prospective Observational Study

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2. Central Institute of Orthopaedics, VMMC and Safdarjung Hospital, New Delhi, India
3. The Royal Wolverhampton NHS Trust, Wolverhampton, United Kingdom

Abstract

Introduction: Proximal femoral nailing (PFN) is a common surgical intervention done for unstable intertrochanteric fractures, yet there is a paucity of literature comparing the outcomes of the two most commonly used operative positions—lateral decubitus and supine on a traction table.

Aim: This prospective observational study aims to address this gap by evaluating various intra operative and post operative surgical parameters to compare the outcomes of these two operative positions.

Methods: Sixty patients with unstable intertrochanteric fracture were randomly assigned to supine (n=30) or lateral (n=30) positions for PFN. Data on setup time, surgical time, blood loss, imaging ease, traction ease, Cleveland-Bosworth Quadrant (AP/Lateral), mobilisation day, collo-diaphyseal angle, tip-apex distance, and fracture gap at 4 weeks were recorded. Statistical analysis (t-tests, Mann-Whitney U) was performed using STATA 14.2, with $p<0.05$ considered significant.

Results: Setup time was significantly longer in the supine group, while surgical time was higher in the lateral group. The supine position allowed better intra-operative imaging and traction. Blood loss and Cleveland-Bosworth Quadrant distribution showed no significant differences. Mobilisation was delayed in the lateral group. The supine group demonstrated better post-operative tip-apex distance, collo-diaphyseal angle, and a smaller fracture gap at 4 weeks, indicating better reduction and union.

Conclusion: This study suggests that the lateral decubitus position has an advantage in terms of setup time. However, ease of imaging, intra-operative traction, mean surgical time, radiographic parameters and early post-operative mobilisation favoured the supine position. These findings may guide surgeons in choosing the optimal position based on specific patient and procedural considerations.

09:34 - 09:37

2530 Influence Of Interfragmentary Screws In Posterior Wall Acetabular Fractures On Duration And Complexity Of THA

Irakli Goginava[1,2], George Murvelashvili[3], Lukhum Chanturia[4,2], Mariia Riezunenko[5]

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Abstract
Introduction:
Posterior wall acetabular fractures are commonly stabilized using interfragmentary screws combined with a compression plate. However, during future total hip arthroplasty (THA), previously placed screws may interfere with acetabular preparation and uncemented cup implantation.

Purpose:
To compare long-term outcomes of osteosynthesis with (Group 1) and without (Group 2) interfragmentary screws in posterior wall acetabular fractures, with focus on subsequent THA.

Materials and Methods: We spent a Comparative Retrospective Study
From 2017 to 2022, 57 patients (36 men, 21 women; aged 24–67) with closed posterior wall acetabular fractures underwent surgery within 7 days via the Kocher-Langenbeck approach. Group 1 (n=28) received interfragmentary screws and plating; Group 2 (n=29) received plating only. Postoperative rehabilitation was identical. Long-term outcomes were assessed in 43 patients (minimum 4-year follow-up). Fracture union occurred in all cases within 5–8 weeks. THA was later performed in 27 patients (16 in Group 1, 11 in Group 2).

Results:
All Group 1 patients required screw removal during THA; 5 required full hardware removal. This prolonged surgery and increased infection risk. No hardware removal was needed in Group 2.

Conclusion:
Interfragmentary screws offer no long-term advantage but complicate future THA. Avoiding them may simplify arthroplasty and reduce operative burden.

Keywords:
Acetabular fracture, posterior wall, interfragmentary screws, total hip arthroplasty, osteosynthesis, Kocher-Langenbeck approach

Friday, 5 September

Emerging Technology 2
09:13 - 09:16

224 Segmentation And Importing Of Patient 3D Anatomy In Lumbar Sympathetic Block Simulation: Transforming Medical Training With VR Innovation

Emmanuel Oluwabori Bajo, Peter Snow, Tao Zhihao, Jiuhe Sun, Ymma Pennicard

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Abstract
Lumbar Sympathetic Block (LSB) is a diagnostic and therapeutic procedure for managing spinal pain and radiculopathy. Traditional training methods, such as cadaver-based instruction and live patient practice, present ethical, logistical, and safety challenges. This study explores a Virtual Reality (VR) based simulation as an innovative solution for LSB training, offering a risk-free and immersive learning experience.

The VR simulation utilises high-resolution patient CT scan data to create anatomically accurate 3D models of the patient lumbar spine and surrounding structures. Advanced segmentation techniques ensure detailed anatomical representation. Key features include a "traffic light" navigation system for real-time guidance, haptic feedback replicating tissue resistance, and performance metrics assessing needle placement accuracy.

By providing immediate feedback and customizable scenarios, the VR system enhances procedural precision and prepares trainees for complex anatomical variations. It eliminates the risks associated with patient-based training while maintaining clinical realism. The system enables repeated practice, improving skill acquisition and reducing errors.

Future improvements should focus on refining segmentation accuracy with machine learning, integrating dynamic tissue modeling, and incorporating broader anatomical variability. Further validation through expert assessments and clinical trials will enhance its effectiveness.

This VR-based approach represents a significant advancement in medical education, addressing limitations in conventional LSB training. By integrating advanced visualisation, haptics, and real-time feedback with Toia robotic, the simulation enhances procedural competence, ultimately improving patient safety and clinical outcomes.

09:19 - 09:22

840 Computer-Assisted Navigation System In Anterior Cruciate Ligament Reconstruction: A Scoping Review

Mario Rui Silva, Rodrigo Nuno Lopes, Filipa Cordeiro, João Sousa Seixas, Bianca Sousa Barros, Antonio Gonçalo Silva, Filipa Adan Silva, Alexandra Santos, Adelio Vilaça

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Abstract
The integration of computer-assisted navigation systems (CANS) into anterior cruciate ligament (ACL) reconstruction represents a significant technological advancement, offering enhanced precision and potential improvements in clinical outcomes. This scoping review synthesizes current evidence on CANS in ACL reconstruction, identifies knowledge gaps, and evaluates the scope of existing literature. A comprehensive search of PUBMED and SCOPUS databases in December 2023 identified 54 studies meeting inclusion criteria, including 37 experimental studies, 9 systematic reviews, and 8 studies reporting clinical outcomes. Among 926 patients undergoing CANS, OrthoPilot® (36.2%) and Praxim Medivision® (35.7%) were the most frequently used systems. Passive systems, particularly image-free ones like OrthoPilot®, dominated from 2004-2013, while active systems, such as TiRobot®, have gained recent traction. Tunnel placement accuracy was the primary focus, with 83% of studies reporting precise placement, evaluated via X-ray (41%), CT (22%), and MRI (8%). Clinical outcomes were assessed in 10 studies, with 8 comparing CANS to conventional surgery, alongside explorations of laxity, economic impacts, and learning curves. While CANS demonstrate promise in improving precision, further clinical trials are needed to validate their effectiveness and address limitations. Continued advancements and rigorous research are essential for optimizing outcomes in ACL reconstruction.

Keywords: Anterior Cruciate Ligament; Reconstruction; Computer-Assisted Surgery; Robotics; Computer Simulation.

08:45 - 08:48

1836 Revolutionizing Orthopaedic Care: Patent-Pending Biomaterials Redefining Implant Longevity

Sunil Sheshrao Nikose[1], Narayana Prasad[1], **Abhineet Verma**[1], Pregash Ellapparadja[1], Yeshwanth Nandimandalam[1], Ramesh Thalava[2], Brinda Somanchi[2]

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Abstract
The pursuit of enhanced implant longevity remains a cornerstone of orthopaedic research, with significant implications for patient outcomes and healthcare efficiency.
The study introduces a patent-pending device that leverages cutting-edge biomaterial technology to revolutionize joint replacement procedures. Specifically, the device incorporates advanced biomaterials, such as drug-eluting polymers and osseointegration-enhancing composites, designed to address two critical challenges in orthopaedics: infection risk and implant durability.

Drug-eluting polymers integrated into the device enable sustained release of antimicrobial agents, effectively reducing the likelihood of post-operative infections. Additionally, biomaterials engineered to mimic natural bone properties improve osseointegration and minimize wear over time, contributing to greater implant stability and longevity. Preliminary in vitro and in vivo evaluations highlight promising results, including enhanced biocompatibility, reduced infection rates, and improved mechanical performance under physiological conditions.

This research emphasizes not only the clinical benefits of the device but also its economic potential. By reducing revision surgeries and associated healthcare costs, these advancements stand to elevate the quality of life for patients while improving operational efficiency for healthcare providers. Furthermore, the adoption of such state-of-the-art innovations positions orthopaedic practices at the forefront of modern care.

Our study represents a pivotal step in orthopaedic biomaterials research, paving the way for the clinical translation of technologies that bridge the gap between innovation and improved patient outcomes.
Future clinical trials are planned to validate these findings and explore broader applications of the device across diverse patient populations.

09:22 - 09:25

2058 Can ChatGPT Be Used To Determine ASA Score?

Durmus Ekin Dincer

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Abstract
Introduction:

The use of artificial intelligence in healthcare is expanding rapidly. The American Society of Anesthesiologists' (ASA) score predicts surgical mortality risk effectively. We aimed to assess the reliability of ChatGPT in determining ASA scores of 2 and above.

Methods:

We calculated ASA of patients graded 2 or higher using ChatGPT. The patient's age, gender, and basic medical history were provided. Data such as laboratory results, imaging findings, detailed medical history, and clinical examination findings were not included.

Results:

Sixty trauma and forty elective surgery patients were evaluated.
• ASA 2:
o Trauma: ChatGPT correctly identified the ASA score in 23 of 30 patients.
o Elective surgery: ChatGPT correctly identified the ASA score in 19 of 29 patients.
• ASA 3:
o Trauma: ChatGPT identified the ASA score in 20 of 26 patients.
o Elective surgery: ChatGPT correctly classified all ASA 3 patients. (11)
• ASA 4:
o All patients correctly identified. (4)

Discussion:
ChatGPT accurately identified ASA scores for elective orthopedic patients classified as ASA 2 and trauma patients classified as ASA 4. However, trauma patients classified as ASA 2 were occasionally misclassified as ASA 3 or vice versa. This discrepancy might be due to the lack of detailed clinical and laboratory data provided to ChatGPT. Incorporating additional diagnostic data, such as detailed medical history, laboratory results, imaging, and examination findings, might improve the accuracy of AI-assisted ASA classification.

Conclusion:

• ChatGPT was partially successful at predicting ASA 2 patients but tended to underestimate ASA 3 patients.
• Including more detailed clinical and laboratory data may enhance the accuracy of ChatGPT in anesthetic risk assessment.

08:54 - 08:57

2203 Evaluation Of The Information Provided By Artificial Intelligence Chats In Response To Frequently Asked Patient Questions About Tibial Shaft Fractures.

Esperanza Marín García-Cabrera, Miguel Ángel Marín Aguado, Cristina Wert Martín, Beatriz García Marqués, Álvaro Ruiz-Andreu Ortega, Elsa Arruti Pérez

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Abstract

Aims & Objectives
To assess the educational utility and reliability of artificial intelligence chatbots or large language models (LLMs) by evaluating the readability and quality of their responses to common patient questions about tibial shaft fractures.

Study Design & Methods
This prospective study analysed five AI chatbots: ChatGPT 4.0, DeepSeek, Microsoft Copilot Pro, Gemini Advanced 2.0, and Perplexity. The 20 most frequently asked patient questions about tibial shaft fractures were identified through chatbot queries and common Google searches. These questions were posed to each chatbot without prior training.
Readability was assessed using the Flesch-Kincaid Reading Ease (FRES), Flesch-Kincaid Grade Level (FKGL), Gunning-Fog, SMOG, Fry, FORCAST, and Raygor Estimate indices. Three specialist surgeons blindly evaluated response quality, categorising them as "appropriate," "appropriate but requiring clarification," or "inappropriate." Responses were rated for accuracy on a 1–5 scale and assessed using DISCERN criteria.

Results
No significant differences in readability were found between the five chatbots. Most responses were classified as satisfactory or satisfactory with clarification. No significant differences were observed in response quality, either individually or using DISCERN criteria, nor in accuracy ratings among the models.

Conclusions
AI chatbots provide consistent readability and response quality for common questions about tibial shaft fractures, with no significant differences between models. Most responses were appropriate, though some required clarification. These findings suggest that large language models may be useful for patient education, but medical supervision remains necessary.

Keywords: artificial intelligence, chatbot, large language models, tibial shaft fractures, frequent questions, readability assessment, response quality, patient education.

09:07 - 09:10

2151 Advancing Knee Arthroscopy Training With Virtual Reality: A Systematic Review And Meta-Analysis Of Current Evidence

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2. University of South Wales, Cardiff, United Kingdom

Abstract

Introduction:
Virtual reality (VR) simulation is emerging as a high-fidelity training tool for knee arthroscopy, providing a risk-free learning environment. This study evaluates current evidence on VR training, its impact on the learning curve, skill transfer to the operating theatre, and effects on operative time, complication rates, and clinical outcomes. The study also evaluates the feasibility of integrating VR training into standardised training curricula.

Methods:
A systematic review of nine databases identified studies published until September 2024 using search terms "knee arthroscopy" and "simulation" or "simulator." Key outcomes included operative time, ASSET (Arthroscopic Surgical Skill Evaluation Tool) scores, path length, and validity measures. Previous reviews were assessed using the AMSTAR-2 tool. Risk of bias was evaluated with ROB-2 and ROBINS-I tools. A random-effects meta-analysis assessed study heterogeneity.

Results:
Twenty-nine studies (7 RCTs, 22 observational) involving 1,846 participants across eight countries were included. All VR trainers demonstrated high face and construct validity. Nine studies confirmed skill transfer to cadaveric models; only one showed intraoperative (in-vivo) transfer. Compared with controls, the VR group showed significant improvement in operative time (Mean Difference(MD):-87.58 seconds; p=0.010; 95% CI, [-153.88 to -21.28 seconds]). No significant difference was seen compared to other methods of simulation training(MD 2.97; p=0.90 [-44.35 to 50.29]) , in ASSET scores (MD 0.76 ; p=0.42;[-1.09 to 2.61]) and complication rates.

Conclusion:
VR simulation is an effective tool for arthroscopic training, improving efficiency without increasing complications. Future research should focus on larger trials evaluating cost-effectiveness, sustainability, and direct skill transfer to live surgery.

08:51 - 08:54

2179 Robotic-Assistance In Total Knee Arthroplasty Improves Outcomes For High- And Low-Volume Surgeons, While Closing The Gap Of Experience Among Conventional Surgeon

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Abstract
INTRODUCTION:
Robotic-assisted total knee arthroplasty (R-TKA) usage has grown. Prior studies have reported improved outcomes for R-TKAs versus conventional total knee arthroplasties (C-TKA) and higher-volume surgeons. However, the combined impact of surgeon volume and robotic usage remains uncharacterized.

METHODS:
Patients undergoing R-TKAs and C-TKAs performed by low-volume (<7 TKAs annually [25th-percentile]) and high-volume (>69 TKAs annually [75th-percentile]) surgeons were identified from PearlDiver M170Ortho. Three matched comparisons were performed: low-volume C-TKA versus low-volume R-TKA, high-volume C-TKA versus high-volume R-TKA, and high-volume C-TKA versus low-volume R-TKA. Matching was 4:1 based on age, sex, and ECI. Ninety-day adverse events (AEs), 5-year implant-related events, and reoperation rates were assessed.

RESULTS:
Among low-volume surgeons, comparing C-TKAs (n=8,954) and R-TKAs (n=2,241) demonstrated lower odds of 90-day any (OR 0.68, p<0.001), severe (OR 0.79, p<0.001), and minor (OR 0.69, p<0.001) AEs with R-TKA. At 5 years, low-volume R-TKAs had lower odds of loosening (OR 0.53, p<0.001), but no differences in reoperations.

Among high-volume surgeons, comparing C-TKAs (n=19,750) and R-TKAs (n=4,944) demonstrated lower odds of 90-day any (OR 0.81, p<0.001) and minor (0.78, p<0.001) AEs with R-TKA. High-volume R-TKAs had lower odds of 5-year prosthetic joint infection (OR 0.64, p<0.001) and reoperation (2.2% vs. 3.4%, p=0.006).

Comparing high-volume C-TKAs and low-volume R-TKAs, no differences existed in 90-day AEs, 5-year implant-related events, or 5-year reoperation rates.

DISCUSSION:
R-TKA had enhanced short- and long-term outcomes, regardless of surgeon volume. Robotics allowed low-volume surgeons to achieve similar outcomes to high-volume non-robotic surgeons, supporting robotics utilization for surgeons of varying experience.

08:48 - 08:51

3082 The Clinical Evidence Of 3D-Printed Bioresorbable Bone Scaffold For Large Bone Defect Reconstruction: A Systematic Review Of Clinical Studies

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4. UCL Institute of Immunity and Transplantation, Pears Building, London, United Kingdom

Abstract

Introduction:
Large bone defects ≥50% diameter of a long bone often result in non-union despite advanced regenerative technologies. 3D printed bone scaffolds have become a promising solution for cases potentially requiring amputation. However, clinical evidence for this technology is limited. Therefore, this systematic review aims to evaluate clinical studies that have utilized 3D printed bioresorbable scaffolds for reconstructing large bone defects in orthopaedics.

Methods:
Adhering to PRISMA guidelines, a systematic review was conducted, searching MEDLINE (PubMed), Embase (Ovid), CENTRAL (Cochrane Library), and Web of Science until March 2025 using keywords and MeSH terms. Two reviewers independently screened titles and abstracts, and selected studies were tabulated and analyzed.

Results:
Eight studies were found, including two case series (≥3 patients) and six case reports (1-2 patients), totalling 13 patients. Most patients had recurrent osteomyelitis after open fractures, with numerous failed reconstruction attempts (failed Masquelet techniques). The largest successfully reconstructed defect was a 36-cm tibia defect, with a 4-year follow-up showing the patient fully weight-bearing, albeit with an antalgic gait. Most studies used the scaffold as a cage for autologous cancellous bone grafts, with or without additional bioactive molecules. Despite promising outcomes, most studies reported only short to medium follow-ups, with at least half the patients still experiencing pain at the last follow-up.

Conclusion
Initial findings suggest that 3D printed bioresorbable scaffolds can effectively reconstruct large bone defects and aid weight-bearing. More research with longer follow-ups and larger cohorts is needed.

Keywords: 3D printing; bone scaffolds; large bone defect; bone reconstruction

09:19 - 09:22

661 A New External Hinge Fixation System For Lower Leg Lengthening And Correction Of Axial Deviations.

Ghassan Salameh

Salamehfix limb Lengthening & reconstruction Center, Tartous, Syria

Abstract
Purpose ; Limb Lengthening with keeping bone alignment, minimal pain and discomfort requires special external hinge distraction system which allows stable fixation, smooth bone formation, regeneration and simultaneous correction of bone deviations ,for this purpose /Salamehfix 1 / External fixation hinge system was designed.
Method ; Between 2000 and 2023, 1103 patients operated using this System, with congenital or acquired lower leg discrepancies and mal alignment The fixator is an arc hinged system rather than ring system, with different diameter and perimeter and fit on the extremity on which it's applied. supported with hinges to correct angulation or mal alignment during lengthening. pin fixation in different levels and angles providing stable fixation and weight bearing.
Results: Mean lengthening amount was 5.6 cm, Bone healing was obtained at mean 260 days. 640 patients underwent simultaneous lengthening and correction of axial deviation, 547 of them congenital LLD; gained a mean length of 5.6 cm. Complications were local pin infection treated locally, one case deep infection.; Conclusion:
Salamehfix1 ;Its is a three dimension external arc hinged fixation System, differing with small arcs various diameters and perimeters, allows simultaneous lengthening and correction in multiplanar directions, small and fit the extremity, comfortable ,providing stable fixation and full weightbearing.

09:04 - 09:07

1493 Holography Over PowerPoint Presentations In Orthopaedic Lectures – Is It Time To Set A New Gold Standard? A Single-Blinded Randomised Controlled Trial

Kapil Sugand, Pedro Campos, Simon Newman, Chinmay Gupte

Imperial College, London, United Kingdom

Abstract
Introduction: Ubiquitous use of PowerPoint (PPT) presentations are static and may be outdated. Holography offers an alternative medium to improve educational impact in Trauma & Orthopaedic didactic teaching.

Methods: Two identical presentations were created on fracture fixation using holography and standard PPT. 2 cohorts of T&O trainees and undergraduates were randomly allocated into either holographic vs PPT presentation on the same topic in fracture surgery. A power study was calculated. Pre- and post-teaching tests of 100 multiple choice questions were completed and compared. Mean (+/- SD; 95% CI) were calculated. Unpaired t-tests calculated significance set at $p<0.05$.

Results: 20 participants were randomised to PPT cohort and 27 participants into the holography cohort. The pre-test scores for both cohorts indicated a statistically insignificant difference of $p=0.81$ with similar scores (PPT 32.0±5.32 vs holography 32.4±4.62). The holography cohort significantly improved on their post-test MCQ scoring as well as outperforming the PPT group by 10.1% increase. There was a significantly moderate positive correlation between the pre- and post-test scores within both cohorts. The difference in post-test scores between both cohorts was 3.4% (i.e. 10.1%
increase) which was statistically significant ($p=0.02$). The improvement of score between pre- and post-tests was only statistically significant in the holography cohort ($p<0.0001$) and not in the PPT cohort ($p=0.1$). Odds ratio was 16 times improved scoring in holography cohort vs PPT cohort.

Conclusion: Immersive and interactive dynamic holography-assisted lecturing has been applied for the first time and outperformed traditional PPT presentations in teaching and assessing Trauma and Orthopaedics.

09:01 - 09:04

608 VELYS Robotic-Assisted Total Knee Replacement Leads To Superior Early Term Outcomes: A Propensity Score Matched Analysis

Jiawei Chen[1], Jared Hong Yu Chua[1], Darren Keng-Jin Tay[2], Mann Hong Tan[2], Lincoln Ming Han Liow[2]

1. National University of Singapore, Yong Loo Lin School of Medicine, Singapore, Singapore
2. Department of Orthopaedic Surgery, Singapore General Hospital, Singapore, Singapore

Abstract

Introduction:
The Depuy Synthes VELYS™ Robotic-Assisted Solution (VRAS) is the latest, imageless system available and utilizes the ATTUNE™ knee system. Limited literature exists on VRAS's outcomes compared to its conventional total knee arthroplasty (cTKA) counterpart. This study examines the differences between VRAS and cTKA regarding early postoperative and 6-month functional outcomes.

Methods:
Registry data of primary TKAs performed by three surgeons (January 2021-December 2024) from a high-volume arthroplasty center were analyzed. Patients who underwent VRAS or cTKA using ATTUNE™ implants were included. Early postoperative (static/dynamic pain score, ambulation distance, length of stay) and 6-month functional outcomes (Knee Society Score, Oxford Knee Score, SF-36, expectation/satisfaction scores) were analyzed. Propensity scores were estimated using logistic regression and optimally matched (1:1). Differences in postoperative scores and proportion attaining minimum clinically important difference (MCID) were studied.

Results:
Sixty-five VRAS patients were matched with 65 cTKA patients. VRAS showed significantly improved surgical duration ($p=0.04$), ambulation distance ($p<0.001$), and length of stay ($p=0.01$). VRAS trended towards higher SF-36 outcome measures, with significant differences in vitality ($p=0.001$), mental component summary ($p=0.015$), and a larger proportion achieving bodily pain MCID (76.9 vs 60.0%, $p=0.038$). More VRAS patients reported satisfaction (95.2 vs 92.3%) and expectation fulfilment (92.1 vs 87.7%), though non-significant ($p=0.718$, $p=0.413$). Pain scores, KSS, and OKS showed non-significant differences.

Conclusion:
VRAS demonstrates improved early postoperative and 6-month functional benefits. Given its comparable pain, satisfaction, and OKS scores, further studies are needed to determine its longer-term clinical value.

Keywords:
VELYS, ATTUNE, functional/early outcomes

09:16 - 09:19

2721 Custom Made Patient Specific Guides For TKR- A Tool For Achieving Optimal Knee Alignment

Chetan Sood

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Abstract
The rising incidence of TKA surgeries necessitates improved surgical techniques and precision tools for better alignment and implant survival.
Achieving a neutral mechanical axis is vital for TKA success, reducing risks of loosening, wear, and instability. Patient-specific instrumentation aims to address component alignment and positioning issues in TKA, potentially bridging the gap between computer-assisted surgery and conventional methods

Methods
A prospective, interventional, comparative study was conducted on 100 patients undergoing TKA with either PSG or CI at a tertiary care hospital from October 2017 to June 2019. Patients were randomized into two groups (PSG and CI), matched in baseline demographics, and underwent TKA with the same implant. Pre-operative CT scans were performed for the PSG group to create 3D models for custom PSG design, and post-operative HKA angles and functional outcomes (WOMAC scores) were compared.

Results
The PSG group had a significantly better mean post-operative axial alignment compared to the CI group ($p = 0.041$), with fewer outliers in HKA angle ($p = 0.007$). Surgical duration was significantly shorter in the PSG group ($p < 0.001$).Functional outcomes, measured by WOMAC scores, showed no significant difference between the two groups at one year post-operation ($p > 0.05$). The study highlights the effectiveness of PSG in achieving neutral HKA axis, aligning with findings from various studies that report lower HKA axis outliers when using PSI.

Conclusion
The study highlights the effectiveness of PSG in achieving neutral HKA axis aligning with findings from various studies that report lower HKA axis outliers when using PS

Friday, 5 September

Miscellaneous 1 - Developing world
09:23 - 09:26

223 How Hand Surgeons Can Improve The Overall Musculoskeletal Health Of Menopausal Women

Amelia Dickinson, **Laura Casey**, Aishwarya Ghosh, Shamim Umarji

St George's University Hospital, London, United Kingdom

Abstract
Aims:
To improve musculoskeletal health in women by addressing menopausal symptoms commonly presenting to hand surgeons, including pain, osteoarthritis, carpal tunnel syndrome (CTS), and tendinopathies.
Methods:
A systematic review was conducted on musculoskeletal symptoms associated with the menopause and peri-menopause, with a focus on hand conditions.
Results:
Connective tissue cells express aromatase and sex hormone receptors, influencing hormone concentrations in cartilage, muscle, synovium, and bone. Around 50% of menopausal women experience arthralgia or osteoarthritis, and they are twice as likely as men to suffer from painful hands. There is growing interest in the role of hormone replacement therapy (HRT) in managing hand osteoarthritis.
CTS affects women three times more than men, particularly between the ages of 45-54, likely due to hormonal fluctuations. The transverse carpal ligament (TCL) and synovial tissues express sex hormone receptors, with oestrogen receptor-positive cell numbers peaking at 55-70 years. Evidence suggests sex hormones contribute to CTS pathogenesis, and HRT may improve symptoms.
Osteoporosis affects three million people in the UK, with a 10-20% decline in bone mineral density during the perimenopause. Wrist fractures offer an opportunity to address bone health through lifestyle changes, calcium, vitamin D, Dexa scans, and HRT, a recognised treatment for osteoporosis.
Conclusions:
Greater awareness and collaboration between hand surgeons and other healthcare professionals can improve holistic and equitable care for menopausal women, addressing both musculoskeletal and hormonal health.

09:10 - 09:13

233 Unadjusted Unplanned 30-Day Hospital Readmission Rates Are Not A Useful Quality Measure For Planned Or Urgent Orthopaedic Inpatient Care. A Cohort Study.

Samuel Finn Turner[1], Vijay Badial[1], Reece Barter[2], Edward Hayter[2], Raymond Anakwe[2]

1. Imperial College, London, United Kingdom
2. Imperial College Healthcare NHS Trust, London, United Kingdom

Abstract

Introduction

We examined the number of patients who experienced an unplanned hospital readmission following an episode of inpatient care in a tertiary level trauma and orthopaedic service, the reasons for readmission and whether these reasons related to lapses in care, care and service delivery problems, missed healthcare intervention opportunities and whether they were or should have been prevented and anticipated.

We hypothesised that most 30-day readmissions would be unrelated to the original complaint and admission and the reasons for readmission would not be truly avoidable or attributable to the index hospital admission. We further hypothesised that socioeconomic factors would be predictive of the likelihood of unplanned hospital readmission within 30-days of hospital discharge.

Materials and Methods

Over a 5-year study period we identified all adult patients discharged from our unit and those who had an unplanned readmission within 30-days of discharge.

We evaluated the reasons for readmission and assessed the impact of socioeconomic deprivation and social determinants of health (SDOH) using multivariable logistic regression.

Results

15,313 patients were discharged over the study period. 690 patients (4.5%) were readmitted within 30-days of discharge as an unplanned episode of care. Social determinants of health influenced the risk of an unplanned readmission, particularly index of multiple deprivation and the subdomains related to housing, the living

Conclusions

The 30-day readmission rate as a marker of quality for inpatient care should be questioned. It is not useful as an unadjusted metric and can be misleading. Adjusting for socioeconomic influences, preventability of readmissions and missed opportunities to improve whole-health may improve its usefulness.

08:45 - 08:48

234 Socioeconomic Deprivation Influences Failure To Attend Arranged Orthopaedic Outpatient Appointments As Well As Access To And Engagement With Healthcare: A Cohort Study

Vijay Badial[1], Samuel Finn Turner[1], Hamish Jeffrey[2], Reece Barter[2], Edward Hayter[2], Raymond Anakwe[2]

1. Imperial College, London, United Kingdom
2. Imperial College Healthcare NHS Trust, London, United Kingdom

Abstract

Introduction

We undertook this study to examine the 'did-not-attend' (DNA) rate for the orthopaedic outpatient clinic at a large tertiary centre over a 12-month period, to understand the important influencing factors and reasons from the patient perspective and to determine the impact of socioeconomic deprivation, if any.

Methods

We reviewed all outpatient attendances to our trauma and orthopaedic surgery service over a 12-month period and demographic information for each patient, including the index of multiple deprivation (IMD), a validated geographically based measure of deprivation.
We studied the rate and predictors for non-attendance in the outpatient clinic, and the influence of socioeconomic deprivation. We undertook a secondary study to evaluate the reasons patients gave for non-attendance, their perception of the accessibility, usefulness, and format of the outpatient model and any relationship with socioeconomic deprivation

Results

18,033 patients attended 58,396 outpatient appointments over the 12-month study period. 2060 patients 'did not attend' at least one arranged orthopaedic outpatient appointment over the 12-months of the study period. Men and more socioeconomically deprived patients were more likely to not attend.

Socioeconomically deprived and disadvantaged patients reported poorer satisfaction scores with respect to how able they felt to access orthopaedic help and services when they needed to and how able they felt to access in a way that suits them.

Conclusions

Socioeconomic deprivation impacts health and access to healthcare. Patients who are more socioeconomically deprived are more likely to not attend and they report poorer satisfaction with access to orthopaedic outpatient care. DNA rates may reflect underlying health disparities.

09:17 - 09:20

504 Novel Use Of Bone Morphogenic Protein – 2 In Complications Of Limb Lengthening Done Via Magnetic Intramedullary Nailing: A Case Report

Whitney Ann Young

St. Luke's Medical Center, Quezon City, Philippines

Abstract
Limb lengthening is commonly used for individuals with congenital limb length discrepancy, however more recently it has also been indicated for cosmetic limb lengthening. Nonunion and implant failure is a common complication of this procedure and there is no standard on how to properly manage this limb lengthening complication with large cortical defects and failure of bony consolidation.. We demonstrate the novel use of recombinant BMP2 (rh-BMP2) mixed with demineralized bone matrix and beta tricalcium phosphate in the treatment of limb lengthening nonunion maintaining the desired length without repeating the lengthy process of distraction osteogenesis.

Keywords: Limb lengthening procedure, prophylactic intramedullary nailing, synthetic bone graft, nonunion, BMP-2

08:48 - 08:51

901 Spine For All: The Voyage For Free Spine Care For The Tribals And Poor In India

SUBHASHIS Banerjee

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Abstract
Introduction—India is a fast-developing nation, yet due to its diversity, remote tribal and rural pockets are away from specialised medical care facilities.
The organisation has been offering free spine surgery, check-ups, and follow-up care for patients with serious spine problems since 1998.
Method: Remote tribal villages are enlisted and free spine checkup camps are conducted where consultation, medicines, physiotherapy and orthotics are provided. The patients who need further radiological investigations and lab workup are brought to our designated centres in the city. After further evaluation, the list of patients requiring surgery is prepared. The team again visits the village for counseling and pre-anaesthesia check-up. The patients are brought to the designated hospital in the city and surgeries are conducted.
The rehabilitation is done by the local tribal physiotherapy assistants trained at our centres.
Result: We have covered 37 districts and 235 tribal villages mostly in hilly and forest areas. 12448+ OPD patients, 2140+ spine surgeries have been conducted till date.
Conclusion: Our work extends far beyond medical camps; we go a step further to ensure that sustainable health solutions are created for the long-term benefit of society. We focus on training local health professionals and strengthening the regional healthcare system. Our goal is to reduce spinal disorders worldwide and improve lives by providing individuals with the knowledge and resources they need

08:51 - 08:54

933 Postoperative Pain Control In Orthopedic Surgery: A Randomized Trial Comparing Regional Anaesthesia And Systemic Opioids

Naveen Bose J[1], Kaushik Rajavel[2], Rakshana Munusamy[3], Priyadarshini Ramesh[2]

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3. Kings College Hospital NHS Foundation Trust, London, United Kingdom

Abstract
Background: Effective postoperative pain management is crucial in orthopedic surgery for early mobilization and overall recovery. However, systemic opioids—though widely used—pose significant risks of side effects and dependency, driving interest in regional anesthesia (RA) as an alternative approach.

Aim: To compare the efficacy of RA versus systemic opioid therapy for postoperative pain control in major orthopedic surgeries.

Methodology: A randomized controlled trial included 100 patients undergoing major orthopedic procedures (hip replacement, knee replacement, or spinal surgery). Patients were assigned to receive either RA or systemic opioid analgesia for postoperative pain control. Outcomes measured included pain scores at 12, 24, and 48 hours, total opioid consumption, incidence of side effects such as nausea and vomiting, functional recovery, and length of hospital stay.

Results: The RA group had significantly lower pain scores at 12, 24, and 48 hours post-surgery ($p < 0.001$ for each interval) and required less opioid medication ($p < 0.001$) compared to the opioid group. The opioid group experienced more frequent side effects, notably nausea and vomiting ($p = 0.002$), whereas functional recovery was better in the RA group ($p = 0.015$). Hospital stay did not differ significantly between the groups ($p = 0.116$).

Conclusion: Regional anesthesia proved superior to systemic opioids for postoperative pain control, with fewer side effects and better functional recovery. These results support RA as the preferred approach to pain management in major orthopedic surgeries.

08:54 - 08:57

1588 Long-Term Effect Of Creatine Supplementation In Healthy Athletes: A Systematic Review

Henrik Baecker[1], Stephen Tolmay[1], Juliane Heydenreich[2]

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2. Leipzig University, Leipzig, Germany

Abstract
Creatine is considered as one of the most investigated nutritional supplements worldwide and especially popular among young athletes. The European Food Safety Authority as well as the International Federation of Sports Nutrition have released recommendations that the intake is safe and effective.
Aim of this study was to perform a systematic literature review on clinical trials in healthy, young athletes taking Creatine Monohydrate in long-term with a minimum duration of 3 months.

A systematic literature review was performed on the 16/09/2024. The search terms were "creatine AND (sports OR athlete)" and all clinical – prospective as well as retrospective – studies were included. Inclusion criteria consisted of healthy athletes up to the age of 40years of age, with a minimum intake of creatine of 3months.

5,099 articles were identified of which a total of 21 articles, including 704 subjects at a mean age of 23.1±3.1years were left for inclusion. One of each focused on weight training, American football, soccer, resistance training, basketball, handball or swimmers and three on aerobic training. In the remaining 9 publications the type of sports was not specified. The follow up was on average 314.4±488.7 days.
For outcome three studies analyzed the performance such as sprint test, 8 described the fat free mass and change in body fat percentage and six studies focused on one repetition maximum. Ten studies focused on blood changes and one group performed muscle biopsies. Although it has been reported as safe, there is severe dearth in literature especially showing long-term effects.

09:20 - 09:23

1652 Interest And Participation In Global Pediatric Hand Surgery: A Survey Of The Pediatric Hand Study Group

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2. Dartmouth College, Hanover, United States
3. Dartmouth Hitchcock Medical Center, Lebanon, United States

Abstract

Introduction:
Interest in global surgery has increased among students, trainees, and surgeons, yet there is limited literature on pediatric hand surgery outreach and no centralized database of projects. This study quantifies North American interest and participation in global pediatric hand surgery to facilitate future collaboration.

Methods:
A six-question survey was administered to attendees of the 2024 Pediatric Hand Study Group (PHSG) meeting, the annual meeting for pediatric hand specialists in North America. Of 102 estimated attendees, 68 (65%) responded. Data were analyzed using descriptive statistics and visualized via MapChart.

Results:
Respondents included 34 (50%) surgeons, 13 (19%) hand/occupational therapists, 11 (16%) trainees, 3 (4%) students, and 6 (8%) others. While 32 (47%) had prior global experience and 14 (21%) were actively involved, 31 (46%) expressed a desire to participate in the future. Those with experience had worked in 28 countries across five continents, with frequent engagement in Honduras (n=7), Colombia (n=6), Nicaragua (n=5), Haiti (n=4), Peru (n=4), China (n=3), Mexico (n=3), and Nepal (n=3). Common partner organizations included Health Volunteers Overseas, Touching Hands, Silver Service Children's Foundation, Shriners Hospitals, and ReSurge.

Conclusions:
Nearly half of surveyed PHSG members have participated in global pediatric hand surgery, with many engaged in overlapping regions. One-fifth remain actively involved, and nearly half of respondents expressed interest in future participation. Given high interest levels, we propose an open, searchable database and map of pediatric hand surgery initiatives to enhance collaboration and facilitate new participants.

09:07 - 09:10

1927 Muscle Transfer For Posterosuperior Irreparable Rotator Cuff Tears: A New Decision Making Process Based On Vertical And Horizontal Muscle Balance.

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1. Clinique Parc Clinique Val Ouest LYON, Lyon, France
2. Massachussetts General Hospital, Boston, United States
3. Medipole Villeurbanne, Villeurbanne, France
4. Hopital Herriot, Lyon, France

Abstract
Introduction/Aim

Choosing to perform a tendon transfer for posterosuperior irreparable rotator cuff tears (PS-IRCT) is not an easy decision since there are many options. and few guidelines in the literature.

The aim of this study was to define normal and PS IRCT-altered clinical biomechanics through ratios defining vertical and horizontal balance of the shoulder. The weight and torque of the arm were considered for the first time in the in vivo calculations.

Methods

The length of the upper limb, weight of the upper limb (5% of body weight) and torque were measured in a random series of 1134 patients.
In 47 control patients with intact rotator cuff who had MRI for other shoulder disorders (calcification, instability...) we measured the cuff muscles and deltoid areas using the image J software according to Zanetti.
In 15 patients with PS IRCT and Hamada 2 X-rays, we measured the cuff muscles and deltoid areas using the same method and including a coefficient of fatty infiltration.

Results

The mean normal vertical (abduction.adduction) torque ratio was 2,5 at 90° of abduction.
The mean normal horizontal (ER/IR) torque ratio was 0,6 with arm at the side.

We calculated the in vivo altered ratio in15 patients with PS IRCT. The tendon transfer decision making was taken by comparing the PS IRCT-altered ratios with the normal ratio as defined in this study.

Discussion

We present a new method for tendon transfer decision making in PS-IRCT based on in vivo clinical biomechanics. There is no comparable study in the literature.

09:04 - 09:07

3122 Epidemiological Patterns Of Pediatric Orthopedic Injuries In Ghana

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2. Komfo Anokye Teaching Hospital, Kumasi, Ghana
3. Texas Children's Hospital, Houston, United States

Abstract

Introduction: Trauma is a leading cause of mortality and disability in children worldwide. Despite this, there is limited research on pediatric orthopedic trauma in Ghana, hindering the development of targeted policies for prevention and care. Methods: This retrospective study reviewed musculoskeletal trauma cases in children (0-18 years) treated at Komfo Anokye Teaching Hospital, Kumasi, Ghana, from December 2022 to September 2024. Results: A total of 566 children were included: 366 males (64.66%) and 198 females (34.98%). The average age was 9.62 ± 5.98 years. Falls were the leading cause of trauma (52.12%), followed by road traffic accidents (RTA) (39.4%). Other causes included sports injuries (4.06%), occupational injuries (0.88%), assaults (0.35%), and crush injuries (2.29%). Of the RTAs, 161 (72.2%) were automobile-pedestrian collisions. The most common fractures involved the femur (24.99%), tibia (19.9%), and radius (19.7%). Surgical treatment was required for 124 children (21.9%), with others receiving conservative care such as closed reduction, casting, and splinting. Conclusion: Falls and RTAs, particularly automobile-pedestrian accidents, were the most common causes of pediatric orthopedic trauma. These findings underscore the need for targeted policy interventions and enhanced safety measures, including government initiatives and caregiver education, to reduce preventable injuries and disability in children.

09:01 - 09:04

1727 The Doube-Edged Sword: Merits And Challenges Of Social Media In Orthopaedic Surgery Practice

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3. Lewisham and Greenwich NHS Foundation Trust, London, United Kingdom

Abstract
Abstract
The use of social media into orthopaedic surgery has revolutionised the field by fostering collaboration, enhancing medical education, promoting knowledge exchange, supporting research, and improving clinical practice. Platforms like Twitter, Facebook, LinkedIn, and WhatsApp enable orthopaedic surgeons to share real-time updates, engage with a wide base professional network, and access continuous professional development. Virtual communities of practice (VCOPs) facilitate engagement with peers worldwide, enabling a more dynamic exchange of clinical knowledge and evidence-based practice. During the COVID-19 pandemic, social media provided orthopaedic surgeons with a critical platform for professional connection, telehealth support, and patient education. However, the use of social media also offers several challenges, including misinformation, privacy risks, ethical and legal concerns. This review highlights the role of social media in orthopaedic surgery, emphasizing its benefits, associated challenges, and strategies for ethical, safe, and effective usage.

Friday, 5 September

Miscellaneous 2
10:10 - 10:13

163 Efficacy Of Platelet-Rich Plasma (PRP) In Managing Osteoarthritis Of The Knee: A Retrospective Study

Mainak Roy

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Abstract
Introduction: Osteoarthritis (OA) is a leading cause of chronic disability, predominantly affecting the knee joint. With the limitations of conventional therapies in addressing the underlying pathology, novel regenerative approaches like Platelet-Rich Plasma (PRP) are gaining prominence. In this study, we assessed the efficacy of PRP in managing Grade I–III OA knees, focusing on pain relief, functional improvement, and patient satisfaction.

Materials and methods: A retrospective review of 2,500 PRP injections was conducted on patients with Grade I–III OA knees over three years. PRP was prepared under strict laboratory protocols and administered in three doses at 7–14-day intervals. Efficacy was assessed using the Visual Analog Scale (VAS) for pain, Oxford Knee Score (OKS) for functionality, and patient satisfaction parameters.

Results: Significant pain reduction (40–100% improvement) was noted, with two patients achieving complete pain relief. Functional outcomes improved markedly, with OKS transitioning from poor/moderate to good/excellent in all cases. Minimal adverse events were observed, limited to transient knee effusion in two patients. All participants completed the regimen, expressing high satisfaction and willingness to recommend the therapy.

Conclusion: PRP therapy is an effective and safe intervention for Grade I–III OA knees. Its regenerative potential offers superior outcomes over conventional therapies, highlighting its promise as a cornerstone treatment. Further large-scale, randomized studies are warranted to establish standardized protocols and broader applicability.

Keywords: Knee; Osteoarthritis; Regenerative Medicine; Platelet-rich plasma

10:17 - 10:20

568 Melorheostosis: A Rare Case

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Unidade Local de Saúde de Leiria, Leiria, Portugal

Abstract
Melorheostosis is a rare disease that affects connective tissue leading to sclerosing dysplasia of the bone. Its etiology remains unknown and is associated with genetic mosaicism. Epidemiologically, it is more common to manifest in pediatric age, but diagnosis in young adults is not uncommon. Clinically, it may be asymptomatic or present with chronic pain with periods of exacerbation, stiffness, limitation of joint range of motion and deformity. The diagnosis in terms of imaging begins with a simple radiograph with signs of hyperostosis, with MRI being important to evaluate soft tissues. Biopsy helps identify regions of bone fibrosis and sclerosis.
We present the case of a 42-year-old female patient with pain in her left foot that had been present for 6 months and had no history of trauma. Referred from primary health care due to complaints resistant to conservative treatment. After consultation, it was decided to perform a CT scan, which revealed osteo-condensing structural changes in the 3rd metatarsal, cuboid and cuneiform, compatible with melorheostosis.
The clinical case was explained to the patient and conservative therapy was reinforced, considering future osteotomy of the neck of the 3rd metatarsal for symptomatic relief.
To date, there is no curative treatment for this pathology. Thus, symptomatic control with analgesia, deformity correction surgeries and bisphosphonates are the basis of therapy. Rehabilitation programs help maintain mobility and adapt to functional limitations. It is important to emphasize that although it is not life-threatening, it is a pathology that substantially impacts quality of life.

09:48 - 09:51

609 Use Of Musculoskeletal Color Ultrasound Compression Elastography For Accelerated Diagnosis And Guiding Treatment For Rotator Cuff And Major Tendon-Muscle-Fascial-Lymph Node Pathologies

KAPIL Bakshi

PRIME MEDICAL CENTER, Sharjah, United Arab Emirates

Abstract
INTRODUCTION: Underutilized low-cost real-time Compression Elastography (CE) and Shear Wave Elastography (SWE) for precise qualitative measurement in painful pathologies of Rotator cuff [RC], Subacromial Impingement, Enthesopathy, Tendinopathy, Tenosynovial and Myofascial inflammation, to precisely identify and map pathologies including marking ruptured tendons.
The diagnostic equivalency of conventional Musculoskeletal Ultrasound (MSKUS) and MRI is close in Static Ultrasound and grossly apart in Dynamic Ultrasound, providing morphological findings but limited evidence on elasticity and tendon quality. METHODS: CE was routinely used for inflammatory, degenerative and traumatic pathology evaluation, performed with 5-19 MHz linear transducer, capable of producing acoustic radiation force impulse pulses.
The 10+ age group in a multiethnic population were included, excluding patients with underlying bone pathology.
Qualitative CE measurements by applying appropriate contact probe pressure during data acquisition to generate the full color-coded elastogram: blue(hard)-green-yellow-red (soft) which differentiates healthy and pathological tissue. Technique uniformity and result analysis was achieved by the same clinical US assessor-operator-treatment monitor.
RESULTS:
Qualitative SWE/CE and MSKUS benefitting observations: in RC, bursal-side upper third was initially affected, shows hyper-echogenicity and loss of fibrillation.
Thickened Sub-Deltoid fascia reduces range of motion with positive Impingement at lower Abduction angles.
Hyperechoic specs signify early calcification and degeneration as predictors of morphological hardening.
Major tendons showed differentiated evidence of calcification, tendinopathy, tendinosis, bursal inflammation
CONCLUSION: Imaging of tissue elastic properties is identifiable early with CE prior to been visible on conventional B-mode US assisting early precision diagnosis, mapping pathology, redefining US guided therapeutic modalities. Further studies will enhance clinical impact.

10:01 - 10:04

1519 Efficacy Of EXOGEN Therapy In The Treatment Of Non-Unions – A Single Centre UK Experience

Nayeem Zafar Hali, Zafar Ahmed Khan, Abdur Haq, Keshav Mathur

Worcestershire Acute Hospitals NHS Trust, Worcester, United Kingdom

Abstract
Abstract
Background: EXOGEN is recommended by NICE in the treatment of long bone fracture non-union and delayed unions. However, there is uncertainty around its efficacy.
Objective: To evaluate the efficacy of EXOGEN in the treatment of non-union at Worcestershire Acute Hospitals NHS Trust (WAHT), UK and to identify the common pitfalls.
Methods: Patients receiving EXOGEN between February 2017-September 2024 at WAHT were identified. Data were retrospectively collected and compared with the NICE recommendations.
Results: 53 patients were initially included, with 14 subsequently excluded. 59% were females, age 21-93 years. Mean duration between surgery/trauma and EXOGEN was 11.5 months (4–25 months). EXOGEN were used in both Trauma and Elective cases (Fusion/Osteotomy), Trauma versus Elective; 70%vs30%. Overall, 54% patient achieved radiological union after EXOGEN use. Union rate was better with fracture non unions compared to fusion and osteotomy cases (Trauma vs Electives; 59%vs42%). In Foot and Ankle fusion cases, the healing rate was 33%. In long bone fracture non-union, there was no difference with respect to the long bone between cases that healed versus those which did not heal with EXOGEN except for clavicle (all 3 healed). Our Union rate with EXOGEN is still below compared to previously published studies.
Conclusion: EXOGEN therapy is successful in the management of established fracture non-union of long bones. It avoids the risks and cost involved with the revision surgery. It is essential to correctly place the transducer at the site of persistent non-union, educate the patient, standardize the follow up and monitor the compliance to improve the efficacy.

10:20 - 10:23

1740 Orthopaedic And Trauma Surgery Care In Middle Eastern Refugee Populations: A Scoping Review

Fayez Ghazi[1], Muzzammil Ahmadzada[2], Chuck Lam[3], Kelsey Brown[4], **Rameez Qudsi**[5]

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2. Stanford School of Medicine, Stanford, United States
3. The University of Birmingham Medical School, Birmingham, United Kingdom
4. Harvard Combined Orthopaedic Residency Program, Boston, United States
5. Dartmouth Hitchcock Medical Center, Lebanon, United States

Abstract

Introduction:
The need for surgical care amongst refugees in the Middle East is abundant, with little guidance for new efforts. We aimed to analyze published surgical needs of refugee populations in this region, including surgical care offered, barriers to care, and the capacity of local health systems.

Methods:
We conducted a scoping review using PRISMA guidelines, searching PubMed, Embase, Scopus, and CINAHL with a broad search strategy of English-language publications. Screening was performed independently by two reviewers, with third-reviewer conflict resolution and thematic extraction.

Results:
A total of 670 publications were screened, yielding 26 that met criteria. Over 80% were retrospective studies (n=21). Most took place in Turkey (n=11) followed by Lebanon (n=6), and over 90% discussed Syrian refugees (n=24). Fracture fixation was the most frequently mentioned operation (n=16), followed by laparotomy (n=9) and neurotrauma surgery (n=8). Financial constraints significantly limited refugees from accessing care, particularly in Lebanon, Jordan, and Turkey. Advanced centers in Turkey and Israel most frequently cited delayed presentation due to border restrictions and poor prehospital stabilization as barriers. Tertiary hospitals demonstrated ability to provide advanced care, but more accessible border hospitals lacked infrastructure, with limited neurosurgical services, burn treatment, and ICU beds.

Conclusions:
Across Turkey, Jordan, Lebanon, and Israel, studies on refugee health highlight delays in receiving surgical care, financial barriers, and limited access to specialized surgical services. Poor prehospital care, inadequate referral systems, and ICU shortages exacerbated outcomes. Although some tertiary centers were well-equipped, surgical care in border regions was insufficient.

09:54 - 09:57

1759 Autologous Platelet-Rich Plasma In The Delayed Union Of Long Bone Fractures – A Quasi Experimental Study

Arulkumar Nallakumarasamy

JIPMER, Karaikal, India

Abstract
Introduction: Platelet-rich plasma (PRP) is an autologous blood-derived biological agent, which delivers growth factors, cytokines, and bio-micro molecules at supraphysiologic concentrations at the site of tissue injury, thus potentiating the body's healing efforts. Various studies and research have proved the osteogenic activity of PRP. The growth factors present in the PRP induce the locally available resilient progenitor or stem cells and convert the atrophic environment into a trophic environment. Materials and methods: We investigated the safety and efficacy of autologous PRP injection in the delayed union of long bone fractures. A total of 25 cases of delayed union of long bone fractures were augmented with 3 doses of autologous PRP at 3 weekly intervals and were followed up for 12 months. All the cases were documented with pre-and post-procedural and 12th -month visual analog score (VAS) and Warden's score. Results: Out of 25 cases, 21 (84.00%) cases showed good union of fracture with adequate callus formation by 10–12 weeks with 3 doses of autologous PRP injections. The mean pre-procedural VAS and Warden's score at the final follow-up showed statistically significant results ($p < 0.05$). No other complications were noted due to autologous PRP application among the study participants during the study period except for 3 cases (2 cases of non-union, and 1 case of implant failure). Conclusion: Results of the current study suggest that autologous injection of PRP might be a safe and effective therapeutic tool for the management of delayed union of long bone fractures.

09:51 - 09:54

1839 Difference In Presentation Of Rheaumatological Disorders To Orthopedic Surgeons & Rheaumatologist (Study Of 1000 Cases)

Vijay Kumar Khariwal, Nipun Parkash Garg

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Abstract

. This study is done to see type of presentation of such diseases. In this study of 1000 cases it is seen that such disorders have variable presentation specially Rheaumatoid Arthritis & Spondyloarthropathy. Only 10 % cases with classical presentation consult orthopedic surgeon rest 90% are either subclinical form or presenting with different presentation which becomes extremely difficult to convince the patient about autoimmune disease. This is especially with back pain which is not responding to routine NSAIDS as recurs again & again. By doing MRI pelvis for SI Joints &hip joints one can diagnose persistent back pain which is usually diagnosed as PIVD as only LS spine MRI done. By doing detail study of pelvis one is able to see tendinitis of glutei muscles along with Sacroiliatis by seeing sacral edema,SI joints arthritis as irregularity, sclerosis ,erosions & even fusions. About 5% present with acute form & extreme difficulty in walking needing support. This is specially seen in age group 50 to 80 yrs where it is associated with severe osteoporosis also.HLA B27, ACCP etc along with CRP &ESR are helpful in about 40% of such cases rest are diagnosed on radiological & nuclear Bone scan study which though nonspecific but still by correlating with other findings one can come to a presumptive diagnosis & can start therapeutic trial as in classical which come to orthopedic surgeon for surgical intervention.Such cases remain undiagnosed for average of 5 years.Rheaumatolist sees already diagnosed cases

10:23 - 10:26

1870 A Snapshot Study On The Reasons And Outcomes Of Orthopaedic Admissions Of Extremely Obese Patients In The Kingdom Of Fife

Hamza Khan Toru, Muhammad Adeel Akhtar, John Hannah

Victoria Hospital, Kirkcaldy, Kirkcaldy, United Kingdom

Abstract

Introduction & Objectives

Scotland has one of the highest obesity rates in the developed world, with 30% of adults classified as obese. Fife has even higher at 32%, making it one of the most affected regions. Extreme obesity (BMI >50) poses significant challenges in orthopaedic care, including increased surgical complications, prolonged hospital stays, and complex post-operative management. This study provides a snapshot of the demographics, reasons for admission, and treatment outcomes of super-obese patients attending an orthopaedic service in Fife.

Study design & Methods

A prospective study was conducted on all patients with BMI >50 attending the lower limb orthopaedic clinic or admitted acutely under a single surgeon's care at Victoria Hospital, NHS Fife, between October 2024 and February 2025. Data collected included demographics, working status, admission reasons, treatment modalities, and clinical outcomes.

Results

Eleven patients (8 female, 3 male) were included, with a mean age of 57 years (range: 19–77) and mean BMI of 55 (range: 51–62). Eight (72.7%) were seen in the outpatient clinic, while three (27.3%) were trauma admissions. Six (54.5%) received conservative management, while five (45.5%) required surgery: total knee replacement (2), soft tissue procedures (2), and ankle fracture fixation (1). Weight management advice was given to 10 patients (90.9%). Five (45.5%) lived in the most deprived areas.

Conclusion

Extreme obesity burdens orthopaedic services. Most patients required conservative management, while some surgical. Additional resources and a multidisciplinary approach is essential, and socioeconomic deprivation complicates treatment accessibility, highlighting the need for targeted public health interventions.

10:04 - 10:07

2727 The Silent Epidemic: Unmasking Critical Gaps In Osteoporosis Management After Fragility Fractures

Shireen Patil, Sushmit Singh

Warrington and Halton Teaching Hospitals NHS Foundation Trust, Warrington, United Kingdom

Abstract
Introduction
Fragility fractures, primarily driven by osteoporosis, represent a significant public health challenge in the UK, particularly as the population continues to age. . Current guidelines stress the urgent need for timely evaluation and treatment following fragility fractures to mitigate the risk of subsequent injuries.
Methods
This retrospective study was conducted at Warrington Hospital, UK, to evaluate the management of fragility fractures among patients aged 65 and older. We analyzed data across two cycles (January to March 2022 and April to May 2023), sourced from electronic medical records. Management practices were assessed against the standards set by NICE and NOGG, focusing on the use of bisphosphonates, Vitamin D supplementation, DEXA scans, and referrals to metabolic bone clinics.
Results
The first cycle included 144 inpatients and revealed alarming deficiencies: bisphosphonates were prescribed to only 16% of patients, DEXA scans were requested for just 25%, and a staggering 75% did not receive referrals to metabolic bone clinics. In the second cycle, comprising 165 patients, there was a slight improvement in bisphosphonates prescription rates; however, post-discharge medication adherence remained low, with approximately 83% of patients not receiving their prescribed treatments.
Conclusions
This study underscores the critical gaps in the management of fragility fractures, revealing persistent deficiencies despite established guidelines. The findings highlight the urgent need for effective implementation of treatment protocols in hospital settings, promoting timely initiation of antiresorptive therapies, necessary DEXA scans, and utilization of metabolic bone clinics.

09:45 - 09:48

710 Artificial Intelligence , A New Orthopedic Assistant

Mohammed Zarti

Alkhadra hospital, Tripoli, Libya

Abstract
Artificial intelligence (AI) is revolutionizing orthopedic surgery by enhancing precision, efficiency, and patient outcomes. AI-powered systems assist in preoperative planning, intraoperative guidance, and postoperative care, allowing surgeons to make data-driven decisions. One of the most significant applications is in imaging analysis, where AI algorithms help detect fractures, bone tumors, and joint abnormalities with greater accuracy than traditional methods. Machine learning models can analyze vast amounts of patient data to predict surgical outcomes, identify complications early, and personalize treatment plans based on individual patient characteristics . Robotic-assisted surgery is another major advancement, combining AI with robotics to improve surgical precision. Systems like MAKO and ROSA assist in joint replacement procedures by creating 3D models of the patient's anatomy and providing real-time feedback during surgery. This enhances implant positioning, reduces soft tissue damage, and leads to better long-term outcomes. AI also plays a role in minimally invasive techniques, optimizing surgical approaches to reduce recovery time and improve patient comfort . Postoperatively, AI-driven rehabilitation tools, such as wearable sensors and mobile applications, track patient progress and provide personalized recovery plans. Predictive analytics help monitor healing and detect complications like infections or implant failures early. Additionally, AI enhances research in orthopedics by analyzing trends in large datasets, leading to innovations in biomaterials and implant design. As AI continues to evolve, it is expected to further transform orthopedic surgery, making procedures safer, more efficient, and tailored to individual patient needs.

10:07 - 10:10

2836 Effectiveness Of Pain Management Specialist Intervention In Postoperative Therapy Following Total Knee Arthroplasty For Early Pain Reduction

Taketoshi Seino[1], Ichiro Okano[1], Manabu Mitsuhashi[1], Kei Nagasaki[1], Ryoji Usui[1], Makoto Miyagami[1], Yoshifumi Kudo[1], Reon Kobayashi[2]

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Abstract
Introduction:Limited research exists on the role of pain management specialists in total knee arthroplasty (TKA). This study prospectively investigates the effectiveness of pain clinic interventions in improving postoperative outcomes for TKA patients.
Materials and Methods: Patients who underwent TKA at our hospital between January 2023 and May 2024 and reported moderate pain (Numerical Rating Scale [NRS] ≥ 5) at two weeks postoperatively were enrolled. Pain management interventions included counseling by a pain physician and nerve block injections for postoperative pain relief. Patients were divided into two groups: those who consented to nerve block intervention (P group) and those who declined and received conventional pain management (N group). NRS, ROM, EQ-5D-5L, and WOMAC were measured preoperatively and at two weeks, one month, three months, and six months postoperatively.
Results: Of 64 TKA patients, 57 met the inclusion criteria. The mean ± SD NRS scores in the P group (n = 18) were 7.0 ± 1.5 (preoperatively), 6.0 ± 1.2 (two weeks), 3.2 ± 1.1 (one month), 2.2 ± 1.2 (three months), and 1.0 ± 0.7 (six months). In the N group (n = 37), scores were 6.3 ± 1.1, 5.5 ± 0.8, 5.0 ± 0.8, 2.0 ± 0.8, and 1.0 ± 0.8, respectively. A significant difference in NRS scores was observed at one month ($p < 0.05$), while other measures showed no significant differences.
Conclusions: Postoperative pain management by a pain specialist significantly reduced NRS scores at one month postoperatively, though no significant differences were observed in other outcome measures.

Friday, 5 September

Hip 6
11:33 - 11:36

30 2-Year Comparison Of Direct Anterior Approach And Superior Transverse Atraumatic Reconstruction In Total Hip Arthroplasty: A Matched Study Using Propensity Score Analysis

Jared Hong Yu Chua[1], Jiawei Chen[1], Lincoln Ming Han Liow[2], Kok Chai Tan[3], Seng Jin Yeo[2], Darren Keng Jin Tay[2], Hee Nee Pang[2]

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2. Singapore General Hospital, Department of Orthopaedic Surgery, Singapore, Singapore
3. Singapore General Hospital, Department of Plastic, Reconstructive and Aesthetic Surgery, Singapore, Singapore

Abstract
Purpose: Numerous studies comparing direct anterior(DAA) and posterolateral approach (PLA) in total hip arthroplasty (THA) have been inconclusive, mostly demonstrating earlier recovery with DAA, with no differences in outcomes by 1-year. However, limited studies compare DAA with Superior Transverse Atraumatic Reconstruction (STAR), a type of PLA. This study aimed to compare 2-year patient-reported outcome measures (PROMs) and satisfaction between DAA and STAR. Methods: Retrospective analysis of primary THAs performed (Jan 2018 to Dec 2022) at a high-volume centre was conducted. Included patients were >60 years with 2-year Oxford Hip Score (OHS), Western Ontario and McMaster University Arthritic Index (WOMAC), SF-36 subscale and summative (physical PCS/mental component scores MCS), patient satisfaction and expectation fulfilment scores. DAA was performed with fluoroscopic or robotic assistance, whereas STAR was performed manually. Logistic regression was performed to estimate propensity scores, followed by greedy matching in a 1:1 ratio to establish DAA and STAR groups. Parametric and non-parametric statistical tests were used to compare postoperative scores and proportion attaining minimum clinically important difference(MCID). Results: 132 DAA was successfully matched with 132 STAR. DAA group demonstrated significantly favourable scores in 2-year postoperative OHS(p=0.0140), WOMAC-stiffness(p=0.0455), physical function(p=0.0125), SF-36 physical function (p=0.00537), general health(p=0495), social function(p=0.0266), PCS(p=0.0478) and MCS(p=0.0482). No difference in MCID attainment, patient satisfaction nor expectation fulfilment was noted. Conclusion: DAA demonstrated superior 2-year functional outcome and quality-of-life scores, potentially due to technological assistance. However, manually performed STAR still achieved similar results without increased complications, highlighting that higher functional scores are not necessarily critical in determining THA success.

11:40 - 11:43

135 Long-term Results Of Revision Total Hip Arthroplasties Using Cementless Stems And Allografts For Paprosky Type IIIB And IV Femoral Defects
Short Title: Revision Hip Arthroplasty In Type IIIB And IV Femoral Defects

Eunjung Kim

Seonam hospital Seoul, Seoul, South Korea

Abstract
Purpose We determined long-term (1) clinical results of revision total hip arthroplasty (THA) in the presence of Paprosky type IIIB and IV femoral defects using validated scoring instrument; (2) osseointegration and bone remodeling; (3) the fate of cortical strut onlay allograft; (4) rates of revision and osteolysis; and (5) survivorship of the cementless stem. Methods the results of 240 revision THAs in 220 patients (mean age, 59 years, range, 36–67 years) performed with an extensively porous-coated femoral stem (Solution stem; DePuy, Warsaw, Indiana) combined with a cortical strut onlay allografts for Paprosky Type IIIB and IV femoral diaphyseal bone defects from February 1994 to June 2003. Demographic data, Harris hip score, WOMAC score, UCLA activity score, and radiographic data were recorded. We determined the fate of strut cortical strut allograft and component survival rates at a mean of 26.5 years using revision and aseptic loosening as end points. Minimum follow-up was 21 years (range, 21–30 years). Results The clinical results improved signifcantly for the Harris hip score, WOMAC, and UCLA activity scores ($p<0.001$).At the fnal follow-up, mean Harris hip, WOMAC, and UCLA activity scores were 83±15 (34–100), 20±15 (11–52) and 6.7±1.3 (5–8) points, respectively. Of the 240 femoral stems, 218 (91%) had bone ingrowth, and 22 (9%) were unstable. Allografts were well incorporated in the host femur in all hips. Conclusion We found good results at a mean of 26.5 years after the revision surgery in terms of longevity and functional outcome

11:18 - 11:21

193 The Incidence Of Late Periprosthetic Femoral Fractures By Implant Type- A Systematic Review And Meta-Analysis

Jack Lovie[1], Milos Brkljac[2], Justin Cobb[2], Kartik Logishetty[3,4]

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Abstract
Introduction: Periprosthetic femoral fractures (PFFs) are the leading cause of reoperation following total hip arthroplasty (THA) when revision and fixation are considered together. However, the comparable fracture risk between stem designs remains unclear outside the early post-operative period. We compared the incidence of PFFs across all THA stem types beyond three months post-operatively.

Methods: Peer-reviewed studies published since the year 2000 were included. Studies were excluded if intra-operative or early fractures (within three months post-operatively) could not be removed. 28,854 THA's from 27 studies were included, with overall quality judged to be good (Newcastle-Ottawa scale).

Results: Absolute fracture risk for cementless stems was 0.8% (72/9302), compared to 1% for cemented stems (195/19522). Analysis indicated no significant difference in fracture rates between cemented and cementless stems overall (IRR 1.00, 95% CI 0.74-1.35).

Among cemented stems, Composite beam stems demonstrated lowest fracture risk (0.01/100 person-years, 2/1343) followed by French paradox stems (0.04/100 person-years, 2/974). PTS stems were at highest risk, (0.15/100 person-years, 191/17235). Among PTS stems, Trilliance (4/485) and CPCS (3/395) demonstrated lowest risk (0.09/100 person-years), followed by the Exeter V40 (0.15/100 person-years, 68/6979). There was no advantage of type A, flat taper stems over type B, rectangular tapers (p=0.29).

Discussion: Findings indicate no difference between late PFF risk of cemented and cementless stems. French paradox and composite beam stems had lower late PFF risk than PTS stems, although fewer data are available describing their use. Identifying protective design features will form a cornerstone in combatting the rising burden of PFF globally.

11:12 - 11:15

852 Tumors And Tumor-Like Acetabular Lesions: The Largest Cohort From A Single Tertiary Care Centre With Insights Into Disease Distribution

Arnav Gupta[1], Neha Nischal[2], Damanjit Kaur[3], Hasaam Uldin[3], Sumanthi Vaiyapuri[4], Rajesh Botchu[3], Karthikeyan P Iyengar[5]

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2. Holy Family Hospital, New Delhi, India
3. Royal Orthopaedic Hospital, Birmingham, United Kingdom
4. University Hospitals Birmingham, Birmingham, United Kingdom
5. Southport & Ormskirk Hospitals, Mersey & West Lancashire, United Kingdom

Abstract

Introduction

Acetabular tumours are rare and pose a diagnostic challenge due to their complex anatomy and diverse aetiologies including traumatic, neoplastic, infectious, and degenerative conditions. Understanding their incidence and distribution across age and gender aids diagnosis and treatment planning. This study is the largest cohort study of acetabular tumours, providing insights into their epidemiology and imaging characteristics.

Methods

This retrospective review was conducted at a tertiary referral centre specialising in bone and soft tissue tumours. The hospital database was searched for radiology reports mentioning "acetabular tumours" or "acetabular lesions". Patients with histologically confirmed neoplastic aetiology were included. Those with infection, trauma or previous pelvic surgery were excluded.

Results

Out of 691 patients, 441 (224 males, 217 females) had confirmed acetabular lesions. In the older age group (patients age >40, mean age =76) metastases were most common (56.4%), primarily from the breast, kidney and lung with a female prevalence.
Chondrosarcomas were the most common primary malignant lesion in 77 patients (17.4%). Grade 1-3 chondrosarcomas were 4 times more common in males, and dedifferentiated chondrosarcomas were twice as common in females. Myeloma (37), lymphoma (9), and osteosarcoma (7) were also observed.
In the younger age group (Age<40), Ewing sarcoma (6) and osteosarcoma (3) were the most common malignancies. Osteoid osteoma (15 male to female ratio 2:1) and aneurysmal bone cyst (13) were the most frequent benign lesions.

Conclusion

This study provides the largest analysis of acetabular lesions, highlighting distribution patterns and key imaging features that aid in diagnosis and surgical planning.

11:43 - 11:46

1036 Dual Mobility Total Hip Arthroplasty For Femoral Neck Fractures.

Leila Nebchi, Rachid Azoug, Attika Mazari, Nasr-Eddine Rouag, Rachid Doulache, Anis-Lakhdar Hassam

Faculty of Medicine, Algiers1, Alger, Algeria

Abstract
Objectives: To broaden the indications for arthroplasty in femoral neck fractures, particularly in young patients
Materials and methods: A double-mobility total hip arthroplasty for femoral neck fractures. The patients were 35 women and 20 men with an average age of 52 (45-60). Etiologies included domestic accidents and violent trauma in young adults
Results: No complications were reported. Dual mobility has the merit of ensuring better mobility, improving joint amplitudes with minimal risk of wear
Discussion : Despite the many advantages, the indications for total hip arthroplasty remain ambiguous. Double mobility for all, or generalized in the coming years for all patients with a Garden type 4 femoral neck fracture, without fear of early loosening, particularly in young patients
Conclusion: double mobility total hip replacement has transformed the prognosis of total hip arthroplasty, and remains the treatment of choice
Key words: young patient, neck fracture, double mobility cup
No conflict of interest

11:49 - 11:52

1197 Reverse Total Shoulder Arthroplasty With Total Humeral Head Autograft Surgical Technique For Subtotal Glenoid Bone Loss

Clayton Wayne Garrison[1], Srinath Kamineni[2], Joel Bird[1]

1. University of Kentucky College of Medicine, Highland Heights, United States
2. University of Kentucky Healthcare, Lexington, United States

Abstract

Introduction:
Severe glenoid bone loss presents a major challenge in shoulder arthroplasty. When >90% of the glenoid vault is eroded, custom implants are typically required, leading to delays and added costs. Reverse total shoulder arthroplasty (RTSA) with Total Humeral Head Autograft (THHA) offers a cost-effective alternative for glenoid reconstruction without the need for specialized implants.

Methods:
A patient with subtotal glenoid bone loss due to erosive osteoarthritis underwent RTSA with THHA. Preoperative x-rays and CT scans assessed bone loss, with the center of rotation planned at the coracoid base. The humeral head autograft was harvested using a single anatomic neck osteotomy. The glenoid surface was prepared via partial decortication, and the graft was secured with a central metaglene screw into the trifurcation bone corridor between the coracoid, scapular spine, and blade, along with four peripheral screws. Standard RTSA components were then implanted, and postoperative imaging assessed graft integration and component positioning.

Results:
Postoperative imaging confirmed successful graft integration and stable fixation. The patient sustained a fall, resulting in a scapular body fracture, but the RTSA construct remained intact. Functional improvements included increased range of motion, significant pain relief, and enhanced shoulder function. No graft resorption, implant loosening, or major complications were observed.

Conclusions:
RTSA with THHA is a viable technique for severe cavitatory glenoid bone loss, allowing for reliable reconstruction and favorable short-term outcomes. This method is particularly advantageous in resource-limited settings. Larger studies are needed to confirm long-term efficacy.

11:52 - 11:55

1554 CEMENTLESS TOTAL HIP ARTHROPLASTY IN ELDERLY PATIENTS

SANJIB KUMAR Behera[1], ANURAG Sharma[1], RAHUL Pardipuram[1], RAJEEV RAO Tapulol[2], Vikram Choudhary[3]

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2. SKP MEDICALS, Berhampur, Odisha, India
3. Quantam Prosthetic, Chicago, Illinois, United States

Abstract
INTRODUCTION
Cementless total hip replacement (THR) is rapidly being accepted as the surgery for arthritic diseases of the hip joint and has increased in prevalence worldwide. However, cementless fixation in elderly patients is debatable due to the risks of periprosthetic fracture and aseptic loosening. This study evaluated outcomes in elderly patients undergoing primary cementless THA.
METHODOLOGY
This will be a retrospective study analyzing the functional outcomes of cementless THA in elderly patients with arthritic hip pathologies.
All patients will undergo THA with a mini posterior approach.
ANALYSIS
The success of a cementless THA depends on the efficiency of biological fixation that can be achieved. This is achieved invariable by the bone-ingrowth in porous-type cementless implants. The rate of bone ingrowth was about 95% over 3 years after surgery, showing that biological fixation of cementless THR was well maintained on both the stem and cup sides. A meta-analysis of our study on the survival rate cementless THR reported that cemented THR was slightly superior. It should be con-sidered that specific problems for cementless THR, especially with regard to polyethylene wear do occur
RESULTS/CONCLUSION
The success of cementless THA over the years has improved owing to greater accuracy in terms of obtaining a tight fit stem and cup, using high molecular weight polyethylene, good bone in growth leading to a strong biological fixation. With reduced surgical times and prevention of complications of cemented THA, uncemented THA can be increasingly considered in elderly population owing to reduced complication rates such as aseptic loosening and comparable functional outcomes as cemented

11:27 - 11:30

1912 Elevated Metal Concentrations In Cerebrospinal Fluid Of Patients With Arthroplasty Implants In Situ - The NeuroWear Pilot Study

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2. Charité - University Medicine Berlin, Berln, Germany

Abstract

Background
Evidence of systemic distribution of arthroplasty metals including respective concentrations in cerebrospinal fluid (CSF) is largely missing.Whether and to what extent arthroplasty metals may pass neural barriers may be identified by multi-element-analyses(MEA).

Methods
In this prospective single-center observational study,CSF and blood of patients with at least one large joint replacement (implant group) and of age- and sex-matched arthroplasty-naïve patients(controls) were sampled.MEA included quantification of Al,Co,Cr,Mo,Ni,Nb,Ta,Ti,V and Zr.$P<0.05$.

Results
204 patients (118 women,86 men;median age 69.4 years) were included.Whole blood analyses demonstrated significantly higher levels of Co,Cr,Ti,Nb,Ta and Zr in the implant group.Serum analyses showed significantly higher levels of Co,Cr,Ni,Ti,V,Nb and Zr in the implant group.In CSF,Co levels were significantly higher in patients of the implant group.Co levels in CSF were significantly correlated with Co levels in serum and whole blood.Patients of the implant group with elevated Co levels in whole blood or serum exhibited significantly higher Co levels in CSF versus matched controls.Patients of the implant group with elevated Ti,Nb and Zr levels in serum were found to have significantly higher levels of Ti,Nb and Zr in CSF.

Conclusions
Chronic exposure to arthroprosthetic wear and corrosion products contributes to metal accumulation in CSF.We showed that Co,Ti,Nb and Zr released from arthroplasty implants may cross the blood-central-nervous-system-barriers and significantly accumulate in CSF.Merely Co levels were found to be significantly correlated between blood and CSF,suggesting specific cellular transport.Especially in view of the neurotoxic potential of Co this should be considered particularly in patients with new-onset neurological or psychiatric disorders following arthroplasty.

11:00 - 11:03

2349 Body Mass Index Matters: Morbid Obese Patients Have Different Microorganism Profiles In The Setting Of Periprosthetic Hip Joint Infections

Maximilian Budin[1,2], N Amir Sandiford[3], Thorsten Gehrke[4], Mustafa Citak[4]

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2. Helios Endo Klinik, Hamburg, Austria
3. University of Otago, Otago Medical School, Dunedin, New Zealand
4. Helios Endo Klinik, Hamburg, Germany

Abstract

Purpose: This study investigated the relationship between BMI and microorganism profiles, with a particular focus on gut microorganisms in patients with PJI following total hip arthroplasty (THA). It also explored comorbidities, that may contribute to these variations.

Methods: This study included all patients treated at our institution for a PJI of a THA between 1996 and 2021. Patients were categorized into 4 distinct BMI groups: <30; 30-34.9; 35-39.9; ≥ 40. Bivariate and logistic regression analysis were conducted, with presentation of odds ratio (OR) and 95% confidence interval (CI).

Results: A total of 3645 hip PJI cases were recruited for the final analysis. Patients with a BMI ≥ 40 had approximately a 10-fold higher risk for Streptococcus dysgalactiae ($p < 0.001$; OR = 9.92; 95% CI 3.87-25.44) and a 7-fold higher risk for Proteus mirabilis ($p < 0.001$; OR = 7.43; 95% CI 3.13-17.67) and Klebsiella pneumoniae ($p < 0.001$; OR = 6.9; 95% CI 2.47-19.31). Furthermore, polymicrobial infections ($p < 0.001$; OR = 2.17; 95% CI 1.50-3.15) were found to be significantly more prevalent in patients with a BMI ≥ 40.

Conclusion: Obese patients (BMI ≥ 30) displayed a distinct microorganism profile in hip PJIs, mainly dominated by Firmicutes and Proteobacteria. Comorbidities such as diabetes, hypertension, and hyperlipidemia may contribute to a leaky gut syndrome, increasing PJI risk caused by gut microorganisms. Optimizing comorbidities may help reduce the risk of hip PJI. Further research is needed to clarify the relationship between obesity, gut microbiome alterations and hip PJI development.

11:15 - 11:18

2502 Synovial Fluid α Defensin Is Not Superior To Synovial Fluid White Blood Cell Count And Polymorphonuclear Percentage In Detecting Acute Periprosthetic Joint Infection

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2. Gaziantep City Hospital, Gaziantep, Türkiye

Abstract
Background: Diagnosing acute periprosthetic joint infection (PJI) presents significant challenges.Recently, synovial alpha-defensin (AD) immunoassay has garnered interest as an important biomarker for chronic PJI due to its high sensitivity and specificity. Nevertheless, there currently exists no consensus regarding the diagnostic accuracy of synovial fluid biomarkers in diagnosing acute PJI. This study aims to evaluate the optimal thresholds and diagnostic accuracy of synovial fluid parameters in the diagnosis of acute PJI.

Method:Patients were classified as having an acute PJI (n=61) if they met the International Consensus Meeting (ICM) 2018 modified criteria. Patients who had a negative clinical and diagnostic workup for a PJI were included in the control group (n=119). The area under the ROC (Receiver Operating Characteristics) curves (AUCs) was assessed to improve the evaluation of diagnostic parameter accuracy. Pairwise comparisons of AUCs were performed.

Results:The AUCs for synovial, polymorphonuclear cell percentage (PMN%), white blood cell count (WBC), and AD were determined to be 0.94, 0.92, and 0.84, respectively. The findings indicate that synovial PMN% and WBC are superior to synovial AD in the detection of acute PJI (p=0.015). Additionally, synovial AD has significantly lower sensitivity and specificity compared to PMN% and WBC.

Conclusion:Synovial AD is recognized as a well-established and accurate biomarker for the diagnosis of chronic PJI.However, its efficacy appears to be lower in comparison to synovial PMN% and WBC count when it comes to the detection of acute PJI. Consequently, synovial WBC count and PMN% remain reliable and cost-effective diagnostic tools for the diagnosis of acute PJI.

11:30 - 11:33

3144 Revolutionizing Orthopaedic Research: Chat GPT As A Tool For Advanced Statistical Analysis

Borna Guevel[1,2], Kishore Konar[2], Jonathan Hutt[2]

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2. University College London Hospitals NHS Foundation Trust, London, United Kingdom

Abstract

Introduction

Orthopedic research often relies on advanced statistical methods to derive insights from large datasets. However, these analyses typically require specialized knowledge of statistical software. Recent advancements in large language models (LLMs), such as ChatGPT, may offer clinicians an accessible alternative for conducting complex analyses.

Aims and Objectives

This study aimed to assess ChatGPT 4o's capabilities in replicating statistical analyses commonly used in arthroplasty research, benchmarking it against RStudio in terms of accuracy, usability, speed, and quality of explanation.

Study Design and Methods

Eight of the most cited 2023 articles on hip arthroplasty were selected via SCOPUS. Where original datasets were unavailable, simulated data files were created to match each paper's reported variables. These were analyzed using both ChatGPT 4o and RStudio to reproduce key statistical tests and graphs. Outcomes were evaluated for accuracy, time-to-result, and explanation quality, with Likert ratings used for qualitative assessments.

Results

ChatGPT 4o completed the analyses 1.88 times faster than RStudio (52 vs. 98 minutes). Accuracy was slightly lower for ChatGPT (92%) compared to RStudio (100%), particularly in log-linear OLS regression. However, ChatGPT was rated significantly more user-friendly and received a perfect average score (5/5) for the clarity of its statistical explanations.

Conclusion

ChatGPT 4o shows strong potential as an accessible tool for statistical analysis in orthopedic research. While it currently demonstrates slightly reduced accuracy compared to traditional software, improved prompting and data preparation may enhance future performance, making it a promising supplement to existing research workflows.

11:24 - 11:27

1195 Diabetes Mellitus As An Independent Risk Factor For Periprosthetic Hip Fractures: A Retrospective Cohort Study.

Maamoun Mihoubi, Malek Bachar, Khalil Fandri, Mohamed Mallat, Mehdi Hadjsalah

Trauma Center of Ben Arous, Ben Arous, Tunisia

Abstract
Introduction: Periprosthetic hip fractures (PHF) are among the most severe complications of hip arthroplasty, leading to high rates of morbidity and mortality. With the rising number of arthroplasties performed, particularly in elderly patients, these fractures have become a growing concern, underscoring the importance of prevention.

Aims & Objectives: To identify predictive risk factors for PHF in patients who underwent total hip arthroplasty following a femoral neck fracture.

Study Design & Methods: In this retrospective cohort study, we included all patients with femoral neck fracture who underwent total hip arthroplasty at our department between January and December 2016. The minimum follow-up was six years. The patients were divided into two groups: those who presented with a PHF during the follow-up period (Group A) and those without PHF (Group B). The analyzed data encompassed patient clinical and intraoperative characteristics, as well as implant features. Multivariate logistic regression was performed to identify risk factors.

Results: A total of 97 patients were included in this study. Thirty-one patients presented with PHF (Group B).The average age of those patients was 75 years. The mean time to fracture after the initial arthroplasty was 30 months. Comparative analysis identified the following PHF risk factors: Diabetes mellitus (p=0,046), uncemented implants (p=0,042), varus positioning of the femoral stem (p= 0,003), and the right side (p=0,014).

Conclusion: Appropriate implant selection and a rigorous surgical technique may reduce the incidence of PHF. The link between diabetes mellitus and postoperative complications should also be considered during surgical planning.

11:06 - 11:09

2332 RISK FACTORS FOR REINFECTION AFTER 2-STAGE HIP PROSTHESIS EXCHANGE: A PROSPECTIVE COHORT STUDY OF 187 HIPS

Stavros Goumenos[1], **Olga Pidgaiska**[1], Maria Alejandra Rehnfeldt-Morales[1], Pia Reinecke[1], Jobst Leopold Hansberg[1], Andrej Trampuz[2], Ulrich Stöckle[1], Carsten Perka[1], Sebastian Meller[1]

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2. Department of Device-Related Infections, QUT (Queensland University of Technology), Brisbane, Australia

Abstract
Objective: The aims of our study were (1) to determine the success rate of 2-stage total hip arthroplasty (THA) implant exchange for the treatment of periprosthetic joint infection (PJI) and (2) to evaluate relevant risk factors for reinfection and subsequent revision surgeries after reimplantation. Methods: We conducted a prospective analysis of 187 patients who underwent a 2-stage revision THA after being diagnosed with PJI from 2013 to 2019. The mean duration of follow-up was 54.2 ± 24.9 months (>36 months). Reinfection and reoperation rates were estimated through Kaplan-Meier survival analysis and the investigation for potential risk factors was performed using Cox hazard regression. Results: The estimated cumulative reinfection-free survival was 84% (95% CI = 79.8-89.9%) with an estimated 9%, 11.5% and 14% risk for reinfection for the first 6, 12 and 24 months postoperatively. Seven out of 27 reinfections were persistent infections (26%), whereas the remaining 20 (74%) were new infections (p=0.012, x2=6.26). DDT (difficult-to-treat) or high virulence pathogens and history of previous 2-stage exchange were found to be significant independent risk factors for infection recurrence (HR=1.31, 95% CI: 1.47-9.36, p=0.006; HR=1.35, 95% CI: 1.73-8.57, p=0.001 and HR=1.28, 95% CI: 1.33-9.62, p=0.01 respectively). Re-infected patients were 80% and 55% more likely to undergo a reoperation or revision surgery during their follow up (p<0.001, Log-rank= 102.6 and p<0.001, Log-rank=55.4). Conclusion: Reinfection rates after 2-stage THA revision for PJI still remain high, especially in affected patients with prior failed 2-stage implant exchange or challenging infections involving high-grade or difficult-to-treat pathogens.

11:46 - 11:49

2452 Two-Year Real-World Outcomes Of A Novel Cemented And Uncemented Hip Replacement System In Total And Hemiarthroplasty: A Multi-Center Indian Post-Marketing Surveillance Study

Kunal Aneja[1], Supreet Bajwa[2], Ponnanna Karineravanda machaiah[3], Ravi Teja Rudraraju[4], Lalit Bajpayee[5], Rohidas Patil[5], Dolly Singh[6]

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2. Wockhardt Hospitals,, Mumbai, India
3. Sparsh Hospital, Yeshwanthpur, Bengaluru, India
4. Apollo Hospitals, Hyderabad, India
5. Meril Life Sciences Pvt. Ltd, Vapi, India
6. Meril Healthcare Pvt. Ltd, Vapi, India

Abstract

Background/AIM:

The use of uncemented hip implants has grown globally, however, in India, the choice between cemented and uncemented fixation remains debated. This post-marketing surveillance (PMS) study evaluates the two-year performance of a novel hip replacement system (Libertas hip replacement system) designed for both cemented and uncemented fixation in Indian patients undergoing total hip arthroplasty (THA) and hemiarthroplasty (HHA).

Methodology:

This retrospective, multicenter observational PMS study reviewed records of 159 patients across three Indian centers who underwent hip arthroplasty and completed at least two years of follow-up. Data included demographics, diagnosis, surgical approach, fixation type, clinical outcomes, range of motion (ROM), radiographic assessments, and adverse events.

Results:

The mean age was 39.92 ± 15.35 years, with 91.19% males. Primary diagnoses included arthritis (46.11%) and avascular necrosis (46.67%). A total of 180 hip arthroplasties were performed (169 THAs [93.88%], 11 HHAs [6.11%]), with 172 uncemented and 8 hybrid hips. The posterior approach was used in 77.78%, and lateral in 22.22%. Postoperative ROM improved: hip flexion (75–110°) and abduction (10–20°). Blood transfusion was required in 10.69% of patients. No surgical site infections or intraoperative complications were reported. Pain resolved completely by two years. No serious adverse events or revisions occurred.

Conclusion:

This study supports the short-term clinical reliability of a dual-mode hip system in Indian patients, showing favorable outcomes in both THA and HHA with uncemented and hybrid fixation.

Keywords:

Total Hip Arthroplasty (THA), Hemi-Hip Arthroplasty (HHA), Libertas Hip Replacement System, Avascular Necrosis, Arthritis, Clinical Outcomes.

Friday, 5 September

Infection Spine
11:00 - 11:03

488 Endoscopic Vs. Open Surgery For Thoracolumbar Pyogenic Spondylodiscitis: Efficacy, Alignment, And Fusion Outcomes

Hao-Chun Chuang, Yuan-Fu Liu, Yu-Chia Hsu, Hsiao-Yi Cheng, Cheng-Li Lin, Tzu-Ching Huang

National Cheng Kung University Hospital, Tainan, Taiwan

Abstract
Background
Both open and endoscopic approaches effectively treat pyogenic spondylodiscitis, but their impact on alignment and fusion remains unclear. This study compares surgical outcomes, focusing on alignment maintenance and fusion rates.

Methods
We retrospectively reviewed thoracolumbar pyogenic spondylodiscitis cases treated surgically between 2018 and 2023, with at least one-year follow-up. All patients underwent debridement, posterior instrumentation, and interbody fusion with autologous bone graft. Patients were categorized into three groups: (A) open debridement without cage implantation, (B) open debridement with cage implantation, and (C) endoscopic transforaminal debridement under local anesthesia without instrumentation or cage. Inflammatory markers, pain, and local kyphotic angles were assessed preoperatively and postoperatively. Time to secondary surgery and fusion was analyzed using repeated-measures ANOVA, mixed models, and Kaplan-Meier survival analysis.

Results
Each group included 20 patients. All approaches effectively reduced inflammation (CRP: $p = 0.327$; ESR: $p = 0.396$), but alignment maintenance differed ($p = 0.001$). Open surgery achieved greater immediate correction (A: 7.97°, B: 9.33°, C: 0.60°; A vs. C, $p = 0.012$; B vs. C, $p < 0.001$), though kyphosis recurred in group A (-3.78°, $p = 0.025$). Time to secondary surgery was similar ($p = 0.3065$), but fusion time differed ($p = 0.0321$), with the shortest in group B.

Conclusions
Endoscopic debridement effectively controls infection but does not prevent kyphosis. Cage implantation is key to maintaining lumbar lordosis and expediting fusion in spondylodiscitis.

11:32 - 11:35

681 Cocaine-Induced Occipito-Cervical Instability And Myelopathy Related To Atlanto-Axial Osteomyelitis.

María Del Rocío Valverde Vázquez[1], Francisco Verdú López[2], **Nuria Ribera Martinez**[1]

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2. Hospital Universitario Doctor Peset, Valencia, Spain

Abstract
INTRODUCTION & OBJECTIVES
The use of snorted cocaine causes inflammatory, infectious and destructive pathologies labelled as Cocaine-Induced Midline Destructive Lesions (CIMDL). A case is presented with an occipito-cervical location, an extremely rare location in the literature.
STUDY DESIGN & METHODS
Clinical case presentation.
RESULTS
A 38-year-old female, diagnosed with CIMDL, presented weakness in all four limbs and cervical pain during hospital admission due to a septic syndrome of cutaneous origin caused by Methicillin-Sensitive Staphylococcus Aureus.
In the PET-CT an infectious process in the cavum with occipito-cervical extension was observed.
In the MRI and CT, the patient presents an occipito-cervical instability with atlanto-axial osteomyelitis and stenosis of the cervical spinal canal with myelopathy.
Surgery was required after specific treatment with intravenous antibiotic: Reduction, stabilization and fixation with occipital plate, implantation of bilateral screws at C2 and C3 and bars with placement in a right posterior iliac-crest graft to ensure fusion.
After surgery, the patient was wandering with a rigid cervical collar and regained strength in all four limbs back to 5/5. The control MRI showed radiological improvement in spinal cord compression with a wide high cervical spinal canal and absence of stenosis and myelopathy.
CONCLUSION
Cocaine use can induce midline destructive lesions, weakening the bone structure and predisposing it to osteomyelitical infections in the occipito-cervical region. Imaging techniques are essential to evaluate the extent of the damage. Even though surgical stabilization is essential in occipito-cervical instability, initial management should be to control the infection through targeted antibiotic treatment.

11:25 - 11:28

872 Dose Intrawound Vancomycin Administration Reduce The Incidence Of Surgical Site Infection In Spine Surgery?

Naoki Igata[1], Akihiro Nagamachi[2], Katsutoshi Miyatake[1], Tomoya Takasago[2], Hitoshi Goto[1], Hiroki Iguchi[2], Toshinori Sakai[3], **Hayato Abe**[2]

1. Yoshinogawa Medical Center, Tokushima, Japan
2. Yoshinogawa Medical Center, Yoshinogawa, Japan
3. Tokushima University, Tokushima, Japan

Abstract
PURPOSE The aim of this study was to clarify whether prophylactic intrawound vancomycin administration for spine surgery reduces the incidence of SSI.
MATERIALS AND METHODS Four hundred eleven cases were included in this study. One gram of Cefazolin was used for prophylactic intravenous administration. It was administered before the surgery, every 3 hours during the surgery, and every 8 hours after the surgery until 24 hours after the surgery. A skin incision was made after applying 10% povidone-iodine solution and covering the surgical field with a surgical drape containing povidone-iodine. The surgery was performed by two board-certified spine surgeons, one surgeon did not use vancomycin in any of the cases, and the other surgeon used vancomycin in cases with using metal implants. For fusion surgery, 0.5g of vancomycin was mixed with milled bone graft material, and in cases where no bone grafting was performed, 0.5g of vancomycin was scattered over the surgical field. The number of cases without administrating vancomycin (Vm) was 312 (184 males, 128 females, average age 67, 162 cases used implants, 150 cases without implants), and that of with vancomycin (Vp) was 89 cases (46 males, 43 females, average age 69, 89 cases with implants, no case without implants).
RESULTS SSI occurred in 7 cases (2.2%) of Vm, but not in Vp. (chi-square test $p<0.154$) The causative bacteria were Staphylococcus aureus in 4 cases and methicillin-resistant Staphylococcus epidermidis in 3 cases.
CONCLUSION Prophylactic intrawound vancomycin administration may reduce the incidence of SSI.
Key word; vancomycin

11:38 - 11:41

1792 Inadvertent Perforation Of A Vesiourachal Diverticulum During The Transperitoneal Approach For Anterior Lumbar Interbody Fusion

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2. Royal National Orthopaedic Hospital, London, United Kingdom

Abstract
Introduction

The urachus is a vestigial structure from the allantois that usually obliterates into the median umbilical ligament. Persistent urachal remnants may form bladder-associated diverticula and can be encountered during an anterior transperitoneal approach to the lumbar spine.

Case Report

A 74-year-old male was scheduled for elective L5/S1 anterior lumbar interbody fusion for chronic back pain. He had no prior abdominal surgeries or congenital anomalies. A senior vascular surgeon performed access via a transverse midline incision aligned with the L5/S1 disc space.
During deep peritoneal dissection, a midline tubular structure (1 cm diameter) with a smooth lumen was encountered and inadvertently perforated, releasing clear fluid. Instillation of dilute iodine confirmed communication with the bladder. After on-table consultation with a urologist, intravenous metronidazole was administered, and the vesicourachal diverticulum ligated. The primary lumbar procedure was abandoned.

Postoperatively, the patient remained stable without urinary leakage or infection. No further antibiotics were administered. A CT urogram on postoperative day (POD) 2 revealed a small fluid-filled lesion anterior to the bladder, corresponding to the ligated urachal remnant. The L5/S1 fixation was converted to a posterior-based posterolateral fusion on POD 7. A POD 13 cystogram demonstrated that the urachal remanent diverticulum had been successfully ligated and sealed with no other bladder diverticulum observed. The patient was discharged on POD 14. Subsequent recovery was uneventful.

Conclusion

Vesicourachal diverticula can be encountered during anterior lumbar surgery. Instilling a colored agent aids intraoperative identification. When detected, the diverticulum should be ligated and the lumbar procedure deferred.

11:06 - 11:09

1823 Why Non Healing Ulcer Should Be Diabetic Or Vascular !! A Rare Case Report Of Ulcer Due To Cauda Equina Syndrome

Prem Kumar Kothimbakkam Vijayakumar

Chettinad Hospital & Research Institute, Chennai, India

Abstract

INTRODUCTION

Neuropathic ulcers occur when a patient with poor peripheral nervous system, neurological function has pressure points that cause ulceration through the epidermal and dermal tissue layers. Cauda equina syndrome most commonly occurs due to lumbar disc prolapse or degenerative lumbar canal stenosis and accompanied by complete loss of bowel and bladder function. Due to lack of access to healthcare and education in the developing countries leads to delayed diagnosis and surgery.

CASE REPORT

65/F with C/o low back pain and difficulty in walking, bowel and bladder abnormalities x 1 year, H/o numbness over Right leg x 2yrs Motor deficit present, Saddle anaesthesia present, Bulbo-cavernous reflex- Absent. Presented delayed to us with ulcer over Right heel x 6months which was treated as non-healing ulcer with antibiotics and dressings. Patient then underwent surgical decompression and 2 months post-surgery Patient had remarkable improvement in neurology power 5/5 in all muscles of lower limb, Recovered sensations in right lower limb, Bowel and bladder symptoms have significant improvement.

DISCUSSION

Cauda equina syndrome (CES) is caused by severe compression of nerve roots in the thecal sac below L1 vertebra, The exact optimal timing of surgical intervention remains controversial, although early intervention is always preferred when possible.48-hour window traditionally has been considered an acceptably safe between hospital admission and surgery.

CONCLUSION:

Cauda equina syndrome should ideally be surgically decompressed within 48–72 hrs. Recent studies in patients with Neglected cauda equina syndrome after surgical decompression showed significant improvement in bowel and bladder functions.

11:09 - 11:12

1943 Tuberculous Spondylodiscitis: Diagnostic And Therapeutic Aspects Of 58 Cases

Anis Chaabouni[1], Mohamed Ben Jemaa[2], Jawhar Dhief[1], Mohamed Frikha[1], Hedi Chaabouni[1], Wassim Zribi[1], Mohamed Zribi[1], Moez Trigui[2], Hassib Keskes[1]

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Abstract

Introduction:
Tuberculous spondylodiscitis (TSD) accounts for 50% of osteoarticular tuberculosis cases. It presents significant diagnostic and therapeutic challenges. Through a study of 58 TSD cases, we aim to highlight the clinical and paraclinical characteristics of this condition, identifying factors influencing treatment choices and therapeutic outcomes.

Materials and Methods:
This retrospective study included 58 TSD cases collected over 19 years (2000-2018). The mean age of patients was 43 years, with a marked female predominance (64%). Multifocal involvement occurred in 15 cases. Affected sites included the cervical spine (3 cases), cervicothoracic junction (3 cases), thoracic spine (29 cases), thoracolumbar junction (6 cases), lumbar spine (21 cases), and lumbosacral junction (7 cases). Back pain was the primary symptom, with neurological signs present in 20 cases. Diagnosis, initially suggested by imaging (CT and/or MRI), was confirmed by microbiological and/or histopathological evidence in 64% of cases. All patients received specific antituberculous chemotherapy, with immobilization in 27 cases and decompressive surgery in 10 cases.

Results:
Seventy percent of patients showed favorable outcomes, with clinical improvement and normalization of biological markers, indicating infection control. Partial regression of back pain and neurological signs occurred in some patients with a good response to symptomatic treatment. However, infection control was not achieved in 19 cases, with two deaths noted.

Discussion and Conclusion:
TSD is common in endemic areas, and its insidious progression often leads to diagnostic delays. Early treatment is essential for favorable outcomes, and conservative management remains the cornerstone of therapy.

Keywords:
Tuberculous spondylodiscitis, antituberculous chemotherapy, spinal surgery

11:51 - 11:54

2051 Features Of Radiological Manifestations Of Spondylodiscitis Of Various Etiologies

Konstantin Diachkov

Ilizarov centre, Kurgan, Russia

Abstract
Introduction: In practice, to begin treatment of patients with spondylodiscitis, information about the infectious agent is needed to select antibiotics. We can obtain primary and earliest information using radiation diagnostic methods..
Purpose: Objective: to study the semiotics of radiological manifestations of spondylodiscitis caused by various infectious agents
Materials and methods: Prospective cohort study. In 40 patients with spondylodiscitis, the data of radiography, MSCT (multispiral computed tomography), MRI before treatment were studied.
The age of the patients ranged from 25 to 65 years. There were 32 men and 8 women. Staphylococcus aureus was detected in 24 patients, E. coli in 8, Pseudomonas aeruginosa in 5, fecal enterococcus in 4, streptococcus in 4, tuberculosis in 3. All types of infection were characterized by destruction of adjacent end plates, bone marrow edema. In staphylococcal infection, paravertebral and epidural abscesses were most often detected . In tuberculosis, the most common manifestation was extensive involvement of the paravertebral muscles. Streptococcal infection was characterized by less pronounced radiological manifestations. According to MRI data, pronounced bone marrow edema is detected in staphylococcal infection and tuberculosis. Epiduritis was characteristic of E. coli.
Conclusion. Thus, a thorough radiological examination of patients with suspected spondylodiscitis allows for the initiation of narrow-spectrum antibiotic therapy at an earlier date.

11:16 - 11:19

2110 Impact Of Allograft Bone Culture Results On Surgical Site Infection

Henar Maria Arqueros Martinez, Pablo Guinea, Daniel Torres Ramos, Marta Ossorio Vega, Sara Martos Torrejon

Hospital Universitario Fundacion Alcorcon, Alcorcon, Spain

Abstract
Objectives:
To analyze the relationship between the results of graft cultures and surgical wound infection after lumbar spinal fusion surgery in our center. Additionally, to study other factors related to postoperative infection in our patients.
Materials and Methods:
A retrospective cohort study was conducted on patients who met the following inclusion criteria: lumbar spinal fusion surgery involving 1, 2, or 3 levels, performed between 2015 and 2022, without previous surgeries, requiring allograft implantation, and with a follow-up period of at least 1 year.
The variables collected were: age, Charlson comorbidity index, hospital stay, obesity, smoking, immunosuppressive treatment, levels treated, postoperative transfusion, pre-implant allograft culture results, intraoperative complications, and postoperative infection. These variables were analyzed using SPSS version 29.0.
Results:
We included 521 patients and 613 allografts used.
Twenty patients (3.8%) developed postoperative infection within the first year, most infections diagnosed between 1st-3rd month. Pre-implant culture was positive in 37 cases (7.1%). Of these, 3 (8.1%) developed postoperative infection. In the group with negative cultures, infection occurred in 17 cases (3.5%), not being statistically significant ($p>0.05$).
In patients with positive cultures and postoperative infection, the same microorganism was isolated in 3 cases (15%). The most frequent microorganisms isolated were coagulase-negative Staphylococcus in allograft cultures, and Staphylococcus epidermidis in post-surgical wound cultures.
Other studied variables weren't statistically significant for the development of postoperative infection.
Conclusion:
A positive allograft culture didn't predict postoperative infection after lumbar spinal fusion surgery in our sample. Additionally, risk factors described in the literature didn't influence our sample.

11:19 - 11:22

2162 CT Scan Evaluation Of Free Hand Thoracic Pedicule Screw Placement : About 160 Screws

Seddik Akremi[1], **Souha Bennour**[1], Adnene Benammou[1], Mohamed Habib Sanaa[1], Mehdi Bellil[1], Yasmine Ben Abdeladhim[2], Mohamed Ben Salah[3]

1. Orthopedic surgery department Charles Nicolle Hospital, Tunis, Tunisia
2. Radiology Departement Charles Nicolle Hospital, Tunis, Tunisia
3. Orthopedic Surgery Department Charles Nicolle Hospital, Tunis, Tunisia

Abstract
Introduction When it comes to thoracic pedicule screws the ideal positioning of a pedicle screw has long been debated, but the most crucial factor, is the diameter of the screw used. The object of our study was to evaluate the accuracy of thoracic pedicule screw placment using the free hand technique
Methods :
A descriptive retrospective monocentric study was lead in our department using the records of patients operated on for a thoracic spine pathology. For each patient, we recorded the etiology, the type of construct used, and the spinal levels requiring fixation. We then compared, for each patient, the estimated pedicle size on CT scans with the actual screw diameters used intraoperatively. For each screw, we documented the Gertzbein-Robbins scale grade for screw positioning.. We also noted any complications.
Results :
Twenty patients were included accounting for 160 pedicules . A long construct was performed in 58% of cases. The preoperatively estimated pedicle diameters matched the intraoperatively used screw diameters in 70% of cases. No neurological complications or postoperative worsening were observed. In 85% of cases, the screws were considered clinically acceptable. We noted a correlation between pedicle diameter and cortical breach grading.
Conclusion :
The placement of thoracic screws remains a challenge for surgeons. This is due to the smaller diameters of thoracic pedicles compared to lumbar pedicles, as well as the increased severity of neurological complications at this level. Ou study suggests that the free hand technique remains safe and allows for acceptable positionning

11:22 - 11:25

2186 Complete Neurological Impairment In Tuberculosis Spondylodiscitis: What Are The Chances Of Recovery?

Seddik Akremi, **Souha Bennour**, Adnene Benammou, Mohamed Habib Sanaa, Mehdi Bellil, Mohamed Ben Salah

Orthopedic Surgery Department Charles Nicolle Hospital, Tunis, Tunisia

Abstract
Introduction Infectious spondylodiscitis of tuberculousis origin can lead to severe complications, particularly neurological impairment, which may significantly affect patients' quality of life. Prognosis depends on the quality of medical treatment. However, the role of surgical treatment remains debatable in cases of complete neurological impairment, especially when diagnosed late.
Methods:
We conducted a retrospective descriptive study on patients treated in our department for tuberculous spondylodiscitis between January 2018 and December 2024 including patients admitted with a FRANKEL A status We collected data insisting on pre- and postoperative neurological status, consultation delay, and surgical intervention timing.
Results : We identified 10 patients with a mean age of 58 years .The thoracic spine was the most commonly affected site (70% of cases). The onset was insidious in most cases, with only one patient experiencing a sudden deficit within two days. All patients were classified as Frankel A. The average delay before consultation was 19 days, and the average time to surgery was 10 days. Neurological improvement was observed in 50% of cases, with 2 patients achieving complete recovery. However, sphincter dysfunction persisted in 80% of patients.
Conclusion : Neurological impairment in spondylodiscitis is multifactorial. Epidural abscess compression is aggravated by ischemic effects of septic emboli and spinal instability. Recovery primarily depends on the timeliness of medical intervention. In the literature, the recovery rate for infectious spondylodiscitis caused by pyogenic bacteria is low. However, several authors report significant improvement in cases of tuberculosis-related neurological impairment, even in the presence of delayed diagnosis.

11:35 - 11:38

3003 Percutaneous Negative Suction Drainage Of Large Tubercular Psoas Abscess

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Sanjay Orthopaedic Spine and Maternity Centre, Dehradun, India

Abstract
Introduction: One third of World population is thought to be infected with Tuberculosis and one fourth of them live in India. Most of the spinal infection presents with para vertebral abscess and some of them become too large due to prevailing poor socio-economic and health conditions in India. Materials: This is a study of 22 cases of percutaneous negative suction drainage of large psoas abscesses. There were 10 males and 12 females with age ranging from 28 years to 70 years. The study was performed from July 2005 to June 2022. Method: A 16 gauge negative close wound suction drain is introduced in the abscess as an OPD procedure under sedation and aseptic conditions. The drain is kept until the whole abscess is drained out. The amount of aspirate varies from 800 ml to 1400 ml. Aspirate was investigated for TB PCR and TB culture and sensitivity. None of the patient required surgical drainage. One patient developed sinus at drain site which healed in due course of time. All patients were given anti-tubercular treatment. Discussion: This procedure does not have inherent risks of CT radiation, anesthesia and surgery. The anti-tubercular treatment becomes more effective after drainage of abscess. This procedure ultimately reduces the morbidity and mortality of the patients. Conclusion: Percutaneous negative suction drainage is an efficient, easy, safe, effective and cheap procedure for drainage of large psoas abscess and can be done as a day care procedure under sedation and local anesthesia.

11:03 - 11:06

1298 Risk Factors For Infection After Percutaneous Vertebroplasty Augmentation For Osteoporotic Vertebral Compression Fracture

Rongbin Chen, Yong Li

Guangdong Province Hospital of Traditional Chinese Medicine ZHUHAI BRANCH, Zhuhai, China

Abstract
OUTCOME MEASURES: The main outcome measure was infectious spondylitis following PVA at any follow-up time point. Data on risk factors of SSIs, such as age, comorbidities, type of cement leakage, and inflammation indicators, were collected from patients' electronic medical records, imaging findings, and laboratory test results.
METHODS: From the abovementioned patient sample, we identified patients who developed SSIs in the follow-up period and analyzed independent risk factors for postoperative SSIs using Cox univariate and multivariate regression analyses.
RESULTS: This study included 2,624 patients, among whom 17 (7 men, 10 women; mean age, 77.24 ± 9.48 years) developed postoperative infections. The mean time to infection detection since vertebral augmentation surgery was 4.06 ± 4.68 weeks. Use of steroid drugs, NEUT%, C-type bone cement leakage after the operation were identified as risk factors in univariate analysis but not in multivariate analysis. Finally, multivariate analysis revealed the following risk factors for infectious spondylitis: age ≥ 80 years, preoperative type 2 diabetes, pulmonary infection, Alb ≤ 35 g/L, preoperative MRI indicating signs of fluid accumulation in the fractured vertebral body, and D-type bone cement leakage after the operation.
CONCLUSION: Multivariate analyses identified the abovementioned independent risk factors for postoperative SSIs after PVA. These data may help guide clinicians take preoperative preventive measures to reduce the incidence of postoperative SSIs after PVA.
KEYWORDS: percutaneous vertebral augmentation, risk factors, osteoporotic vertebral compression fracture, surgical site infection, spondylitis, multivariate cox regression analysis

11:54 - 11:57

1300 Clinical Characteristics And Prevention Strategies Of Surgical Site Infection After Percutaneous Endoscopic Lumbar Discectomy

Rongbin Chen, Yong Li

Guangdong Province Hospital of Traditional Chinese Medicine ZHUHAI BRANCH, Zhuhai, China

Abstract
Objective : To analyze the clinical characteristics and prevention strategies of surgical site infection after percutaneous endoscopic lumbar discectomy. Methods : A total of 11 patients with SSI after PELD in our department were retrospectively analyzed. The patient 's case data were reviewed, and the symptoms and signs, inflammatory indicators, imaging examination characteristics, pathogen detection results, and treatment methods were recorded. The clinical efficacy was evaluated by VAS score, ODI score, and MacNab evaluation criteria.Results : SSI was diagnosed in 11 patients 2-17 days (mean 9.45 days) after operation. When infection was diagnosed, all patients had severe low back or lower limb pain. In terms of imaging features, MRI reexamination of all patients showed changes in inflammatory signals in the intervertebral space of the operation area. Pathogens were detected in 7 patients, and 8 patients were treated with surgery. Among them, 4 patients underwent percutaneous endoscopic catheter irrigation and drainage, 2 patients underwent posterior debridement, and 2 patients underwent posterior incision debridement combined with internal fixation. According to the MacNab evaluation criteria, 5 cases were excellent, 4 cases were good, and 2 cases were fair.Conclusion : SSI after PELD is characterized by acute onset, recurrent severe low back or lower limb pain, elevated inflammatory markers and characteristic imaging findings. Standardized antibiotic therapy combined with surgery can achieve good results.
Keywords : Percutaneous spinal endoscopic lumbar discectomy ; Lumbar disc herniation ; Surgical site infection ; Clinical characteristics ; Prevention strategy

11:41 - 11:44

1528 Allogenic Stem Cells In Lumbar Interbody Spinal Fusion: A Retrospective, Matched-Cohort Study

Christina Khat, Vikas Patel, Charles Nolte, Aaron Ishmael, Arjun Singh, Jingdian Huang, **Evalina Burger**, Andriy Noshchenko

University of Colorado, Anschutz, Aurora, United States

Abstract
Abstract: Introduction
Interbody fusion stabilizes the spine and promotes bony union. Bone morphogenic proteins (BMPs) and cellular allografts aim to enhance fusion rates. BMPs demonstrate osteoinductive potential but carry inflammation risks. Cellular allografts like PrimaGen Advanced Allograft™ support bone remodeling. An FDA-regulated Human Cellular Tissue-Based Product, PrimaGen requires no efficacy proof, limiting data on its effectiveness and safety in lumbar fusion. This study evaluates PrimaGen's fusion rates, complications, and patient-reported outcomes with autografts and BMPs.

Methods
A retrospective, matched-cohort compared adults undergoing one- or two-level posterior (PLIF)/transforaminal (TLIF) lumbar interbody fusion between 2017-2023. Groups with or without PrimaGen were matched by gender, age, fusion levels, and number of fusions. Fusion rates at 12- and 24-month were assessed using XRs and SpineCAMP AI. Secondary outcomes included revision surgery within 24 months, complications (6 weeks-2 years), and VAS pain scores. Statistical analysis adjusted for confounders.

Results
100 patients (50 experimental, 50 control) were included. Demographics were similar, except higher BMI ($p=0.02$), diabetes ($p=0.04$), and former tobacco use ($p=0.03$) in controls. No significant differences in fusion rates at 12 or 24 months ($p=0.27$, $p=0.49$). Revision surgery rates were comparable ($p=0.38$). Perioperative complications-similar ($p=0.16$); EBL-higher in the PrimaGen group ($p=0.0006$). Postoperative complications and VAS scores had no meaningful differences. High attrition (66% at 24 months) may limit long-term analysis.

Conclusion
PrimaGen showed no benefit in fusion rates, complications, or pain outcomes. Higher EBL lacked clinical impact. Demographic differences and high attrition may have influenced results. Further studies are needed.

Keywords: Stem cells

Friday, 5 September

Orthopaedic Oncology 2
11:54 - 11:57

326 Prognostic Significance Of Modified Lung Immune Prognostic Index In Osteosarcoma Patients

Weiyi Wang, **Shangkun Tang**

Department of Orthopedics, West China Hospital, Cheng Du, China

Abstract
Objective: Osteosarcoma is the most common primary malignancy of bone with a dismal prognosis for patients with pulmonary metastases. Evaluation of osteosarcoma prognosis is meaningful. Lung Immune Prognostic Index (LIPI) is a novel prognostic factor in pulmonary cancers. Here, we explore the prognostic role of LIPI and further modify this predictive model in osteosarcoma.
Methods: A retrospectively study was conducted at West China Hospital between January 2016 and January 2021. Hematological factors and clinical features of osteosarcoma patients were collected and analyzed. The area under curve (AUC) and optimal cuff-off of each single hematological factor was calculated.
Results: LIPI was composed of Lactate dehydrogenase and derived neurtrophil to lymphocyte ratio and was further modified by combing the HBDH, forming the osteosarcoma immune prognostic index (OIPI). OIPI divided 223 osteosarcoma patients divided into four groups and it has a higher AUC value than LIPI and other hematological indexes in t-ROC curve. According to the univariate and multivariate analysis, pathological fracture, metastasis, NLR, platelet–lymphocyte ratio, and OIPI were associated with the prognosis; and metastasis and OIPI were independent prognostic factors of osteosarcoma patients. An OIPI-based nomogram was also established to predict the 3-year and 5-year overall survival.
Conclusion: This study first explore the prognostic significance of LIPI in osteosarcoma and developed the OIPI for osteosarcoma patients. In particular, OIPI may have the ability to identify some high-risk patients from clinically low-risk patients.

11:19 - 11:22

342 Three-Dimensional Printed Customized Uncemented Unipolar Prosthesis Combined With Ligament Reconstruction For Tumorous Defect Of The Distal Femur In Children

Zhuangzhuang Li

Department of Orthopedics, West China Hospital, Chengdu, China

Abstract
Introduction: Hemiarthroplasty following tumor resection of the distal femur in children provides a chance to preserve the proximal tibial physis for limb elongation. Based on three-dimensional (3D) printing technology, the uncemented unipolar prosthesis with joint stability reinforced structures (JSRSs) was custom-designed for our cases. This study aimed to describe the design and assess the short-term outcomes of this refined prosthetic hemiarthroplasty.
Methods: Seven patients (four females and three males) received 3D-printed customized uncemented unipolar prosthesis for hemiarthroplasty after removal of the distal femur, from September 2019 to October 2020 at our Orthopedics department. The limb function, growth of the preserved proximal tibial physis, joint stability, and limb length discrepancy (LLD) were assessed. Complications were recorded.
Results: Six patients survived with no evidence of metastasis or local recurrence at the last follow-up, and one patient died of lung metastasis at 19 months postoperatively. Elongation of the tibia was observed in all cases. At the last follow-up, four patients exhibited equal growth length compared with the healthy contralateral tibia. LLD ranged from 0.8 to 1.6 cm with a mean of 1.3 cm. All patients achieved satisfactory postoperative limb function with a mean MSTS score of 25.8.
Conclusions: 3D-printed customized uncemented unipolar prosthesis with JSRS would be a good choice for reconstructing tumorous defect in the distal femur in children.

11:00 - 11:03

353 Metatarsal Reconstruction With Use Of 3D-Printed Customized Endoprosthesis Following Total Resection Of Metatarsal Malignancy

Shangkun Tang

Department of Orthopedics, Orthopedic Research Institute, West China Hospital, Cheng Du, China

Abstract

Background

Malignant metatarsal tumors are rare and present significant challenges in limb salvage and functional reconstruction due to their role in weight-bearing and foot biomechanics. This study evaluates the clinical outcomes of 3D-printed customized metatarsal endoprostheses for bone defect reconstruction following total resection of metatarsal malignancy.

Method

We retrospectively analyzed six patients with malignant metatarsal tumors who underwent tumor resection and reconstruction using 3D-printed titanium alloy (Ti-6Al-4V) prostheses with a 70% porous structure for enhanced osseointegration. Prostheses were designed using CT and MRI data. Outcomes were assessed using the VAS, AOFAS, and MSTS-93 scores, with imaging modalities such as X-rays and T-SMART for prosthesis integration.

Results

All patients had wide-margin resections with no recurrence or metastasis after a mean follow-up of 35 months. Postoperative outcomes included reduced pain (VAS 1), improved limb function (AOFAS 88), and enhanced musculoskeletal function (MSTS-93 27). Imaging showed satisfactory bone-prosthesis integration without complications such as loosening or resorption. No major complications, such as infection, immune rejection, or delayed wound healing, were observed, and all surgical wounds healed successfully.

Conclusion

This study is the first to evaluate 3D-printed metatarsal endoprostheses for tumor resection reconstruction, showing promising functional outcomes, initial stability, and fewer complications. These results suggest 3D-printed prostheses as a viable alternative to traditional reconstruction techniques, warranting further research and long-term follow-up.

11:25 - 11:28

404 Three-Dimensional Printed Prosthesis Reconstructs Bilateral Type III Pelvic Defect After Malignant Tumors Resection

Xuanhong He[1], **Zihan Peng**[2]

1. Department of Orthopedics, Orthopedic Research Institute, West China Hospital, Chengdu, China
2. Department of Orthopedics, West China Hospital, Chengdu, China

Abstract
Objective: Type III hemipelvectomy reconstruction is complex, with existing methods limited by shortcomings. While 3D-printed prostheses show promise for unilateral defects, bilateral Type III pelvic defect reconstruction remains underreported. This study evaluates a 3D-printed bilateral pubis prosthesis for restoring pelvic integrity and function.
Methods: Patients undergoing 3D-printed bilateral pubis prosthesis reconstruction after malignant tumor resection (2017–2021) were retrospectively analyzed. Demographics, operative details (time, blood loss), MSTS-93 scores, and complications were assessed.
Results: Four patients (3 females, 1 male) were included. Mean operation time was 308.8 minutes, and blood loss was 655 mL. At a mean follow-up of 15.5 months, the MSTS-93 score was 28.5. One patient had incision necrosis, but no hernia, prosthesis displacement, or implant failure occurred. All 15 bone-prosthesis interfaces showed good osteointegration.
Conclusions: The 3D-printed bilateral pubis prosthesis effectively restores pelvic stability, improves limb function, and prevents hernia development. It is a favorable option for Type III pelvic defect reconstruction.

11:06 - 11:09

405 Three-Dimensional Printed Custom-Made Modular Talus Prosthesis In Patients With Talus Malignant Tumor Resection

Xuanhong He

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Abstract
Background: Talar malignant tumors are rare, and treatment options like below-knee amputation or arthrodesis have limitations. While 3D-printed total talus prostheses show promise, their clinical efficacy remains unclear. This study explores the use of 3D-printed custom-made modular prostheses for talus malignant tumors.
Methods: Patients treated with 3D-printed modular prostheses for talus malignant tumors (2016–2021) were retrospectively analyzed. Clinical data, including oncology outcomes, operative details, limb function (MSTS-93, AOFAS scores), ankle range of motion, and leg length discrepancy, were recorded. Imaging (radiographs, T-SMART) assessed prosthesis position and osseointegration.
Results: Six patients (mean age 31.5 years) were followed for an average of 54.8 months. Mean operation time was 2.4 hours, with 131.7 mL blood loss. MSTS-93 and AOFAS scores were 26.8 and 88.5, respectively. Ankle motion averaged 32.5° plantar flexion, 9.2° dorsiflexion, 10.8° varus, and 5.8° valgus. One patient had delayed wound healing. No leg length discrepancies occurred, and all patients showed good osseointegration.
Conclusion: The modular 3D-printed talus prosthesis facilitates implantation, improves stability, and promotes osseointegration, making it a viable option for talus malignant tumor reconstruction.

11:32 - 11:35

445 Clinical Application Of 3D-Printed Custom Hemipelvic Prostheses With Negative Poisson’s Ratio Porous Structures In Reconstruction After Resection Of Pelvic Malignant Tumors

Xin Hu[1], Linyun Tan[2]

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2. Department of Orthopedics, West China Hospital, Chengdu, China

Abstract
Objectives: Pelvic bone tumor resection and reconstruction are challenging due to complex anatomy and weight-bearing demands. This study evaluates long-term outcomes of 3D-printed custom hemipelvic prostheses, incorporating auxetic biomaterials with a negative Poisson's ratio to optimize mechanical properties and osseointegration.
Methods: A retrospective analysis of 12 patients with primary pelvic malignancies undergoing 3D-printed hemipelvic reconstruction (January 2017–May 2022) was conducted. Follow-up averaged 48.1 ± 17.9 months (range: 6–76). Outcomes included oncological, functional, surgical, pain control, and radiographic measures.
Results: At follow-up, 8 patients (66.7%) were disease-free, 3 (25%) had disease progression, and 1 (8.3%) died from metastases. Functional outcomes improved significantly (MSTS-93 score: 15.1 ± 1.4 to 25.8 ± 2.5), and pain scores decreased (5.4 ± 1.0 to 1.5 ± 1.0). Mean surgical duration was 285.8 ± 106.4 minutes, with blood loss averaging 3483.3 ± 1539.1 ml. Complications included poor wound healing in 2 patients (16.7%), managed with VAC drainage. No mechanical failures, loosening, or fractures occurred. Accurate osteotomy, prosthesis implantation, and screw fixation were achieved. All cases showed successful osseointegration, with no bone absorption or osteolysis.
Conclusions: 3D-printed custom hemipelvic prostheses with auxetic biomaterials provide effective pelvic reconstruction, demonstrating promising oncological, functional, and radiographic outcomes. These findings support 3D printing for complex pelvic defects, optimizing osteointegration and mechanical strength.

11:38 - 11:41

1184 10-Year Outcome Of Surgical Management And Survival Analysis Of Breast Cancer Bone Metastasis

Obidinma Eric Anyanwu[1], Ather Siddiqi[2]

1. Horton General Hoospital, Banbury, United Kingdom
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Abstract
Background: Patients with metastatic breast cancer to the bone are living longer due to improved advances in adjuvant therapy. There is limited long term outcome data in the literature on surgical management and survival of these cohort of patients.
Aims and objective: To determine survival rate and outcome of surgical intervention for metastatic breast cancer to Bone
Methodology: A retrospective cohort study involving 57 patients managed surgically at a tertiary referral centre. Data was extracted from electronic patient records. Patients referred with Breast cancer bone metastasis to the appendicular skeleton who underwent surgical intervention were included in the study. Metastatic spine disease and patients with incomplete follow up data were excluded. primary endpoint was survival outcome. Secondary endpoints were; Disease pattern, surgical intervention and complication rate. Data was analysed with SPSS version 24 and survival analysis using Kaplan Meier.
Result: The mean age of patient was 65.8+/-12.8. Femur was the commonest site for metastasis. Replacement surgery with mega prosthesis was the most common intervention. Surgical site infection rate was 3.5%. No recorded case of prosthetic dislocation. The type of procedure done and type of adjuvant treatment showed no difference in survival outcome. 28% of patients are still alive after 10 years. The median survival time was 6 years (95% CI: 2.4-9.5).
Conclusion: This 10-year outcome study showed acceptable survival and complication rate from surgical intervention in patients with metastatic long bone disease from Breast Cancer. Fixation or Replacement surgery offers similar survival benefits in the long term.

11:41 - 11:44

1421 Long Term Results Of Non-Invasive Expandable Prosthesis With Adult Conversion

Ashley Castan[1], Rosamaria Dias[1], Yazan Kadkoy[1], Katie Gotoff[1], Joseph Ippolito[1], Kathleen Beebe[1], Francis Patterson[2], Joseph Benevenia[1]

1. Rutgers New Jersey Medical School, Newark, United States
2. Hackensack University Medical Center, Hackensack, United States

Abstract
Introduction:
Non-invasive expandable endoprostheses allow for limb lengthening while avoiding open surgery in skeletally immature patients after resections involving the physis. This study analyzed the outcomes of patients who underwent reconstruction with an expandable endoprostheses at two academic institutions.
Methods:
Twenty-five patients (13M;12F) with a mean age of 9.4 years were included, who underwent surgery from 1997 to present. A total of 28 limbs were reconstructed and included 20 femurs, 5 humerus, 3 tibias. Complications and outcomes were reviewed with functional scores being assigned using the MSTS functional scoring system.
Results:
Patients had a mean follow up of 112.4 months. At latest follow-up, 10 patients (11 limbs) had been converted to an adult prosthesis, with a mean lengthening of 5.1cm, 9 patients had died of disease, 7 patients (8 limbs) had retained their Repiphysis, and one had undergone tibial turn-up plasty. There were a total of 28 complications in 17 patients. Complications were categorized using Henderson system: soft tissue failure (5) aseptic loosening (8), structural failure (7), infection (7), tumor progression (1). Conversion to an adult prosthetic was not considered a complication. The mean MSTS score for the humerus, femur, and tibia were 92%, 81.5%, and 93%, with an overall limb retention rate of 94.7%.
Conclusions:
Limb salvage surgery and reconstruction of skeletally immature patients after resection of the growth plate remains a challenge. Expandable endoprostheses have allowed for noninvasive progressive limb expansion. Despite complications, limb retention rates remain high.

11:16 - 11:19

1426 Minimally Invasive Management Of Metastatic Disease At The Pelvis: A Single Institution Analysis

Ashley Castan, Rosamaria Dias, Yazan Kadkoy, Katie Gotoff, **Joseph Ippolito**, Kathleen Beebe

Rutgers New Jersey Medical School, Newark, United States

Abstract

Introduction

Metastatic bone disease (MBD) in the pelvis is a challenge for both the patients and surgeons. Impending fractures are typically mitigated with invasive surgical approaches. The IlluminOss photodynamic bone stabilization system provides a minimally invasive option that enables faster recovery, decreased pain, and early weight bearing. Our aim was to assess how disease management with the IlluminOss alters patient pain and weightbearing status.

Methods

This is a retrospective case series of patients who underwent fixation with the IlluminOss photodynamic bone stabilization system in the pelvis for metastatic bone disease. Information was collected on follow-up, primary tumor histology and operative factors. Pain requirement and ambulatory status was noted pre-operatively and post-operatively. The Musculoskeletal Tumor Society (MSTS) scoring system was used to assess functional outcomes.

Results

6 patients who received the IlluminOss at the pelvis with an average age of 60 years and an average follow-up of 7.5 months were included. Pain requirement was calculated as morphine milligram equivalents (MME). MME per day was significantly lower post-operatively ($P=0.016$). The average MSTS score at latest follow-up was 19.6, compared to 3.6 pre-operatively ($P<0.001$). At latest follow-up, 83% of patients had a better ambulatory status.

Conclusion

Pain medication requirement decreased significantly post-operatively after treatment with the IlluminOss photodynamic bone stabilization system at the pelvis. All patients were able to weight-bear immediately post-operatively and most were able to improve or return to their original ambulatory status.

11:48 - 11:51

1820 Testing The Predictive Ability Of Modern Day Scoring System To Estimate Survival In Patients With Metastatic Spine Disease

Sanjay Dhar

DY Patil Hospital Navi Mumbai, Mumbai, India

Abstract

INTRODUCTION
Survival in patients with metastatic spine surgery post operatively is one of the important determinants of surgical candidacy. New England Spine Metastasis Score , the Revised Tokuhashi, Tomita, Modified Bauer, SORG algorithm created over time.

PURPOSE
The aim of our study was to evaluate and retrospectively test the predictive ability of 5 modern day scoring systems.

MATERIALS AND METHODS
The database was searched to get the patient's details, primary tumour type, clinical, serological, radiological, and history of systemic treatment. The revised Tokuhashi, Tomita, Modified Bauer, SORG algorithm, and NESMS were used to score each patient. Patients' overall survival time is calculated from the date of surgery to their death or last follow-up.

STATISTICAL ANALYSIS
The statistical analyses were conducted using SPSS. Kaplan– Meier plot and Cox regression were used for survival analysis. An analysis of receiver operating characteristic curves was performed to establish AUC at three months and one year.

RESULTS

The study included 60 patients with metastatic spine disease, with a mean age of 50.65 years (SD ±14.87), and a median age of 54 years (range 20-74). The cohort was predominantly male (53.33%). Among these patients, 46.67% had received pre-operative systemic therapy. The SORG Algorithm demonstrated the highest predictive value with an AUC of 0.74 (CI 0.56-0.9), while the Revised Tokuhashi, Tomita, Modified Bauer, and NESMS scores had lower AUC values of 0.57, 0.59, 0.56, and 0.61, respectively.

CONCLUSION

The SORG algorithm outperformed the other four scoring systems out of the five.

11:03 - 11:06

2307 Percutaneous Sacroplasty In The Palliative Treatment Of Sacral Bone Metastasis

Mohamed Habib Sanaa, Chrif Kammoun, Mokhtar Abderrahim, Adnen Benammou, Mehdi Bellil, Mohamed Ben Salah

Charles Nicolle Hospital, Bizerte, Tunisia

Abstract
Introduction:
Percutaneous sacroplasty emerged in 2000 as part of the therapeutic arsenal for treating sacral bone metastases. It is analogous to vertebroplasty performed on the thoracolumbar spine.

Clinical Case:
We present the case of a 76-year-old patient with lung cancer classified as T4N1M2, treated with chemotherapy and radiotherapy, who presented with disabling pain in the sacral region that had been evolving for one month. The pain required morphine titration and was associated with lytic bone metastases in the sacral wings. Percutaneous sacroplasty was indicated. The patient underwent surgery via the transiliac approach, allowing the injection of surgical cement into the sacral wings under fluoroscopic guidance, with postoperative CT control to confirm the location of the cement injection and rule out any intracanalar leakage. The immediate postoperative Visual Analog Scale (VAS) score was 3, compared to 8 preoperatively. The Oswestry Disability Index (ODI) improved from 78 to 29 immediately postoperatively, with no functional deterioration at 3 months follow-up. The use of opioids was not required during the follow-up period.

Conclusion:
Percutaneous cementoplasty techniques, such as sacroplasty, offer an effective therapeutic option in the treatment of painful bone metastases, particularly in palliative care. Its analgesic effect, short operative time, and low morbidity make it a preferred approach. A rigorous technique and a thorough understanding of the radiological anatomy of the sacrum are essential due to the complexity of this region, which contains the sacral nerve roots.

11:51 - 11:54

2442 PREVALENCE OF PSYCHOLOGICAL DISTRESS AND IT'S RISK FACTORS IN PATIENTS WITH PRIMARY BONE TUMORS – A CROSS SECTIONAL SINGLE CENTRE STUDY

Deepak Kumar, Sujeet Kumar Chaudhary

King George's Medical University, Lucknow, India

Abstract
Introduction: Patients with primary bone tumours experience high psychological distress because of aggressive treatments and functional disabilities. Lack of data on psychological distress in Indian patients despite widespread recognition is a concern. This study estimated the prevalence and risk factors of psychological distress among primary bone tumour patients.
Aim : To calculate the prevalence of psychological distress
Objectives: To determine demographic/clinical risk factors, evaluate the effect of pain and cost burden, and measure quality of life in this group.
Study Design & Methods: A cross-sectional study was done.80 patients with histologically diagnosed primary bone tumours were included.Validated measures-Depression, Anxiety, and Stress Scale (DASS-21), Perceived Stress Scale (PSS), and WHOQOL-BREF—were applied. Exclusionary criteria were metastatic disease, history of psychiatric illness, or non-curative resection.
Results: In total, 92.5% of patients reported psychological distress, 58% of whom were severe/extremely severe. Malignant tumor patients (55%) had greater distress (mean DASS-21: 38.2 vs. 34.9 in benign tumors). Younger patients (18–25 years) and those with severe pain (VAS ≥7) had higher distress scores. Financial burden was associated with worse mental health (mean PSS: 36.4 vs. 31.8 in stable patients). Quality of life was moderate/poor in 85%, with social and emotional domains being most impaired.
Conclusion: Psychological distress is extremely common in primary bone tumor patients, and it is affected by malignancy, age, pain, and socioeconomic status. Comprehensive mental health care, financial assistance, and pain management are essential for overall care.
Keywords: Psychological distress, primary bone tumours, quality of life, cross-sectional study.

11:22 - 11:25

654 Stem Cell Therapy In Giant Cell Tumor : A Systematic Review

Rudiansyah Harahap[1], Yodha Bakti[2], Olivia Puji[1]

1. Muhammadiyah Semarang University, Semarang, Indonesia
2. Islamic Sultan Agung Semarang University, Semarang, Indonesia

Abstract
Introduction/Aims & Objectives:
The destructive bone tumor known as giant cell tumor (GCT), which primarily affects young adults, is distinguished by its multinucleated large cells and notable osteolytic activity. In order to address the high recurrence rates linked to traditional treatments, this study intends to assess the safety and effectiveness of mesenchymal stem cell (MSC) therapy in the treatment of GCT.

Study Design & Methods:
A PRISMA-compliant systematic review was carried out, examining literature from Web of Science, PubMed, and Scopus. The search focused on articles published in the last decade that reported on in vivo stem cell therapy for GCT. After screening a total of 178,977 articles, 15 research were found to match the inclusion requirements.

Results:
According to the review, MSC treatment considerably lowers tumor recurrence and increases bone mineral density. According to the findings, MSCs have the ability to develop into osteoblasts, which inhibits osteoclast activity and promotes bone rebuilding. Individual reactions varied, nevertheless, and possible long-term negative effects were observed.

Conclusion:
MSC therapy, which exhibits efficient tumor suppression and bone repair, offers a promising substitute for GCT treatment. To standardize treatment procedures and evaluate long-term safety, more research is necessary. Further research into MSC applications in clinical settings is vital, as this systematic review emphasizes.

Keywords: Giant Cell Tumor, Mesenchymal Stem Cells, Stem Cell Therapy, Bone Regeneration.

11:09 - 11:12

1382 Proximal Humeral Reconstruction Using Interlocking Nail Cement Spacer With Hernia Mesh In Aggressive Tumors Of Proximal Humerus

Muhammad Ali Ayub

Ghurki Trust Teaching Hospital, Lahore, Lahore, Pakistan

Abstract
Background : Proximal Humerus tumor excision and reconstruction is a challenging task associated with multiple complexities and involves oncological and orthopaedic surgical team work.

Objective : To evaluate results of proximal humerus reconstruction SIGN Nail Cement Spacer with Polypropylene Mesh after Proximal Humerus Tumor Resection

Setting and duration: Ghurki Trust Teaching Hospital, Lahore, Pakistan from 2017 to 2023.

Methodology: 18 patients were included in our case series . All cases underwent Proximal Humerus Resection (Linberg 1) and reconstruction with SIGN Nail Cement Spacer and Polypropylene Mesh. Patients were called for monthly follow up in first 6 months, 2 monthly follow up in next 6 months and afterwards every 6 months for the next year. Results assessed were shoulder pain, range of motion, dislocation, infection, adequacy of surgical resection margins and local or distant recurrence of the tumors.

Results : 1 patient underwent amputation and 3 passed away.7(63.6%) were males while 4(36.4%) were females.The average age of patients was 38.00±13.67. 8 patients (72.7%) had GCT, 1 (9.1%) had ABC, and 2 (18.2%) had Osteosarcoma.9 patients (81.8%) had benign tumors, and 2 patients (18.2%) had malignant tumors, 2 (18.2%) had metastasis.The mean bone
resection was 57.73% (SD = 13.04). MSTS score for functional outcomes averaged 15.18 (SD = 5.88). Subluxation in 4 patients , recurrence in 2 patients
and infection in 1 patient.

Conclusion : Proximal Humeral Reconstruction using SIGN Nail Cement Spacer with Polypropylene Mesh in Tumors of Proximal Humerus is an effective surgery in low resource setting countries.

11:35 - 11:38

2588 Difficult Diagnosis Of A Hydatid Cyst (HC) Of The Root Of The Thigh

Abdelwahhab Fersaoui[1], Anissa Benaida[1], Nacer Bouali[2]

1. Frantz Fanon UNIVERSITY HOSPITAL, Blida, Algeria
2. Laghouat UNIVERSITY HOSPITAL, Laghouat, Algeria

Abstract
Hydatidosis is an anthropozoonosis following the development of a larval cestode in humans and certain animals. It is transmitted by dogs. It is important to note that the damage of the soft parts of the limbs is very rare.
The diagnosis is often based on imaging and immunological reactions, to be confirmed by an anatomopathological study. Meanwhile, treatment involves complete surgical excision combined with antiparasitic treatment.
This study aims to confirm the crucial role of intraoperative surgical data in the diagnosis of HC.
Our study involves a 22-year-old female patient of rural origin, with no notion of contact with dogs. The reason for consultation was the swelling of the soft tissues of the root of the left thigh which was accompanied by pain.
The clinical examination found a painful mass at the root of the thigh with no inflammatory signs nearby.
The MRI shows a cystic image. Hydatid serology: negative.
The biopsy came in favor of juvenile xanthogranuloma.
MCM DECISION: total resection.
Anatomy-pathology came in favor of a hydatid cyst. It was supplemented by antiparasitics for 21 days. Over a minimum follow-up of 12 months, no recurrence was noted.
The hydatid localization in the muscle is rare; it should be considered in the presence of any soft tissue mass, especially in an endemic context. Its diagnosis is guided by clinical and biological findings, but especially by radiology (ultrasound, MRI). Surgery confirms this diagnosis, and perioperative data can help with diagnostic orientation. In fact, perioperative data can guide the anatomy-pathology process.

Friday, 5 September

Paediatrics 4
11:35 - 11:38

422 Subperiosteal Tunnelled Allograft Reconstruction Of The Symphyseal Ligaments In Bladder Exstrophy Epispadias Complex: Detailed Surgical Technique

Mohamed Kenawey

Royal Manchester Children's Hospital, Manchester, United Kingdom

Abstract
We would like to describe a technique of symphysis ligament reconstruction using subperiosteal tunnelled allograft in bladder exstrophy repair. The aim of this technique is to maintain the pubic approximation following iliac osteotomies for bladder exstrophy reconstruction. Pubic re-diastasis is a common complication post-osteotomy, leading to pelvic organ prolapse in females and penile retraction in males. The orthopaedic part of bladder exstrophy repair starts with bilateral modified oblique iliac osteotomies and the insertion of lateral to medial supra-acetabular iliac half pins on both sides. The pubic bones are then approximated. The technique involves subperiosteal exposure of the pubic bones down to the obturator foramina. The pubic apophysis is split longitudinally, and continuous chondro-periosteal flaps are raised from the dorsal and ventral surfaces of the pubic bones. A tendon allograft (typically gracilis) is prepared with Krackow stitches and looped subperiosteally through the obturator foramina around the pubic bones. The pubic diastasis is reduced using a pointed reduction clamp, and the allograft is tensioned and sutured anteriorly to form a loop. The anterior chondro-periosteal flaps are then sutured together over the allograft, creating a double-layer reconstruction. The abdominal wall is then closed in layers. An external fixator is used to connect the half pins. Postoperatively, patients are immobilized in a mermaid dressing. The external fixator is removed in 3-4 weeks. Pelvic X-rays are requested prior to fixator removal. This technique aims to stabilize the pubic symphysis and prevent re-diastasis by promoting allograft tendon integration with subperiosteal pubic bone formation.

11:22 - 11:25

1826 SURGICAL TREATMENT OF SCOLIOSIS IN NEUROFIBROMATOSIS TYPE 1: A SINGLE-CENTER EXPERIENCE

Yiming Zheng

Children's Hospital of Fudan University, Shanghai, China

Abstract
- Background
Surgical management, including the growing rod technique and early fusion, has been recommended to avoid the progression of Neurofibromatosis Type 1(NF-1) scoliosis. The choice of treatment methods tends to be individualized.
- Objective
To investigate the clinical features, diagnosis, treatment, and prognosis of scoliosis associated with NF-1.
- Methodology
The clinical data of 6 patients with NF-1 scoliosis who underwent surgical treatment were retrospectively analyzed, and the clinical characteristics, diagnosis, treatment, and prognosis were summarized.
- Results
Among the 6 patients with NF-1 scoliosis, 3 were male and 3 were female. All patients were found to have a back deformity. Café au lait spots were found in all patients, and optic gliomas and cranial hamartomas were not found. Preoperative MRI showed typical neurofibromas in the apical vertebral region. According to bone maturity and whether the vertebra was atrophic, 2 patients were treated with growing rod, 1 with growing rod + apical vertebral osteotomy and fusion surgery, and 3 with fusion surgery +/- preoperative HALO traction. The immediate postoperative correction rate of the main curve was 58.1%. None of the patients had received a MEK inhibitor. All patients were followed up for at least 2 years, and there was no significant loss of correction of the main curve at the last follow-up. No nerve injury or fixation-related complications occurred.
- Conclusion
NF-1 scoliosis is common and requires close follow-up. Dystrophic scoliosis requires early surgical treatment. The spine and spinal cord need to be evaluated in detail before surgery. The choice of treatment methods tends to be individualized.

11:16 - 11:19

1964 The Studying Of Anatomical Parameters Of Craniovertebral Junction To Optimize Occipitocervical Fusion In Children.

Timur Alisherovich Dzhumatov[1], Alexander Vadimovich Gubin[1], Alexey Ivanovich Tashchilkin[2], Polina Veselkova[2]

1. St. Petersburg State University Hospital, Saint-Petersburg, Russia
2. Saint Petersburg State Pediatric Medical University, Saint-Petersburg, Russia

Abstract
The Introduction.
To achieve C0-C1-C2 fusion numerous surgical techniques of occipitocervical spondylodesis are used. However, the age-related anatomical peculiarities of CVJ in children, as well as the optimal technique for craniocervical fixation, have not been thoroughly investigated to date.
The Purpose. This study is aimed to identify the most suitable technics of occipitocervical spondylodesis in different age groups.
The material and methods.
A total of 120 CT scans of children aged 0 to 12 years without congenital or acquired pathologies of the craniocervical junction were reviewed. Patients were divided into groups based on age and gender. Measurements were taken of the dimensions and angles for potential screw placement in crest and condyles of the occipital, lateral masses of the atlas, as well as the pedicles and laminae of the axis.
The Results. The data base of CVJ variants were made. It made possible to optimize the screws trajectory and size to optimize the methods of CVJ fusion

11:06 - 11:09

2087 Pediatric Femoral Neck Fractures: A Review Of 23 Cases And Factors Associated With Avascular Necrosis

Durmus Ekin Dincer

Eskisehir City Hospital, Eskisehir, Turkey

Abstract
Objectives:

Pediatric femoral neck fractures (FNF) are rare injuries, with avascular necrosis (AVN) being a major complication. This study evaluates clinical outcomes and factors associated with AVN development following pediatric FNF.

Methods:

A retrospective analysis was conducted on 23 FNF cases treated between 2010 and 2023. Fracture type, displacement, mechanism of injury, associated injuries, reduction method, and AVN incidence were assessed.

Results:

Twenty-three pediatric FNF cases were analyzed (mean follow-up: 40.5 months). According to Delbet's classification, 1 fracture was type 1, 12 were type 2, 9 were type 3 and 1 was type 4 fracture. 12 fractures were displaced, and 11 were nondisplaced. The mechanisms included falls from height (8), ground-level falls (7), traffic accidents (5), and pathological fractures (3). Additional fractures involved vertebrae (2) and pelvis (2). Closed reduction were performed in 20 patients, while 3 required open reduction; however, none of them developed AVN.
AVN occurred in four patients (Ratliff classification: one Type 1, two Type 2, one Type 3): One of them had aplastic anemia and operated on sixth day, while remaining three patients, all aged 16, operated within the first 24 hours.

Conclusion:

AVN risk increased with older pediatric age, delayed fixation, and non-anatomical reduction. Interestingly, AVN did not occur in fractures requiring open reduction, suggesting that open anatomical reduction should not be avoided in difficult fractures. This study highlights that early anatomical reduction and stable fixation are crucial for optimal outcomes, particularly in older children or those with additional risk factors.
Pediatric, femoral neck fractures

11:19 - 11:22

2113 Minimally Invasive Plating For Hypotrophic Callus Protection In Children With Achondroplasia Undergoing Extensive Lower Limb Lengthening"

Dmytro V Iersov[1], Fedir Volodymirovich Klymovitsky[1], Anton V Chornenkiy[2]

1. Donetsk National Medical University, Kropivnitksy, Ukraine
2. Rudnev Hospital, Dnipro, Ukraine

Abstract
Achondroplasia is a common form of skeletal dysplasia that leads to disproportionate limb lengths and short stature. Distraction osteogenesis using external fixation (ExFix) is a common method for limb lengthening.

Aim: To evaluate the safety and effectiveness of minimally invasive plating (MIPO) in protecting hypotrophic callus following extensive limb lengthening procedures using ExFix in children with achondroplasia.

From a cohort of 23 patients with achondroplasia who underwent bilateral sequential femur and tibia limb lengthening, we identified 7 patients who exhibited hypotrophic regenerates due to an extensive lengthening regimen (lengthening of more than 40-50%) and subsequently received MIPO. Five patients underwent bilateral femoral MIPO, while 2 patients had plates on the tibia. Post-surgery, patients were allowed to start gradual weight-bearing on the limbs from the 2nd week. Radiological studies of the callus to monitor its thickness were conducted every 6-8 weeks, and complications were tracked throughout the 2-year follow-up period.
Results: Radiological evaluations showed an increase in regenerate thickness of approximately 30-40% during the 6 months following surgery. Two Pts experienced superficial soft tissue infections during the 1st PostOp year, which were managed surgically.
Conclusion: MIPO represents a safe and effective method for protecting hypotrophic callus in children with achondroplasia undergoing extensive limb lengthening.

11:32 - 11:35

2775 Orthopaedic Complications And Therapeutic Strategies In Congenital Insensitivity To Pain

Charlotte Duclos, Georges Finidori, Christine Barnerias, Isabelle Desguerre, Stephanie Pannier, ALINA Badina

Hôpital Necker Enfants Malades, Paris, France

Abstract
Introduction
Congenital insensitivity to pain (CIP) is a rare condition frequently complicated by severe orthopaedic damage. Our aim was to report common lesions and propose a therapeutic approach.
Materials and Methods
We retrospectively reviewed 24 CIP patients, focusing on orthopaedic injuries and their management.
Results
Mean age at last follow-up was 17 years (range: 7–36). Eighteen patients sustained fractures (mean: 3 per patient), mostly treated conservatively. Thirty percent developed complications (malunion, hypertrophic callus, pressure sores, infection), and some infections required multiple surgeries.
Charcot arthropathy affected six hips and 22 knees. In nine knees, symptoms began with a lateral condyle osteochondral fracture, progressing to valgus deformity. Thirteen ankles showed Charcot changes.
Three guided growth procedures and seven osteotomies were performed. One osteotomy was complicated by infection, another by insufficient fixation.
Twelve patients (50%) remained community ambulators; two were non-ambulatory; others were limited to household ambulation. Two patients died.
Discussion
Given the high complication rates, most fractures and deformities were managed conservatively. Surgery was beneficial in select cases with axial deformity impairing ambulation.
Conclusion
Treatment in CIP should remain conservative whenever possible. Growth modulation or osteotomy may be considered to correct major deformities and preserve mobility.
Significance
This is one of the largest reported series describing orthopaedic management in CIP, highlighting both the frequency of complications and the need for individualized care.

11:41 - 11:44

1595 Ilizarov Technique For Fibular Hemimelia

Mofakhkharul Bari

Bari-Ilizarov Orthopaedic Centre, Dhaka, Bangladesh

Abstract
Introduction:
Fibular hemimelia is the most common form of limb hypoplasia, presenting a complex clinical challenge due to the associated severe limb shortening, angular deformities, foot deformities, and additional anomalies such as syndactyly and polydactyly.

Materials and Methods:
We reviewed the records of 18 patients (12 males, 6 females) diagnosed with Type II Aichterman-Kalamchi fibular hemimelia, treated between 1990 and 2023. A total of 12 segments were lengthened (8 tibias, 4 femurs). Six patients underwent tibial lengthening twice, while four underwent simultaneous tibial and femoral lengthening. The patients' ages at surgery ranged from 2 to 15 years (mean 8 years), with an average limb shortening of 7.5 cm (ranging from 3 to 15 cm). Valgus deformity was present in 12 patients, with two of them also showing rotational deformities. Ilizarov frames were used for tibial lengthening in 10 segments, and all patients had hindfoot stabilization. Femoral lengthening was performed in 4 patients.

Results:
The lengthening achieved ranged from 3 to 9 cm. Axial deformities (valgus in 8 patients and detorsion in 4 patients) were successfully corrected in 8 patients.

Complications:
Three cases experienced fractures at the bone regenerate site after removal of the Ilizarov frame. Two patients required additional surgery due to knee range-of-motion limitations and posterior subluxation. Minor complications such as pin-track inflammation were managed with dressings and appropriate antibiotic prophylaxis.

Conclusion:
The treatment of fibular hemimelia, especially the lengthening process, is highly challenging and technically demanding. It requires multiple surgeries and is associated with a lengthy recovery process, with several potential complications

11:51 - 11:54

1474 Comparative Analysis Of Functional Outcomes And Complications Of Paris Plaster Vs. Fiberglass Casting In Pediatric Upper And Lower Extremity Fractures

Cumhur Deniz Davulcu[1], **Muhammed Yusuf Afacan**[1,2]

1. Istanbul University-Cerrahpasa, Cerrahpasa Faculty of Medicine, Department of Orthopaedics and Traumatology, Istanbul, Türkiye
2. Istanbul University-Cerrahpasa, Institute of Graduate Studies, Department of Anatomy, Istanbul, Türkiye

Abstract
Aim: This study aims to compare the functional outcomes of Paris-plaster and fiberglass casting in pediatric fractures, with a specific focus on differences between lower and upper extremity fractures.
Method: A retrospective analysis was conducted on 200 pediatric patients with extremity fractures. Patients were allocated into two groups: those treated with Paris-plaster casts (n=100) and those with fiberglass casts (n=100). Each group was further stratified based on the fracture location, with 100 patients having lower extremity fractures and 100 patients with upper extremity fractures. Functional outcomes were measured at 1-3-6 months post-treatment. Complications, including malalignment rates and re-surgery requirements, were documented.
Results: In the lower extremity fracture cohort, patients treated with fiberglass casts exhibited a significantly faster return to functional mobility compared to those with Paris plaster casts ($p<0.05$). However, the malalignment rate was higher in the fiberglass group (12%) compared to the Paris plaster group (8%). For the upper extremity fracture cohort, both casting materials produced comparable functional outcomes. Notably, the re-surgery requirement was lower in the fiberglass group (5%) compared to the Paris plaster group (10%).
Conclusions: Fiberglass casting enables a faster functional recovery in pediatric lower extremity fractures but is associated with a modest increase in malalignment risk. For upper extremity fractures, both Paris-plaster and fiberglass provide similar functional outcomes, though fiberglass casting is associated with a lower rate of re-surgery. The findings highlight that the choice of casting material should be tailored to the fracture location and specific patient needs to minimize complications and optimize recovery.

11:09 - 11:12

1468 Epidemiological Analysis And Prevention Of Playground Equipment-Related Extremity Fractures In Pediatric Patients: A Retrospective Study

Cumhur Deniz Davulcu[1], **Muhammed Yusuf Afacan**[1,2]

1. Istanbul University-Cerrahpasa, Cerrahpasa Faculty of Medicine, Department of Orthopaedics and Traumatology, Istanbul, Türkiye
2. Istanbul University-Cerrahpasa, Institute of Graduate Studies, Department of Anatomy, Istanbul, Türkiye

Abstract
Aim: This study aims to analyze the incidence, types, and outcomes of extremity fractures in children due to playground equipment-related injuries in Türkiye, identifying key risk factors and proposing targeted preventive measures.
Methods: A retrospective review was conducted on pediatric patients aged 2-to-15 years presented with extremity fractures caused by playground equipment-related accidents over a 5-year period. Patient demographics, the specific type of playground equipment involved, fracture type and location, treatment methods, and clinical outcomes were noted.
Results: A total of 200 children sustained playground equipment-related extremity fractures, with the majority of injuries occurring in children aged 5 to 10 years. A male predominance was observed (60%). The most common playground equipment associated with injuries were swings (40%), slides (30%), trampoline (15%) and monkey bars (10%). Upper extremity fractures constituted the majority (75%), with supracondylar humeral fractures and distal radius fractures being the most prevalent. Lower extremity fractures accounted for 25% of cases. Surgical intervention was necessary in 20% of cases, predominantly for displaced fractures, with supracondylar humeral fractures often requiring fixation. The average recovery period was 7 weeks. No significant long-term complications were reported.
Conclusion: Swings, slides, trampoline, and monkey bars represent significant sources of extremity fractures among children, particularly supracondylar humeral and distal radius fractures. Enhanced safety measures, such as improved playground designs, increased supervision, and targeted safety education campaigns, could mitigate the risk of such injuries. Future studies should focus on the implementation and effectiveness of these preventive strategies to reduce playground-related fractures in children.

11:38 - 11:41

385 Bone Morphogenetic Protein Can Promote Rapid Mineralization Of Lengthened Bone Segments During Limb Lengthening In Children

Chunxing Wu, Dahui Wang, Bo Ning

Children's Hospital of Fudan University & National Children's Medical Center, Shanghai, China

Abstract
Background:Osteotomy and lengthening with external fixation can correct limb length discrepancy and malformation in children. Long bone mineralization duration of limbs may cause complications, affecting engthening effect.

Objective:To evaluate whether lengthened segment injection of human recombinant bone morphogenetic protein-2(rhBMP-2) could accelarate bone mineralization process.

Methods:The target bone segment(femur, tibia, ulna, humerus) was extended by about 1mm per day(dived into 3-4 times every day). Reaching correction goal, stop lengthning and wait for mineralization. If X-ray showed extended segment thin and absorption possibility, BMP solution(1ml BMP+1ml sterile water) was injected into the middle(1ml) and two ends(0.5ml each) of the extended segment. The patients were divided into BMP Group(8 cases:4 boys+4 girls) and Control Group(29 cases:18 boys+11 girls). Define speed index and compare in two groups. Lengthening Index(EI)(d/cm): the number of days required for extending 1cm(from the start to stop of extension). Bone healing index (BHI)(d/cm): the unit time required for mineralization(from lengthening end to external fixation removal). External fixation index(EHI)(d/cm) : the unit time required for the entire fixation process (total external fixation duration).

Results:There was no significant difference in average operation age between BMP Group(10.7y) and Control Group(9.3y)(P=0.289, P>0.05), and in EI between two groups before BMP injection(11.0d/cm vs. 13.6d/cm, P=0.119). However, BHI and EFI after BMP injection were both significantly lower and faster in BMP Group than Control Group(BHI:26.6d/cm vs. 41.3d/cm, P=0.008), (EFI:38.9d/cm vs. 56.3d/cm, P=0.005).

Conclusion:In cildren, BMP injection into lengthened segment could accelerate rapid bone mineralization process, shorten external fixation duration.

Key words:children, BMP, limb lengthening, accelerate, bone mineralization process

11:00 - 11:03

18 Lengthening Over The Plate In Forearm Deformity - A Novel Technique To Reduce The Duration Of External Fixation And Related Complications

Chang-Wug Oh[1], Sang Roc Han[1], Kyeong-Hyeon Park[2]

1. Kyungpook National University Hospital, Daegu, South Korea
2. Severans Children's Hospital, Seoul, South Korea

Abstract
Introduction: Forearm deformities of children has been treated by distraction osteogenesis using external fixator, but it often associates a high complication rate with a long duration wearing it. We have applied Lengthening over the plate (LOP) in forearm deformities, which has not been reported until now.
Materials & Methods: Six patients of forearm deformity (10~18 years old, mean: 13.6) have been treated by LOP technique, including 3 patients of posttraumatic growth arrest and 3 patients of multiple hereditary exostosis. There were five ulnar lengthening and one radial lengthening patients. Two patients needed additional corrective osteotomy of the associated radial deformity. Lengthening was performed with the aid of monolateral lengthening frame and small locking compression plate. After achieving a desired length, a second step operation was done placing 2 or 3 screws at the other side of the plate and removing the external fixator.
Results: The amount of lengthening averaged 3.0 cm (range 2.5–3.2 cm). Mean time in the fixator was 51 days, and mean external fixation index was 18.3 days/cm (range 11.6–24.8 days/cm). All patients achieved a successful healing of distraction callus. Every patient restored the preoperative level of motion in wrist and elbow. There were no major complications which needed surgical procedure. One patient suffered the superficial pin track infection, combined with contact dermatitis.
Summary: LOP procedure of the ulna or radius may be a reliable technique for treating forearm deformities with its discrepancy in children. This technique significantly reduced the duration of external fixation and its related complications.

11:25 - 11:28

2607 Comparison Of Raster Stereography And Radiography In Scoliosis Detection

Xing Liu, Di Li, Xinkai Zhang, Hailun Yao

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Abstract
Objective: The aim of this study was to evaluate the results obtained by raster stereography and compare the correlation between parameters measured by radiography, such as Cobb angle, pelvic tilt distance, coronal deviation distance, and vertebral deviation distance, and the corresponding parameters derived from raster stereography.

Methods: A total of 136 cases (age 9.9±3.2 years) were included, mainly involving patients with C-shaped adolescent idiopathic scoliosis. The Wilcoxon signed-rank test was used to assess some parameters measured by the two methods. Raster stereography calculates using Moiré patterns and optical triangulation. The correlation between raster stereography and radiography was analyzed using the Wilcoxon signed-rank test, Pearson correlation coefficient, and Bland-Altman agreement test across the entire sample.

Results: For the entire spine, the Cobb angle and pelvic tilt distance showed no significant difference between the two methods (Wilcoxon signed-rank test, $p > 0.05$), indicating that raster stereography is comparable to radiography. The Cobb angle measurements from raster stereography and radiography were strongly correlated (Pearson correlation coefficient $r > 0.7$, $p < 0.0001$).

Conclusion: Raster stereography has good validity for assessing patients with AIS, with strong correlation between the results obtained and the Cobb angle and pelvic tilt distance determined by radiography, and moderate correlation for vertebral deviation distance. This indicates that raster stereography can reliably be used for follow-up monitoring of patients with adolescent idiopathic scoliosis, repeated quantification of spinal parameters, determination of disease progression, and formulation of subsequent intervention methods.

11:54 - 11:57

2609 Analysis Of Risk Factors For Progression Of Scoliosis In Children With Idiopathic Short Stature Treated With Growth Hormone

Xing Liu, Xinkai Zhang, Di Li, Hailun Yao

Department of orthopedics Children's Hospital of Chongqing Medical University, National Clinical Research Center for Child Health and Disorders, Ministry of Education Key Laboratory of Child Development and Disorders, Chongqing, China

Abstract
Objective: To investigate the clinical efficacy of growth hormone in the treatment of idiopathic short stature in children with scoliosis.
Methods: A retrospective case-control study of children with scoliosis treated growth hormone between January 2021 to June 2024 was conducted. Clinical characteristics of scoliosis and independent risk factors for exacerbation of scoliosis were determined by univariate and multifactorial logistic regression analysis.
Results: Most (64.17%) of short statured children with scoliosis treated with growth hormone exhibited unilateral curvature from the tip of the T10-L1 vertebrae. Univariate analysis showed that the severity of scoliosis (with or without recombination) was associated with bone age (P=0.04), initial Angle (P=0.02), BMI (P=0.02), IGF-1 level (P=0.03), and continued treatment of growth hormone (P<0.01). However, multivariate regression analysis showed that scoliosis worsened 5.23 times more in patients with continued treatment of growth hormone than those without the treatment (OR=5.23, 95% CI: 1.66-16.44), and that the scoliosis worsened more in patients with a small initial Angle than in those with a large initial Angle. Moreover, the association of BMI, IGF-1, and bone age with scoliosis worsening was not significant.
Conclusion: Growth hormone treatment of idiopathic short stature in children with scoliosis is generally mild; however, continued treatment may increase the risk of scoliosis Cobb Angle growth ≥2°. The smaller the Cobb Angle at initial diagnosis, the higher the risk of growth ≥2°. Scoliosis should be monitored during growth hormone therapy, and regular imaging follow-up remains the gold standard. Clinical management needs to be further individualized.

Friday, 5 September

Spine 6
11:57 - 12:00

1176 Retrospective Comparison Of Minimally Invasive And Open Transforaminal Lumber Interbodyfusion Techniques With Bilateral Decompression For Lumber Degenerative Disorders

Atif Ali, Muhammad Farrukh Bashir

Ghurki trust teaching hospital lahore, Lahore, Pakistan

Abstract
Retrospective Comparison of Minimally Invasive and Open Transforaminal LumbarInterbody Fusion Techniques with Bilateral Decompression for Lumbar DegenerativeDisorders
Abstract Background: The management of degenerative lumbar disorders often involvestransforaminal lumbar interbody fusion (TLIF). Minimally invasive TLIF (MIS-TLIF) andopen TLIF (open-TLIF) with bilateral decompression are common techniques. This studyretrospectively compares these approaches using data from 50 patients who underwentsurgery at Ghurki Trust Teaching HIospital,Lahore.
Methods:A total of 50 patients, 25 each undergoing MIS-TLIF and open-TLIF with bilateraldecompression, were reviewed. All surgeries were performed in the last two years. Patientoutcomes were evaluated based on pain relief (VAS), functional improvement (ODI),operative time, blood loss, length of hospital stay, and complication rates. Preoperative andpostoperative data were analyzed for comparison.
Results: The MIS-TLIF group demonstrated significantly lower intraoperative blood loss(average of 150 mL vs. 300 mL, $p<0.01$) and shorter hospital stays (average of 3 days vs. 5days, $p<0.05$) compared to the open-TLIF group. Both groups achieved comparableimprovements in pain relief and functional outcomes (VAS and ODI scores) at the 6-monthfollow-up. The incidence of complications was similar betwveen the two groups,although theopen-TLIF group had a slightly higher rate of wound infections (8% vs. 4%).
Conclusions:MIS-TLIF with unilateral decompression offers advantages in terms of reducedblood loss and shorter recovery times compared to open-TLIF. However, both techniques areeffective in improving pain and function. The choice of surgical approach should beindividualized based on patient-specific factors and surgical goals.

11:00 - 11:03

1767 Comparative Analysis Of Correcting Larger Adolescent Kyphoscoliotic Deformity With HPT And Final Fusion Vs Without HPT Fusion Only.

Sabir Khan Khattak

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Abstract
Introduction: Idiopathic rigid decompensated kyphoscoliosis is a severe spinal deformity that progresses without surgical intervention. Surgical approaches include posterior, anterior, or combined anterior–posterior techniques, each with risks. Halopelvic traction (HPT) gradually corrects deformities, potentially reducing complications.

Methods: This retrospective, non-randomized study included 68 patients at the Orthopedics & Spine Centre, Ghurki Trust Teaching Hospital, Lahore. Patients with large, rigid curves and <15° or <50% correction on fulcrum radiographs were divided into two groups: Group A (HPT for 6 weeks followed by fusion, n=36) and Group B (fusion only, n=32). Postoperative Cobb's angles, intraoperative neuromonitoring data loss, blood loss, and complications were recorded.

Results: Preoperatively, Group A had significantly larger Cobb's angles (AP: 112.19° vs. 92.69°, $p<0.001$; lateral: 82.22° vs. 48.44°, $p<0.001$). Postoperatively, both groups improved, but Group A achieved greater lateral correction (69.97% vs. 49.97%, $p=0.002$), while AP correction was comparable (67.13% vs. 72.56%, $p=0.054$). Patients with severe deformities (>100° Cobb's angle) benefited more from HPT. Group B had intraoperative neuromonitoring data loss in 5 patients (3 recovered intraoperatively), while Group A had none. One postoperative mortality occurred in Group B.

Conclusion: For severe rigid kyphoscoliotic deformities, HPT followed by fusion provides better correction and reduces neurological complications compared to fusion alone.

11:03 - 11:06

1793 Novel MRI Signs Of The Atlantodental Space In Patients With Atlantoaxial Dislocation

Yang Meng, Xiaqing Sheng, Hao Liu

West China Hospital, Chengdu, China

Abstract
Objectives: The type of atlantodental space tissue in patients with atlantoaxial dislocation (AAD) can help doctors understand the possibility of reduction before surgery. However, relevant research on this topic is lacking. In this study, we aimed to summarise the atlantodental space classification of patients with AAD using magnetic resonance imaging (MRI) and explore their clinical characteristics.
Materials and Methods: Preoperative 3T cervical MR images of patients who underwent posterior reduction and fixation surgery for non-traumatic AAD between 1 September 2012 and 31 July 2023 were collected. Two radiologists read and recorded the MRI results based on the standard protocol. The kappa value was used to evaluate intra- and inter-observer agreements. The patient's age, sex, body mass index, clinical symptoms, Japanese Orthopaedic Association (JOA) score, and visual analogue scale information were obtained from medical records.
Results: A total of 135 patients with AAD (mean age, 51.3 ± 14.0 years, 52 men) were included in the analysis. The inter-observer agreement between the two readers was 0.818 ($P<0.0001$). The intra-observer consistencies were 0.882 ($P<0.0001$) and 0.896 ($P<0.0001$). Patients with hard tissue signs were older and had a higher incidence of abnormal spinal cord signals and JOA scores.
Conclusions: Novel MRI signs exhibited high inter- and intra-observer consistency and were associated with patient age, abnormal spinal cord signals, and symptoms.

11:06 - 11:09

1896 Long-Term Results Of Cervical Disc Arthroplasty: A Single-Center Retrospective Study With A Minimum Of 10-Year Follow-Up

Tingkui Wu, Junbo He, Hao Liu

West China Hospital, Chengdu, China

Abstract
Objective
This study aims to retrospectively evaluate the long-term clinical and radiological outcomes following cervical disc arthroplasty (CDA).
Methods
This study included 74 patients who underwent single-level or two-level CDA between November 2004 and December 2013, with a minimum of 10-year follow-up (22 in the Bryan group and 52 in the Prestige LP group). Patient-reported outcomes and radiological parameters were collected for comparisons. Additionally, the incidences of heterotopic ossification (HO), adjacent segment degeneration (ASD), prosthesis subsidence, and segmental kyphosis at the final follow-up were evaluated and analyzed.
Results
After 10-year follow-up, CDA patients continued to show significant improvement from baseline in patient-reported outcomes ($P<0.001$), with no significant differences between the two groups. However, the Bryan group had significantly higher global ROM (95% CI of the difference: 2.1-9.2, $P=0.002$) and segmental ROM (95% CI of the difference: 1.5-6.1, $P=0.002$) compared to the Prestige LP group. At 10 years postoperatively, the incidence of HO was 69.2%, with 29.7% being ROM-limiting HO. The incidence of ASD was 55.4%. Segmental kyphosis was observed in 10 patients, with incidences of 20.8% in the Bryan group and 8.1% in the Prestige LP group ($P=0.072$). In the univariate subgroup analysis, the age of the ASD group was significantly higher (95% CI of the difference: 0.3-6.8, $P=0.034$). However, no statistically significant parameters were identified between the HO and non-HO groups.
Conclusions
Through at least 10 years of follow-up, CDA can achieve satisfactory clinical outcomes while effectively preserving segmental mobility.

11:09 - 11:12

1921 In Vitro And In Vivo Test Of A Novel Growth Guidance System

You Du, Yanyan Bian, Shengru Wang, Jianguo Zhang

Peking Union Medical College, Beijing, China

Abstract
Introduction: A novel growth guidance system were developed. Two major modifications were made to the Shilla system: the use of ultra-high molecular weight polyethylene (UHMWPE) gaskets to avoid direct contact between the screw and rod, and polishing the sliding part of the rod.
Methods: The fatigue test and the displacement test were conducted. The in vivo experiments were conducted by implant the system in miniature pigs. X-rays, CT scan, MRI and histological examination were taken to assess the ability of spinal growth preservation and the histo-compatibility.
Results: After the fatigue test, the gaskets showed the fretting on the edge, but still avoided the friction between the screws and rods. No sign of metallic fretting around the implants. The average wear mass was less than 1.7% of the original. In the sliding test, the novel system demonstrated the best sliding capacity, with an average maximum sliding distance of 35.75 ± 5.73mm, better than the Shilla implants significantly. Six miniature pigs, with an immediate post-op mean spinal fixation length of 20.1 ±0.7cm and 23.5 ± 0.7cm at 12 weeks post-op. CT and MRI scans showed no degeneration of the facet joints or discs. Gross anatomy revealed no metal debris around the sliding screws. Histological reaction scoring indicated that the tissue response to the implantation of the novel sliding screws was either non-irritating or mildly irritating.
Conclusion: The novel growth guidance system demonstrated excellent wear resistance and sliding performance. The system also exhibited no irritation to local soft tissues and displayed favorable biocompatibility.

11:19 - 11:22

2089 Multilevel Percutaneous Radiofrequency Neurotomy Is Associated With Superior Outcomes Compared With Endoscopic Neurotomy For Lumbar Facet Joint Arthropathy

Michel Paul Johan Teuben[1], Anas Afifi[2], Mahmoud Mohamad Agha[3], Alba Shehu[1], Oikonomidis Stavros[4], Mohammed Abujarad[5], Mathis Ringe[6], Rolf Sobottke[6]

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Abstract
INTRODUCTION: Radiofrequency neurotomy (RFN) and endoscopic neurotomy (EN) can be utilized for the treatment of facet joint arthropathy-related chronic low back pain (CLBP). Prospective comparative studies are lacking. For this study it was hypothesized that percutaneous multilevel radiofrequency neurotomy (RFN) is associated with superior outcomes compared with endoscopic neurotomy (EN).
METHODS: Patients with facet joint arthropathy-related CLBP, treated between 2016 and 2020 in a certified spine centre were prospectively included and grouped as RFN or EN based on treatment. Outcome was studied over a 12 month period: Core Outcome Measures Index for the back (COMI-back), Visual Analogue Scale (VAS), complications and costs.
RESULTS: A total of 65 patients (35f/30m) with a median age of 62 years were included. Prior to the intervention, patients had a median COMI-back of 8.6 (IQR: 7.7–9.0) and a median VAS score of 8.0 (IQR: 7.0–9.0). Post-interventionally, the VAS score dropped significantly for both groups. Thereafter, pain scores increased in the EN group, whereas VAS levels in the RFN group remained unaltered. Complication rates were significantly lower after RFN compared with EN patients ($p<0.007$). Total costs were significantly lower for the RFN group ($p<0.01$).
CONCLUSIONS: This study shows that EN and RFN are feasible therapies for facet joint arthropathy-related CLBP. Multilevel percutaneous RFN is associated with enhanced pain relief, lower complication rates and lower costs than EN and should therefore be considered as the treatment of choice. EN should be reserved for patients in which RFN is contraindicated or following relapse after RFN.

11:25 - 11:28

2301 Staged Surgical Treatment For Severe And Rigid Scoliosis: Radiographic And Pulmonary Outcomes

Liyu Ran, Shishu Huang

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Abstract
Introduction: Patients with severe, rigid scoliosis often experience restrictive pulmonary dysfunction and reduced exercise capacity. The impact of spinal deformity surgery on pulmonary function and total lung volume (TLV) remains unclear.
Aim: This study aimed to assess the effectiveness and safety of staged surgical treatment for severe, rigid scoliosis, focusing on changes in pulmonary function test (PFT) parameters and physiological TLV, measured via 3D computed tomography (CT) reconstruction.
Methods: We retrospectively reviewed patients treated for severe scoliosis from 2012 to 2021, collecting spine radiographs, PFTs, and CT-measured TLV. Pre- and postoperative differences were analyzed using paired t-tests, and correlations with Spearman's method.
Results: Sixty-four patients were included in the study, with an average age of 15.4 years. The patients were followed for an average of 40.8 months. Three-dimensional lung reconstruction revealed a significant increase in TLV from 1.68 ± 0.69 L preoperatively to 2.23 ± 0.80 L at final follow-up. PFTs indicated enhancements in maximum vital capacity (VCmax) from 1.63 ± 0.65 L to 1.82 ± 0.72 L, forced vital capacity (FVC) from 1.61 ± 0.67 L to 1.81 ± 0.72 L, and forced expiratory volume in 1 second (FEV1) from 1.42 ± 0.55 L to 1.64 ± 0.65 L. Total lung capacity (TLC) increased from 2.59 ± 0.83 L to 2.83 ± 0.91 L.
Conclusion: Staged surgical approaches are both effective and safe for patients with severe and rigid scoliosis, leading to improvements in both lung volume and pulmonary function.
Keywords: Severe scoliosis, Total lung volume, Pulmonary function tests

11:32 - 11:35

2360
The Effectiveness Of A Low Implant Density In Scheurmann Kyphosis In Correcting The Lumbar Lordosis -Pelvic Incidence Mismatch.

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Abstract
Study design: Prospective study

Objective: To evaluate the effectiveness of using a low implant density in surgical treatment of Scheurmann Kyphosis (SK) in correcting the lumbar lordosis (LL)- Pelvic incidence (PI) mismatch.

Methods: Patients that were surgically treated for SK by a low screw density with multiple Ponte osteotomies at two institutions from January 2021 to January 2022 were identified and included in the study. Preoperative/postoperative/1- & 2-year follow-up measurements were analyzed from full-spine standing radiographs.

Results: Thirty patients were enrolled in our study, mean age 20.5 (13-37) years, mean pre-operative kyphosis was 85.9 (75-108), mean pre-operative lumbar lordosis-pelvic LL- PI mismatch was 25.9 (23-28). The maximum kyphosis was corrected to 46.2 (37-63) and the LL-PI mismatch was reduced to 7.7. The correction was maintained at 1- & 2- years follow-up with no statistical change in the sagittal angles.

Conclusion: Surgical correction of SK using low density implants and multiple Ponte osteotomies is an effective method of correcting the kyphotic deformity and reducing the LL-PI mismatch to normal physiological values.

Key words:
Scheurmann Kyphosis, Low density implant, Ponte Osteotomy, Lumbar Lordosis, Pelvic Incidence

11:38 - 11:41

2374 A Noninvasive Spinal Device For Measuring Adolescent Idiopathic Scoliosis: Validity, Reliability, And Factors Influencing Measurement Difference

Zhongning Xu, Ronghui Cai, Tenghui Ge, Shuquan Zhang, Guanqing Li, Jintao Ao, Qingyun Li, Jingye Wu, Zhao Lang, Yuqing Sun

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Abstract
Background Adolescent idiopathic scoliosis (AIS) is a common deformity, requiring regular screening and monitoring. While radiological measurements are considered the gold standard, X-ray exposure poses significant risks. A noninvasive spinal device offers a radiation-free alternative for measuring spinal curvature. This study evaluates the validity and reliability of its measurements and explores factors associated with measurement discrepancy.
Methods This study involved AIS patients in an outpatient setting from June to August 2023. Participants underwent device measurements to assess the scoliosis angle (SA) in the frontal plane, which were evaluated by two orthopedists and compared to radiological measurements (Cobb angle) from EOS images.
Results A total of 112 patients were included in the study. The Cobb angle measured on EOS images was 30.3°± 12.4°. The SA measurements by observer 1, observer 2, and their average were 25.5° ± 10.9°, 25.4° ± 10.3°, and 25.4° ± 9.9°, respectively. The reliability analysis showed good agreement between observers (ICC = 0.77) and within observers (ICCs of 0.81 and 0.86). The validity analysis showed a very strong correlation between the SA and Cobb angle (r = 0.76). Logistic regression analysis indicated that high BMI, great scoliosis magnitude, and large maximal vertebral rotation (MVR) were associated with measurement discrepancy. Multivariate linear regression formula was: Cobb angle = 0.83×SA + 0.55×TRA
+ 0.21×BMI.
Conclusion This device measurement demonstrated good reliability and validity compared with radiological measurement, highlighting its safety and feasibility for screening and monitoring AIS progression. However, high BMI, great scoliosis magnitude, and large MVR were associated with measurement inaccuracy.

11:41 - 11:44

2389 Alternative Lateral Mass Screw Trajectory – Cervical Pedicle Screws May Not Be Necessary

Janice Hui En Tan, Joshua Decruz

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Abstract
Introduction: Cervical pedicle screws have superior biomechanical strength in terms of pull-out strength, load-bearing capacity, and stability in all planes of motion compared to traditional lateral mass screws. However, insertion of a cervical pedicle screw is technically challenging with an increased risk of vertebral artery injury and spinal cord damage. We hypothesized that a short lateral mass screw inserted in a "cervical pedicle screw" trajectory would have nearly the same biomechanical strength as a cervical pedicle screw, without the associated risks.

Objective: This study aims to analyze Hounsfield Unit (HU) distribution within the lateral mass of the sub-axial cervical spine to evaluate the difference of bone density between the 2 different possible trajectories of the lateral mass screw, including the novel "cervical pedicle screw" trajectory.

Methods: A retrospective analysis of CT scans of 36 samples of sub-axial cervical vertebrae was performed. The lateral mass was segmented into 2 different trajectories, the traditional lateral mass screw and the other, perpendicular to that, in the "cervical pedicle screw" trajectory. The HU for both trajectories were recorded and compared with a T-test.

Results: The "cervical pedicle screw" trajectory showed higher HU values in 31 out of the 36 samples, with a p-value of 0.00007.

Conclusion: This study supports that the lateral mass has denser bone parallel to the pedicle instead of perpendicular to it. Inserting a short screw along this trajectory may provide better biomechanical strength compared to a traditional lateral mass screw. Further biomechanical studies will be needed to prove this.

11:48 - 11:51

2509 The Effects Of Preoperative Endplate Sclerosis On Clinical And Radiological Outcomes After Single-Level Cervical Disc Replacement

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Abstract
Objective
To assess the impact of preoperative endplate sclerosis on outcomes after single-level cervical disc replacement (CDR) with Prestige-LP Disc.
Methods
A retrospective review (2013–2018) included 128 patients undergoing single-level CDR, categorized by endplate sclerosis severity: none (n=53), detectable (n=40), or definite (n=35). Clinical outcomes (JOA, NDI, VAS) and radiological parameters (ROM, subsidence, migration, HO, ASD) were evaluated over a mean 38.4-month follow-up.
Results
All groups showed significant postoperative improvements in VAS, NDI, and JOA scores ($P<0.05$), with no intergroup differences. Preoperative ROM was similar across groups. Postoperatively, the definite sclerosis group had the lowest ROM, with significant differences vs. the no sclerosis group at 1 year and final follow-up ($P<0.05$), and vs. the detectable group at final follow-up ($P<0.05$). ROM preservation was observed in the no and detectable groups but declined in the definite group ($P<0.05$). HO incidence: 36.7% overall, highest in the definite group ($P=0.002$). Migration: 9 cases total (none:1, detectable:2, definite:6; $P=0.02$). ASD/subsidence: No intergroup differences.
Conclusion
Preoperative endplate sclerosis did not affect clinical outcomes but reduced postoperative ROM and increased HO and prosthesis migration risks.

11:16 - 11:19

2924 Endoscopic Spine Surgeries At A Tertiary Care Hospital: Two-Year Study Results

Ines Dias Monteiro, Rui Cardoso, Carlos Joao, Catia Machado, Patricia Paredes, Andre Beco, João Souto, Joao Afonso, Hugo Nogueira, Sergio Pita

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Abstract
Endoscopic spine surgeries (ESS) have emerged as a minimally invasive technique for treating various spinal conditions, offering significant benefits such as pain relief and functional restoration with minimal patient trauma, resulting in shorter recovery times and lower post-operative morbidity. ESS is mainly indicated for disc herniations and lumbar stenosis, serving as a valuable option for patients with persistent symptoms unresponsive to conservative treatment.

In this retrospective study, we analyzed data from 38 patients who underwent ESS at a tertiary care hospital from 2022 to end of 2023. Five patients were excluded due to loss to follow-up. Of the 33 patients included, 32 (96.9%) were diagnosed with disc herniation and 6 (18.1%) with lumbar stenosis. The most common procedures were isolated discectomy in 25 patients (75.7%) followed by discectomy with decompression in 7 patients (21.2%), and isolated decompression in 1 patient (3%). The average patient age was 47.44 years, with equal gender distribution. The average post-operative hospital stay was 1.14 days, and the mean follow-up was 4.6 months. Thirteen patients (39.3%) required post-operative physiotherapy.

Of the patients, 25 (75.8%) were asymptomatic post-surgery, while 3 (9%) had residual lower back pain, 4 (12%) maintained sciatica, and 2 (6%) had pre-operative pain levels. Two patients (6%) experienced sciatica recurrence and are under investigation. The complication rate was low, with only one case (3%) of acute surgical site infection.

ESS demonstrated efficacy and safety in treating disc herniation and lumbar stenosis, providing rapid recovery and high patient satisfaction, while also reducing healthcare costs.

11:54 - 11:57

2656 Outcomes Of Posterior Endoscopic Cervical Discectomy: A Prospective Study Of 25 Patients

Muhammad Farrukh Bashir, **Atif Ali**

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Abstract
Outcomes of Posterior Endoscopic Cervical Discectomy: A Prospective Study of 25 Patients

Background: posterior endoscopic Cervical discectomy (PECD) is a minimally invasive technique for treating cervical disc herniation, with less tissue trauma and quicker recovery than conventional open surgery.
Objective: This prospective study evaluated the clinical outcomes of CED in 25 patients with single-level cervical disc herniation.
Methodology: Twenty-five patients (18 male, 7 female; mean age 42.3 ± 8.7 years) underwent PECD between January 2023 and December 2024. Inclusion criteria included radicular pain unresponsive to conservative treatment for at least 6 weeks and disc herniation confirmed by MRI. Outcome measures—Visual Analog Scale (VAS) for pain, Neck Disability Index (NDI), and complications—were assessed preoperatively and at 3 months postoperatively.
Results: The mean preoperative VAS score decreased from 7.8 ± 1.2 to 2.1 ± 0.9 ($p < 0.01$), and the NDI improved from 58.4 ± 12.3 to 18.6 ± 7.4 ($p < 0.01$) at 3 months post-surgery. Operative time averaged 62.5 ± 10.4 minutes, with a mean blood loss of 15.3 ± 5.2 mL. No major complications (e.g., infection, nerve injury) were reported. 24 (96%) reported satisfaction with the procedure.
Conclusion: In this cohort, PECD provided significant pain relief and functional improvement with no major complications. These findings suggest PECD is a safe and effective treatment for cervical disc herniation, though larger studies with longer follow-ups are needed to confirm long-term efficacy.

Keywords: Posterior endoscopic Cervical discectomy, minimally invasive surgery, cervical disc herniation, radicular pain, Visual Analog Scale, Neck Disability Index, clinical outcomes

11:51 - 11:54

2661 Comparison Of MISS Microscopic Discectomy, Endoscopic, And Open Discectomy For Lumbar Disc Herniation

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Abstract
This study compares the safety and efficacy of three discectomy techniques—MISS microscopic discectomy, endoscopic discectomy, and open discectomy—in treating lumbar disc herniation.

Objective: To evaluate and compare the clinical outcomes, safety profiles, and complications of these three surgical approaches in patients with symptomatic lumbar disc herniation who did not respond to conservative treatment.

Methods: A retrospective analysis was conducted at Ghurki Trust Teaching Hospital from 2016 to 2023, involving 1716 patients diagnosed with lumbar disc herniation. Patients were randomly assigned to one of three groups: Group A (MISS microscopic discectomy), Group B (endoscopic discectomy), and Group C (open discectomy). The study assessed safety based on complication rates, including dural injury, recurrent disc herniation, and wound infection, alongside the overall effectiveness of the procedures.

Results: Of the total patients, 236 underwent MISS microscopic discectomy, 71 had endoscopic discectomy, and 1409 underwent open discectomy. The most common disc herniation levels were L4-L5 and L5-S1. The incidence of complications was lowest in the MISS microscopic and endoscopic groups, particularly with no wound infections reported in the endoscopic group. Recurrent disc herniation occurred in 0.84% of the microscopic discectomy cases, 1.41% in endoscopic discectomy, and 0.64% in open discectomy.

Conclusion: Both MISS microscopic and endoscopic discectomy techniques offer comparable safety with lower complication rates compared to open discectomy. These minimally invasive approaches provide effective, safer alternatives, with open discectomy remaining a cost-effective option with a low recurrence rate.

Keywords: Endoscopic discectomy, lumbar disc herniation, open discectomy, MISS (Minimally Invasive Spine Surgery).

11:35 - 11:38

2371 Impact Of Titanium Mesh Cage Slotting Width On Anterior Cervical Corpectomy And Fusion For Compression Cervical Spondylosis With MRI T2WI Hyperintensity: A One-Year Follow-Up Study

Hao Liu, Rongguo Yu, **Kang Kang Huang**, Chen Ding

West China Hospital, Sichuan University, Chengdu, China

Abstract
Background Anterior cervical corpectomy and fusion (ACCF) has been used for patients with intensity on T2-weighted imaging high signal (T2WIHS). The titanium mesh cage (TMC) utilized in this procedure is essential in stabilizing the spine; however, the optimal slotting width of the TMC remains unclear.
Objective To investigate the impact of TMC slotting width on the clinical and radiological outcomes of ACCF in patients with spinal cord compression type cervical spondylosis with intensity on T2WIHS (CST2WIHS).
Methods 69 patients underwent single-level ACCF between December 2010 and October 2021 were analyzed. They were divided into narrower (< 2 mm) and wider (> 2 mm) groups based on the slotting width of the TMC. The clinical and radiological outcomes included cervical lordosis (CL), functional spinal unit (FSU) height, transverse decompression range (TDR), spinal canal area (SCA), TMC alignment, subsidence and fusion rates were evaluated.
Results Patients in both groups exhibited significant postoperative improvement in NDI and JOA scores. Radiologically, patients in the wider slotting group exhibited better decompression, evidenced by a larger TDR and smaller postoperative SCA than the narrow group. Regarding CL, FSU height, TMC alignment, subsidence, or fusion rates, the groups did not differ significantly. Although statistically non-significant, patients in the wider group exhibited a trend towards improvement in spinal cord signal intensity than those in the narrower group.
Conclusion The study demonstrated that a wider TMC slotting width offers superior decompression and may improve postoperative spinal cord signal; it does not compromise spinal stability or fusion outcomes.

11:22 - 11:25

2095 Spondylolysis Repair And Low-Grade Spondylolisthesis Reduction Using Novel Personalized 3d-Printed Implants

Marchel Vetrile, Alexander Kuleshov, Anton Nazarenko, Vitalii Zaharin, Vladislav Sharov, Serghey Makarov, Igor Lisyansky, Nikolay Aganesov

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Abstract
Objective: To present results of surgical treatment of spondylosis and low-grade spondylolisthesis using personalized 3D-printed titanium implants.
Materials and Methods. 36 pediatric patients with symptomatic L5 spondylosis, including 29 with Grade I spondylolisthesis, underwent surgical treatment. Mean age - 15.4 years. Most of the patients were professional athletes. Based on CT the personalized implant was designed. The titanium implants were manufactured using 3D-printing technology. During the surgery standard pedicle screws were inserted. Then personalized implant were installed on L5 lamina and screws. After tightening the nuts pars integrity were restored. If there was anterior displacement of the L5 vertebra body, the implant was designed in such way to reduce slippage. The supraspinatus ligament were preserved in all cases.
Results. The mean follow-up time was 12.8 months. In all cases, stable fixation of L5 pars and reduction of L5 was achieved. Before surgery, the Pediatric Quality of Life (PedsQL) measure results were 73.1 ± 9.4; 6 months F-Up - 89.6 ± 6.4. Back pain, as measured by the Visual Analog Scale (VAS), before surgery was 6.3 ± 2.7; 3 months after surgery - 3.3 ± 0.9; and 6 months postop. - 2.6 ± 0.4. Functional X-rays demonstrated maintaining the range of motion at the L5-S1. All patients recovered their level of physical activity, including sports.
Conclusion The original personalized 3D-printed implants can be effectively used for surgical inderect spondylolysis repairs and low-grade spondylolisthesis reduction, even in cases with pronounced dysplastic changes.

Friday, 5 September

Spine 7
11:09 - 11:12

97 Novel Radiographic Parameter For Predicting Distal Junctional Kyphosis In Adolescent Idiopathic Scoliosis: The Lumbar Apex – Femoral Angle

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Abstract
Introduction: Postoperative distal junctional kyphosis (DJK) following posterior fusion surgery in adolescent idiopathic scoliosis (AIS) patients can lead to complications such as back pain, spinal sagittal imbalance, and the need for additional surgery. While several preoperative risk factors have been studied, the prediction of DJK remains challenging. Considering that a more posterior position of the lumbar apex relative to the hip joint may influence DJK development, we introduce the lumbar apex-femoral (LAF) angle as a novel radiographic measurement to assess the anteroposterior relationship between lumbar spine and hip joint, investigating its predictive value for DJK development.
Methods: In this retrospective study of 87 Lenke type 1 and 2 AIS patients who underwent posterior spinal fusion with minimum 2-year follow-up, we measured sagittal parameters including LAF angle (angle between the line connecting the lumbar apex to the midpoint between femoral heads and a vertical line). Statistical comparisons were performed between patients who developed DJK and those who did not.
Results: Among the 87 patients included in the study, 12 cases developed DJK. Multivariate analysis revealed that LAF angle was an independent predictive factor for DJK ($p < 0.01$). ROC curve for LAF angle as a predictor for DJK was established with an area under the curve of 0.84. The optimal LAF angle cut-off value was determined to be 1.0 $^{\circ}$.
Conclusion: LAF angle represents a novel, useful predictor for postoperative DJK in AIS patients. This parameter may help identify high-risk patients preoperatively, potentially guiding surgical strategy modification to prevent DJK development.

11:16 - 11:19

614 Treatment Of Lumbar Disc Herniation With Multiple Annulus Fibrosus Suture Methods Under Uni-Portal Non-Coaxial Spinal Endoscopic Surgery(UNS)/Arthroscopic-Assisted Uni-Portal Spinal Surgery (AUSS)

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Abstract
Objective:This study is designed to delve into the distinct advantages of UNS/AUSS technique.
Method:A retrospective analysis was done on 366 patients (aged 20-50) with lumbar disc herniation and radiculopathy (single segment) in our hospital from 2021 to 2024. They were divided into two groups by semi-randomized controlled method based on inpatient ID numbers: 199 in group A had annulus fibrosus suture under AUSS, and 167 in group B didn't. 359 patients were observed in 12-month follow-up(7 dropped out). VAS scores for back and leg pain, ODI, and recurrence rate were evaluated. Subgroup analysis in group A was also conducted by using single-needle, multi-needle and special suture methods to observe VAS scores, ODI, and recurrence rate.
Results:All surgeries were successful. VAS scores for lumbar and leg pain in both groups improved significantly ($P<0.05$). At 1, 3, 6 months and 1 year after surgeries, differences in VAS scores for lower limb pain and ODI scores were significant ($P<0.05$). During follow-up, 8 in Group B relapsed(5% recurrence rate), 2 in Group A relapsed(1% recurrence rate). In subgroup analysis, all relapsed cases were single-needle suture ones; no recurrence in multi-needle suture cases. Further research showed multi-needle suture evenly distributed annulus fibrosus' surface tension mechanically, reducing re-rupture risk.
Conclusion:Compared with traditional surgeries, UNS/AUSS has a wider view and free operating space, enabling new annulus fibrosus suture methods, handling complex disc herniations, improving post-surgery annulus fibrosus retraction, potentially reducing reoperation rates from annulus fibrosus rupture and nucleus pulposus prolapse recurrence.
Key words:AUSS/UNS;Annulus Fibrosus Suture;Lumbar Disc Herniation

11:51 - 11:54

866 Surgical Correction Of Cervical Hyper-Lordotic Defomity In Patient With Emery-Dreifuss Muscular Dysptophy

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Abstract
Background: Emery-Dreifuss muscular dystrophy (EDMD) is characterized by progressive myopathy and spinal contractures, leading to cervical hyper-lordotic deformity. Traditional correction involves osteotomies, posing risks of neurovascular complications.
Research Question: Can cervical hyper-lordotic deformity in EDMD be effectively corrected through anteroposterior cervical fusion without the need for osteotomy, thereby reducing complication risks?
Design & Method: A 24-year-old male with EDMD and severe cervical hyper-lordosis underwent surgery. The procedure included C4 to T1 discectomy, posterior fixation with lateral mass screws, partial muscle resection, and anterior plate fixation without cage insertion. The patient's preoperative condition involved a 97° cervical lordosis and limited neck motion.
Results: Post-surgery, cervical lordosis reduced to 17°, neck motion increased to 50°, and sagittal balance improved. The patient achieved horizontal gaze without compensatory postures. The Neck Disability Index improved from 16 to 6. Rehabilitation began three days post-surgery, with the patient quickly resuming daily activities. The correction angle achieved was 80° without osteotomy or neurovascular complications.
Discussion: This case illustrates a successful cervical hyper-lordosis correction in EDMD using a non-osteotomy approach. The technique offers a safer alternative, especially for less experienced surgeons, by minimizing neurological and vertebral artery risks. This suggests the potential for broader application of non-osteotomy methods in spinal deformities associated with EDMD.

11:22 - 11:25

874 EVALUATION OF SAGITTAL SPINOPELVIC ALIGNMENT IN A MULTIETHNIC MALAYSIAN POPULATION USING THE EOS LOW DOSE RADIATION IMAGING SYSTEM

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2. ALTY Orthopaedic Hospital, Kuala Lumpur, Malaysia

Abstract

Introduction:
Restoring and maintaining spinal sagittal balance is an important part in the treatment of adult spinal deformity. The suggested value for correction has been mentioned in literatures. However, there are studies showing variations according to age, ethnicity, and gender. This is the first study done to evaluate the sagittal spinopelvic parameters in multiethnic Malaysian population.

Aims and Objective:
To evaluate the sagittal spinopelvic parameters in asymptomatic multiethnic Malaysian population.

Study Design and Method:
This cross-sectional study was conducted from January 2024 to December 2024. A total of 176 asymptomatic subjects who are more than 18 years old and underwent lateral whole-spine radiograph using the EOS imaging system were studied. Their spinopelvic parameters were recorded and analyzed using the SterEOS software by consultant radiologists.

Results:
The mean PI for all subjects is 51.11±11.5 which is comparative with European, Japanese, Chinese and Indian. The mean PI-LL value of all samples was -2.33±11.46. According to ethnicity, the LL, PI and PT was higher in Indian population followed by Malay and lowest Chinese ethnics. The PI is 54.24±12.22, 51.80±11.21 and 48.99±10.95 respectively and the PT is 15.49±7.95, 14.11±8.91 and 13.29±9.52 respectively. The L1-S1 lordosis is 55.66±12.64, 53.68±11.40 and 52.11±9.82.

Conclusion:
We observed variations in PI, PT, and LL among Indian, Chinese, and Malay ethnic groups, with the highest values in Indians, followed by Malays, and the lowest in Chinese. Despite these differences, the formula PI = LL±10 degrees remain applicable for correction of sagittal balance in the Malaysian population.

Keywords: Sagittal Balance, Multiethnic

11:25 - 11:28

958 Predicting Adult Spinal Deformity Progression Using Non-Radiographic Items

Kozaburo Mizutani, Tetsuya Kobayashi, Issei Seno, Hiroki Okayasu, Hiroshi Ito

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Abstract
Introduction: Five-item non-radiographic ASD-MJ, ① back muscle strength ≥ 90% body weight (BW), ② abdominal muscle strength ≥ 50%BW, ③ quadriceps femoris strength ≥ 50%BW, ④ knee extension ≥ 0°, ⑤ lumbar extension ≥ 12cm, has been introduced and validated to have significant correlation with the severity of adult spinal deformity (ASD) (Mizutani et al., 2024). This study aims to investigate the relationship between ASD-MJ and longitudinal radiographic and clinical changes in ASD.

Methods: Female volunteers who attended our cohort study were subjected to full spine radiographic measurements, physical measurements (ASD-MJ), and clinical evaluations (SF36-PCS). Longitudinal changes and group comparisons were performed statistically.

Results: The study included 123 women with a mean baseline age of 64.8±5.3 years and an average observation period of 6.5±3.0 years. Longitudinal X-ray changes (initial → final) were; TK 29.2±12.7° → 28.6±14.0° (no significant difference), LL 40.7±14.9° → 37.2±16.7° ($p=0.0004$), PT 24.2±10.4° → 25.8±11.8° ($p=0.0139$), SVA 12.7±34.6mm → 32.4±38.9mm ($p<0.0001$). Comparison of ASD-MJ groups (0-1 items n=38, 2-3 items n=55, 4-5 items n=30) showed significant differences in longitudinal LL change (0-1 items -8.2±9.4 vs 4-5 items 1.7±10.6, $p=0.0001$) and final SF36-PCS (0-1 items 29.6±7.1 vs 4-5 items 36.2±6.0, $p<0.0001$).

Conclusion: Previous studies indicated kyphotic changes as a key feature of ASD, and current study found a relationship between the number of ASD-MJ items and long-term kyphosis progression. The importance of non-radiographic evaluation in ASD management should be emphasized.

11:32 - 11:35

1108 Signaling Analysis Under Proteomics In Patients With Cervical Ossification Of The Posterior Longitudinal Ligament

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Abstract
Background: Ossification of the posterior longitudinal ligament (OPLL) is a pathological process that results in ectopic bone formation around the spine, leading to serious neurological complications. Protein expression profiles are known to play a crucial role in this pathological condition, although the factors regulating its initiation and progression remain unclear.
Methods: Ligamentous samples were obtained from 16 patients who underwent decompressive surgery for cervical OPLL. Tissue sections were used for in vitro culture to obtain primary cells through migration-based methods. Using iTRAQ-based proteomic analysis, factors associated with OPLL were identified and compared with control ligamentous samples harvested from patients with cervical spondylosis without ossification. Ligamentous sections were also examined by immunohistochemistry to assess the expression of abundant proteins.
Results and Conclusion: Proteomic analysis identified 4,353 factors, 37 of which were expressed at higher levels in patients with continuous-type OPLL compared with control patients, and 18 of which were expressed in those with segmental-type OPLL. Signaling analysis revealed that collagen-containing extracellular matrix, S100/calcium-binding protein, and epithelial-to-mesenchymal transition were significant in continuous-type OPLL, whereas congenital disorders of glycosylation were significant in segmental-type OPLL. Immunohistochemical examination demonstrated that proteins such as proteoglycan 4, S100 protein, and lysyl oxidase homolog 3, which regulate these signaling pathways, were positive in premature chondrocytes at the ossification front. These findings suggest that alterations in protein profiles and signaling pathways contribute to the diversity of ossified formations among individuals during OPLL pathogenesis.
Key word: OPLL, cervical spine, proteomics

11:35 - 11:38

1115 Application Of Trabecular Cage And HADSC In Surgical Treatment Of Degenerative-Dystrophic Diseases Of The Lumbar Spine

Zhangir Ipmagambetov

National Scientific Centre of Traumatology and Orthopaedics named after Academician Batpenov N.D., ?. Astana,, ?????????

Abstract

Introduction

Lumbar interbody fusion (LIF) is the gold standard for degenerative spinal diseases, with intervertebral cages enhancing mechanical stability and fusion potential. Optimizing cage selection based on specific cases is crucial.

Aim

To evaluate the effectiveness of a developed trabecular cage combined with human adipose-derived stem cells (hADSCs) for treating degenerative spinal stenosis.

Materials and methods

Twenty patients with degenerative stenosis underwent surgery using the developed trabecular cage and hADSCs from 2024 to 2025. Pain intensity was assessed using the Visual Analog Scale (VAS), and functional impairment was measured by the Oswestry Disability Index (ODI). Imaging included X-rays, functional tests, and MRI to assess disc degeneration (Pfirrmann classification), endplate changes (Modic classification), and spinal canal condition. Lipoaspiration was performed 3–4 days before surgery, and hADSCs were cultured in a biotechnology center. During surgery, the cage was filled with autologous material infused with hADSCs in hydrogel. The trabecular structure promoted bone ingrowth, reduced segmental load, and prevented migration.

Results

All patients experienced pain relief and early mobilization (1–3 days). No surgical complications occurred. Imaging confirmed implant stability, restored disc height, and no significant bone resorption at 6–8 months.

Conclusion

The trabecular cage combined with hADSCs improved clinical outcomes, restored intervertebral height, and facilitated bone regeneration in the early postoperative period.

11:38 - 11:41

1514 The Effect Of Symptom Duration On The Outcomes Of Lumbar Discectomy For Radicular Pain Secondary To Lumbar Disc Herniation: A Systematic Review And Meta-Analysis

Wen Xian Low[1], Arjan Sehmbi[1], Farzad Shabani[2], Nitin Shetty[3], Saeed Mohammad[4], Hasan Raza Mohammad[1]

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3. Whittington Health NHS Trust, London, United Kingdom
4. Northern Care Alliance NHS Foundation Trust, London, United Kingdom

Abstract

Background: Low back pain, often due to lumbar disc herniation, affects up to 80% of individuals. The impact of preoperative radicular pain duration on discectomy outcomes remains unclear. This meta-analysis evaluates whether symptom duration influences surgical outcomes to determine the optimal timing for intervention.

Methods: Medline, Embase, and Central databases were searched for studies comparing discectomy outcomes based on radicular pain duration. Surgical timing cutoffs were set at ≤3 months (very early), ≤6 months (early), and >12 months (delayed). Mean differences (MD) and standardized mean differences (SMD) were calculated for continuous outcomes, while risk ratios (RR) were used for dichotomous outcomes.

Results: 29 studies with a total of 23,550 patients were included in this study. No statistically significant differences were found in the postoperative improvement in back pain, Oswestry Disability Index (ODI), or one-year reoperation rate for all cutoffs (three months, six months, and 12 months). Sensitivity analyses found significant improvement in leg pain for symptom durations of <12 months compared to >12 months (SMD=0.26, 95%CI: 0.11; 0.41, p=0.02), which equates to a score of 1 point on the Visual Analogue Scale (VAS).

Conclusions: There is low-quality evidence suggesting that discectomy within 12 months of symptom onset can improve postoperative leg pain. There was no significant effect of symptom duration on postoperative back pain, disability, quality of life, and reoperation risk. As a precaution, we recommend surgeons to operate within 12 months of symptom onset after a trial of nonoperative management has failed.

11:48 - 11:51

1668 Validation Of The Visual Body Image Classification In Adolescent Idiopathic Scoliosis: A Retrospective Study

Jung Sub Lee, Tae Sik Goh, Yoon Jae Cho

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Abstract
Study Design: Prospective study.

Purpose: To explore the feasibility of using visual body images for scoliosis diagnosis to reduce radiation exposure from radiographic assessments.

Overview of Literature: Traditionally, scoliosis is diagnosed through radiography, which categorizes its various types but involves radiation risks. No previous studies have classified scoliosis using non-radiographic visual body images.

Methods: This study included 136 patients with newly diagnosed Adolescent Idiopathic Scoliosis and 124 healthy controls from Pusan National University Hospital, Busan, Korea, between January 1, 2019, and December 31, 2022. We developed a method to classify scoliosis based on visual body images, assessing the sensitivity, specificity, and reproducibility (intra- and interobserver) using kappa statistics.

Results: Both groups were analyzed using photographs of their backs along with X-ray radiographs. The classification achieved high sensitivity and specificity with varying accuracy based on image type. Intraobserver and interobserver reliabilities were good (κ=0.855) and moderate (κ=0.751), respectively.

Conclusions: The visual body image classification method demonstrated high sensitivity (98.1%), specificity (98.9%), and overall accuracy (98.4%) with excellent reproducibility. This suggests that visual body imaging could be a viable initial screening tool for scoliosis, potentially reducing unnecessary radiation exposure in children. Further research could refine these methods and validate them in larger, more diverse populations.

11:54 - 11:57

1705 Retrospective Study Of Radiographic Alignment In Cervical Myelopathy

Geonhoo Park, Henrik Constatin Baecker

Te Whatu Ora, Auckland City Hospital, Auckland, New Zealand

Abstract
Introduction:
Cervical myelopathy is common and can lead to significant morbidities and can be caused by various pathologies. Understanding radiological differences between them would be crucial for optimising diagnosis and treatment.
Aims & Objectives:
This study aims to outline the prevalence of cervical spine pathologies contributing to myelopathy and the correlation between cervical alignment and the causative pathology.
Study design/Methods:
A retrospective analysis was conducted on patients referred to our spine centre from 2020–2024. The preoperative and postoperative imaging, patient demographics (age, ethnicity, BMI), and clinical presentation were reviewed. Pathologies identified were spondylosis, disc protrusion and OPLL, and their alignments were assessed using erect X-ray and MRI using the C2–C7 Cobb angle on both modalities.
Results:
42 patients were included in the study after exclusion. 85.7% of them had frank myelopathic signs and 38% of them had associated radicular symptoms. Spondylosis accounted for 59.5%, disc protrusion 23.8% and OPLL 16.6% of patients. The average C2 to C7 Cobb angle on erect X-ray for spondylosis was 4.3±14.1°, for disc it was 9.4±13.9°, and for OPLL 8.8±9.8°. On MRI these were 6.0±12.2°, 5.3±8.0° and 4.5±9.5° respectively. There was no statistically significant difference between the groups and no correlation between pathology and cobb angle was found (C2-7 cobb angle on erect X-ray r=-0.653; p=0.526, cobb angle on MRI r=0.069, p=0.934).
Conclusion:
No significant correlation was found between pathology and Cobb angle on X-ray or MRI. Erect X-ray remains crucial for accurate cervical alignment and optimal treatment planning.

11:00 - 11:03

1848 TITLE :
Factors Delaying Presentation, Management Trends And Barriers To Treatment Of Spine Deformities: A Retrospective Analysis Of Spine Deformity Service In A Subset Of Population In A Developing Country

VYOM Sharma, **Nidhin Jose**

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Abstract

STUDY BACKGROUND
Delayed presentation of Spine deformities can be an important determinant of outcome. It was aimed to analyse epidemiological trends and factors affecting treatment of spine deformities in a developing country.
STUDY DESIGN
Retrospective study of clinical, radiological data
METHODS
All consecutive patients evaluated between Jul 2019 to Jun 2023;clinical data and radiological records were reviewed.
RESULTS
One hundred and fourteen patients,60(52.6%) females,54(47.4%) males with mean age 12.08+5.34 years were included.Sixtyfive(57.1%)had early onset scoliosis(EOS),46(40.3%) were in 10-15 years group.Sixtyfour(56.1%) had congenital kyphoscoliosis; hemivertebra in 39(60.9%),being the commonest anomaly and Idiopathic type in 28(24.5%),10(8.7%) patients each in syndromic and neuromuscular group. The commonest curve location was thoracic spine in 50(43.8%);thoracolumbar region in 41(35.9%). Twelve(10.5%) in the congenital group had an associated congenital anomaly;intraspinal anomalies were observed in 20(17.5%).The mean duration of deformity was 65.4+ 63.4 months, majority of them (94.7%),symptomatic for >12 months and the perception of deformity progression was significant in >12 months group(p=0.013). Sixty seven(58.7%) were evaluated earlier, somewhere else; mean time of first consult since onset was13.2+12.6 months, significantly higher(18.2+14.2 months) in the EOS group and 37(57.5%)were advised no further followup by primary physician.Sixty(52.6%) patients were advised surgery,out of which 17(14.9%) underwent surgery;23(20.1%) did not undergo surgery,due to logistics or as conservative trial.
CONCLUSIONS
Congenital scoliosis is the commonest deformity in our study subset. The delay in presentation to deformity clinic is multifactorial that requires awareness among general population, primary care physicians and timely referral to the spine deformity clinic.

11:03 - 11:06

1572 Does The Reduction Of Two Screws Affect Fusion Speed During Anterior Cervical Discectomy And Fusion? A Prospective Randomized Controlled Trial

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Abstract

Introduction

The insertion process of the new two-screw internal fixation is simpler than that of four-screw internal fixation for anterior cervical discectomy and fusion (ACDF). However, it is unclear whether there is a difference in fusion rate.

Aims & Objectives

This prospective randomized controlled trial aimed to compare the time to osseous fusion and clinical outcomes between four-screw and two-screw internal fixation in single-level ACDF.

Study Design & Methods

In this rospective randomized controlled trial, eighty patients with single-level cervical spondylosis (October 2021–April 2023) were randomized to four-screw (n=40) or two-screw (n=40) fixation. The primary endpoint was the fusion rate six months postoperatively. Secondary outcomes included the prevalence of complications and patient-reported outcome measures (PROMs), including the Japanese Orthopaedic Association score, Neck Disability Index, and visual analog scale scores for arm and neck pain.

Results

Seventy-seven patients completed follow-up. Baseline demographics and clinical characteristics were comparable. At 6 months, the two-screw group exhibited a significantly higher fusion rate (69.2% vs. 42.1%, p=0.022), though no differences were observed at 3 months or 12 months . Overall, PROMs significantly improved after surgery in both groups and did not differ significantly between groups at any follow-up time point. The prevalence of complications was not significantly different between groups.

Conclusions

Two-screw internal fixation can achieve osseous fusion faster than four-screw internal fixation in ACDF. Two-screw internal fixation seems to achieve the same PROMs and safety as four-screw internal fixation.

Keywords: anterior cervical surgery; internal fixation; fusion

11:06 - 11:09

2703 Is Surgery Justified For AIS Patients With Cobb Angles Under 40 Degrees? An Analysis Of Clinical And Radiologic Outcomes

Mohammadreza Chehrassan, Farshad Nikouei, Mohammadreza Shakeri, **Seyed Matin Sadat Kiaei**, Ehsan Ghavidel, Ebrahim Ameri Mahabadi, Hasan Ghandhari, Saba Falakeh

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Abstract
Background: Surgical treatment for adolescent idiopathic scoliosis (AIS) is typically reserved for curves >45°. However, some patients with moderate curves (35°–45°) may benefit from surgery. This study evaluates clinical and radiologic outcomes of posterior spinal fusion (PSF) in AIS patients with Cobb angles <45° at a minimum one-year follow-up.

Methods: A retrospective review of 40 AIS patients (mean age 15.58 ± 2.76 years, 82.5% female) who underwent PSF between 2021 and 2024 was conducted. Radiographic parameters, including Cobb angle, thoracic kyphosis, lumbar lordosis, and pelvic alignment, were analyzed preoperatively and at least one year postoperatively. Clinical outcomes were assessed using the Scoliosis Research Society-30 (SRS-30) questionnaire.

Results: The mean thoracic Cobb angle decreased from 31.35° ± 9.84 preoperatively to 10.96° ± 7.07 at follow-up ($p<0.001$), and the mean thoracolumbar Cobb angle decreased from 34.03° ± 9.08 to 11.60° ± 7.48 ($p<0.001$). No statistically significant changes were observed in thoracic kyphosis, lumbar lordosis, coronal balance, pelvic obliquity, or shoulder height. The total SRS-30 score improved significantly postoperatively ($p<0.001$), with notable improvements in self-image ($p=0.003$) and treatment satisfaction ($p<0.001$), while other domains showed no significant changes.

Conclusion: PSF effectively corrects moderate AIS curves and leads to significant improvements in overall patient-reported outcomes at a minimum one-year follow-up. These findings support the consideration of surgery in select AIS patients with Cobb angles <45°, highlighting the need for individualized treatment strategies.

Keywords: Adolescent Idiopathic Scoliosis, Posterior Spinal Fusion, Cobb Angle, Radiologic Outcomes, Patient-Reported Outcomes.

11:19 - 11:22

844 Moderate Sagittal Plane Deformity Patients Have Similar Radiographic And Functional Outcomes With Either Anterior Or Posterior Surgery

Anton Denisov[1], Nikita Zaborovsky[2], Dimitriy Kondrashov[3]

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2. Vreden Orthopeadic Institute, Saint-Petersburg, Russia
3. Providence St. Joseph Medical Center, Burbank, United States

Abstract
Purpose: This study aimed to compare the functional and radiographic outcomes of two surgical approaches for adult spinal deformity (ASD): anterior lumbar interbody fusion with anterior column realignment (ALIF-ACR) and a posterior approach using Smith–Peterson osteotomy with transforaminal lumbar interbody fusion and pedicle screw fixation (TLIF-Schwab2).

Methods: A retrospective cohort study was conducted at a tertiary orthopedic specialty hospital, including 61 ASD patients treated between 2019 and 2020. Patients were divided into two groups: ALIF-ACR (n=29) and TLIF-Schwab2 (n=32). Functional and spinopelvic radiographic parameters were assessed at 3, 6, and 12 months postoperatively. Perioperative outcomes, complications, and revision rates were also analyzed.

Results: The ALIF-ACR group demonstrated favorable perioperative outcomes, including significantly lower blood loss, shorter hospital stay, and reduced operative time. Radiographic and functional outcomes were comparable between groups at the 1-year follow-up, but the ALIF-ACR group achieved a greater correction in lumbar lordosis. Complication profiles varied, with ALIF-ACR patients experiencing primarily hardware-related complications, while the TLIF-Schwab2 group had a higher incidence of dural tears, wound dehiscence, and proximal junctional kyphosis. Revision rates were similar between groups.

Conclusion: Both ALIF-ACR and TLIF-Schwab2 provided comparable functional and radiographic improvements in ASD patients with moderate sagittal deformity. However, differences in complication profiles suggest that patient selection is crucial. Further research is needed to refine indications for each approach to optimize surgical outcomes and minimize complications in ASD management.

11:41 - 11:44

1330 Anterior Cervical Discectomy And Fusion With Self-Locking Standalone Cage For The Treatment Of Cervical Degenerative Disc Disease In The Over-80s

Jian Zhou

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Abstract
Background: The need for Anterior cervical discectomy and fusion (ACDF) for Cervical degenerative disc disease (CDDD) will probably grow dramatically in the geriatric population. However, ACDF with self-locking standalone cages in patients over 80 has not yet been investigated. This study aimed to assess the clinical and radiographic results in the over-80s treated by ACDF with self-locking standalone cages.
Methods: Between January 2018 and December 2019, patients with CDDD treated with ACDF were retrospectively stratified into two groups: the old group (≧80) and the young group (<65). The data collected included the demographics, preoperative comorbidities, intraoperative parameters, length of hospital stay, complications, clinical scores, and radiological parameters.
Results: A total of 123 patients were included in the study. The mean follow-up duration was 28.3±2.4 months. The hospital stay was 5.3±0.6 days and 3.8±0.4 days, respectively, for the old and young group. Postoperative complication rate was found higher in the old group than that in the young group without significance. All the patient-reported outcome parameters had significant improvement at the final follow-up. The two groups had no significant differences in the excellent and reasonable rates, fusion rate, and the C2–C7 Cobb angle.
Conclusions: Although a slightly higher incidence of complications, poorer recovery rate, and more extended hospital stay were found without significant differences, satisfactory clinical and radiographic results were obtained in the old patients. The self-locking standalone cage is a safe and viable option for the over-80s who suffer from CDDD.

Friday, 5 September

Trauma 5
11:22 - 11:25

531 State Of Ambulatory Trauma In A District General Hospital- An Observational Study Of Patient Pathway From Emergency Department To Surgery.

Ghulam Dastagir Faisal Mohammed[1,2], **Anthony Ojo**[3], Chidimma Ndulue[3], Siva Santhanam[1], Siwan Jones[1], Rachel Dhir[1], Benedict Sweetman[1], Khong Lee[1], Satya Pydah[1]

1. Ysbyty Gwynedd, Bangor, United Kingdom
2. Welsh Deanery T&O, Cardiff, United Kingdom
3. Ysbyty Glan Clwyd Hospital, Rhyl, United Kingdom

Abstract
Ambulatory trauma patients often experience delays in the Emergency Department, followed by delays to get operated, leading to poor experience. British Orthopaedic Association (BOA) guidelines are few and difficult to comply with in a District General Hospital (DGH) setting. We analysed the experience of our ambulatory trauma patients at two points of their journey- ED Visit and Awaiting surgery, while analysing drivers of delay in our pathway.

All adult patients referred to Trauma & Orthopaedic team from October to December 2023, listed for an operation and not admitted were included. The LIST platform was used to record data that included timings at ED, clinician seeing, communication while at home, timing of decision to operate, operation by specialist and operated on trauma list or planned elective list. Statistical analysis was done to study the relationship of above factors to patient satisfaction recorded by a survey.

Average delay to surgery was 5 days. Patient satisfaction was low with increased time to see clinician in ED ($p=0.02$), wait for surgery >5 days ($p=0.005$), cancellations ($p=0.02$) . Delay on planned elective list (6 days) was higher than trauma list (4 days, $p=0.03$). There was a delay of 7 days if decision to operate not made at trauma meeting (4 days, $p=0.018$). If operated by specialist (4.8 days) delays were higher compared to others (3 days, $p=0.02$)

Improving communication, reducing cancellations, and streamlining referral pathways may help alleviate patient dissatisfaction and improve overall care

11:51 - 11:54

631 Determinants Of Union And Complications In Femoral Shaft Fractures Treated With Retrograde Intramedullary SIGN Nails In Sierra Leone

Marcella Ryan-Coker[1], Hilary Kubai[2], Richmond Dixon-Cole[3], Martha Forde[4], Juan Carlos Perdomo[5], **Kebba Marenah**[6]

1. University of Nairobi, Nairobi, Kenya
2. Nakuru Provincial General Hospital, Nakuru, Kenya
3. Emergency Surgical Centre, Freetown, Sierra Leone
4. Korle Bu Teaching Hospital, Accra, Ghana
5. Hospital Clinic, Barcelona, Spain
6. Edward Francis Small Teaching Hospital, Banjul, Gambia, The

Abstract

Introduction

Intramedullary nailing is the gold standard treatment for femoral shaft fractures. In resource-limited settings, the Surgical Implant Generation Network (SIGN) intramedullary nail-a device crafted for environments without advanced surgical equipment-is of significant interest. This study aims to evaluate bone union rates and complication incidences for femoral shaft fractures following treatment with retrograde SIGN nails and identifying factors that influence these outcomes.

Methods

A retrospective patient data analysis from the SIGN online database focused on cases of femoral shaft fractures in Sierra Leone treated with retrograde SIGN nails from January 2013 to September 2023. Primary outcomes were bone union, assessed radiographically by MRUST scores and clinically with Squat and Smile Test. Secondary outcomes included complication rates, timing and duration of surgery, follow-up duration, and complication-related factors.

Results

A cohort of 219 patients, predominantly male (70.8%), with an average age of 35.7 years, was analyzed. Bone union was observed in 90.1% of patients, with an overall complication rate of 10.8%. Delayed surgery (median 6 days, 0-21 days) was associated with poorer outcomes, while closed fractures ($p=0.021$), closed reduction ($p=0.024$), primary wound closure ($p=0.027$) and shorter time from injury to surgery ($p<0.001$) were significantly associated with improved outcomes.

Conclusion

This research contributes to understanding the effectiveness and challenges of using retrograde intramedullary SIGN nails for femoral shaft fractures in resource-limited settings. It emphasizes the importance of timely and appropriate surgical intervention in enhancing bone union and reducing complications in femoral shaft fractures. Further studies addressing follow-up challenges are recommended to refine treatment approaches.

11:25 - 11:28

997 INOVATIVE TECHNIQUE AND CT SCAN GUIDED BONE MARROW INJECTION IN POSTOPERATIVE CASES OF FRACTURE FIXATION WITH NONUNION IN LONG BONES

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2. CIO, VMMC and Safdarjung Hospital, Delhi, India

Abstract
Introduction: Fracture non-union is a relatively common problem faced by orthopedic surgeons after operative fracture fixation. Percutaneous Bone marrow injection given at non-union site has successfully shown union with significant low morbidity as compared to traditional open bone grafting. The purpose of our study was to use CT scan guidance to accurately locate the exact site of non-union, deliver an effective shot of autologous bone marrow injection and assess union time. Method: Under strict aseptic precautions bone marrow aspiration was done from posterior iliac crest using core biopsy needle in a heparinized syringe. Under CT guidance, multiple punctures were done over sclerosed non united fracture ends followed by percutaneous injection of bone marrow to stimulate union. All patients were followed up with serial radiographs and clinically with appropriate scoring systems. Results: 30 patients were selected for hospital based interventional based study with average time after operative fracture fixation of 9.5 months. After bone marrow injection, Follow-up period ranged from 10 to 12 months with average union time of 6.5 months and complete union in 27 out of 30 patients (90%). Failure was reported in six patients (10%).Conclusion: CT SCAN guided bone marrow injection is effective method for treatment of delayed or non-union fractures with low complications. It has significant low rates of morbidity as compared to autologous bone grafting procedures and it reduces patient’s expenditure, hospital stay and gives good functional results. It can be tried for non-union before going directly to gold standard re-fixation and autologous bone graft.

11:06 - 11:09

1117 Trends In Recovery Of Function Following Ankle Fractures In The Elderly: A Retrospective Cohort Study

Matthew Yip[1], Anand Pillai[2], Sze Ern Tan[2], Michael Yam[2]

1. Lee Kong Chian School of Medicine, Singapore, Singapore
2. Tan Tock Seng Hospital, Singapore, Singapore

Abstract

Introduction

Geriatric ankle fractures are increasing in incidence, often leading to significant disability. This retrospective cohort study aims to identify trends in functional recovery in an inpatient cohort of elderly patients following ankle fractures.

Methods

This single-centre study included 36 patients aged ≥60 admitted to a tertiary hospital in Singapore, of whom 2 demised during the study period. Remaining patients were categorised into surgical and non-surgical groups. Outcome variables – Barthel Index (BI) and community ambulation – were recorded at discharge, and 6- and 12-months post-discharge. Premorbid functional status was retrospectively recorded. Independent variables include age, sex, race, premorbid frailty (Clinical Frailty Scale, CFS), and fracture classification (AO/OTA).

Results

Demographic factors of surgical and non-surgical patients were not significantly different. Surgical patients had significantly lower BI score at 12-months (85.9) compared to premorbid of 93.6 ($P<0.001$), but no significant change in rate of community ambulation ($P>0.05$). Non-surgical patients had non-significant differences in both functional outcomes post-injury compared to premorbid ($P>0.05$).

Among the independent variables, younger age and lower premorbid CFS were associated with greater functional recovery. Specifically, surgical patients aged ≤69 had significantly better recovery of community ambulation at 12 months (75%) compared to those aged ≥70 (0%). CFS ≤3 was similarly identified to correlate with better recovery of function.

Conclusion

One-year post-injury, community ambulation is likely retained in both surgical and non-surgical patients, although restoration of BI score is less likely in surgical patients. Younger age ≤69 and lower CFS ≤3 are important risk factors for recovery.

11:35 - 11:38

1242 OLDER AGE IS RISK FACTOR FOR COMPLICATİON IN THE IMPLANT REMOVAL

AFTER TRAUMA SURGERY , RETROSPECTIVE ANALYSIS

Ali Batuhan Akbulut, Ismail Duran, Serhat Akçaalan, Ceyhun Çaglar, Mahmut Ugurlu, Metin Dogan, Mehmet Ismail Safa Kapicioglu

bilkent city hospital, Ankara, Türkiye

Abstract
INTRODUCTION: Although implant dislocation surgeries are the most frequently performed operations in orthopedics, the indications and risk factors have not been fully clarified. In this study,
the authors hypothesized that demographic and clinical data have an impact on the development of
complications after implant dislocation.
MATERIALS and METHODS: The study was conducted at level 1 trauma center between January 2020
and January 2022 and was limited to patients with implant dislocation in patients who underwent
fixation with metallic implants after trauma. Age, gender, fracture classification, time to implant
dislocation, fracture localization in the upper and lower extremities, implants used for fixation, the
reason for implant dislocation and complications during or after implant dislocation were recorded.
RESULT: The study was performed on 399 patients with a mean age of 34.3±17.69 years, 289 males
and 110 females. The most common cause of implant dislocation was pain/irritation with 52.9%,
followed by infection 15.5%, planned/routine removal 13.3% and nonunion/malunion 13.3%.
The complication rate was 6.3% and the most common complication was screw failure or fracture
with 52%.The mean age of the group with complications was 41.04±15.6 years and the mean age of
the group without complications was 33.84±17.7 years and there was a statistically significant
difference between the two groups (p=0.043).
CONCLUSIONS: The overall complication rate in this study was 6.3%, suggesting that implant
dislocation surgeries are relatively safe surgical procedures. Future multicenter prospective longer-
term follow-ups may clarify the possible risk factors more clearly.
Keywords:İmplant removal,older age

11:38 - 11:41

1719 Reducing Pre Operative Delay In Neck Of Femur Fracture (NOFF) Patients: A Near Decade Of Learning

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Kettering General Hospital, Kettering, United Kingdom

Abstract

Introduction

Neck of femur fractures are associated with an increase in mortality of 1.8% for every hour of delay beyond 36 hours. We aimed to quantify and reduce operative delays in these patients, defined as operations performed beyond 36 hours, in accordance with the National Hip Fracture Database Best Practice Guidance.

Methods

3700 NOFF patients from years 2017-2024 were identified from a prospectively maintained database and those delayed were stratified into 3 main groups. Comparative analysis, seasonal variation and winter pressures were accounted for.

Results

Patients delayed were stratified into; anticoagulation delay, medical delay and logistical delay. Patients delayed between the years were within one standard deviation of each other. There was an improvement in patients delayed due to anticoagulation reasons from 26.8% in 2017 to 0.57% in 2024 with linear improvement throughout the years. There are improvements in patients delayed due to medical reasons including electrolyte imbalance and anaemia from 28.2% in 2017 to 14.9% with linear improvement throughout the years. Logistical causes of delay were not improved between years 2017 and 2024 with sinusoidal variation throughout the years.

Conclusion

Our 8-year data analysis identified key reasons for operative delay, with a statistically significant reduction in pre-operative delay over the years due to coagulopathy and medical optimization. This improvement resulted from stronger pre-operative optimization protocols and increased collaboration with orthogeriatric and anaesthetic teams. However, logistical delays did not improve, and our analysis showed a causal correlation with the increased trauma burden and peri-implant fractures requiring prompt intervention.

11:41 - 11:44

1783 Clinicoradiological Outcome Of Autologous Free Fibular Strut Grafting In Complex Non-Union Of Long Bones

Ravindra Mohan

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Abstract
The surgical treatment of non-union of long bones are challenging especially when bones are osteoporotic or there is a large bone gap due to repeated surgeries and implant failures. Plate with intramedullary fibula provides a stable construct as fibula acts as a second implant with better anchorage and high pull-out strength. The aim of our study is to present our experience of treating complex non-union of long bones using compression plating (LCPs/DCPs) in combination with autologous non-vascularized fibular graft (ANVFG). Material and Methods: 10 cases of complex non-union of long bones (tibia, femur, humerus) treated with debridement, decortication followed by intramedullary fibular strut grafting and rigid osteosynthesis by LCPs/DCPs were included in this study. DASH score and LEFS score was used for upper limb and lower limb functional assessment. Results: All patients had clinicoradiological union with a mean time of 11.4 months. Pre-operative mean DASH and LEFS score was 45.9±2.1 and 20.6±2.03 At the last follow-up, mean DASH and LEFS score was 19.8±1.1 and 60.6±2.6. Conclusion: Compression plating with ANVFG is a viable option for treating complex non-union of long bones. Intramedullary fibula acting as a second implant provides mechanical stability and support biological healing with its osteogenic property at the non-union site.

11:48 - 11:51

1845 Post-Operative Delirium In Neck Of Femur Fractures: A Call For Enhanced Detection And Management

Jay Panchal, Sneha Achikkananath Chirakkara, Amar Sidhu, Sharan Sambhwani, Faizal Rayan, Srinivasan Shyamsundar

Kettering General Hospital, Kettering, United Kingdom

Abstract

Introduction
Neck of femur (NOF) fractures account for over 60,000 cases in England and are often elderly, with multiple co-morbidities. Post-operative delirium is a frequent complication seen in these patients. With an increasingly frail population, the rates of NOF fractures and associated delirium are projected to increase. Current guidelines state that professionals should actively assess for cognitive impairment upon initial presentation.

We aimed to evaluate the compliance of utilising the 4AT tool in post-operative NOF patients, and correlation between post-operative delirium with length of stay and mortality.

Methods
We extracted data retrospectively using the National Hip Fracture database over a three-month period between October and December 2024 in a District General Hospital. Acute post-operative delirium was defined as a 4AT score of 4 or more. Inclusion criteria included patients with a post-operative 4AT score of 4 or more. Further data was extracted regarding length of stay and 30-day mortality.

Results
Compliance of using the 4AT tool was 96.9%. Amongst 97 patients, 15.5% had a post-operative 4AT score of 4 or more. The average length of stay for these patients was 28.3 days, compared to non-delirious patients having an average length of stay of 19.4 days. For delirious patients, the 30-day mortality was 20%, compared to 12.9% for non-delirious patients.

Conclusion
Overall, delirium was associated with a significantly greater length of stay and higher 30-day mortality, highlighting the importance of identification, and offers a pertinent opportunity for future improvement in the care of acute post-operative delirium.

Keywords
Delirium, NOF fractures

11:54 - 11:57

2193 Same Day Cancellation Of Elective Trauma And Orthopaedic Procedures In A Major Trauma Centre In The UK

Ahmed Hafez[1], Princewill Okoye[1], Pir Rashdi[1], Rayyan Ali[2], Alex Trompeter[1], Ross Coomber[1], **Hussain Zaidi**[1]

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2. Imperial College London, London, United Kingdom

Abstract
Background

Same-day cancellations of elective procedures is a major burden on the healthcare system in the United Kingdom. It causes significant waste of healthcare resources and disruptions to patients' life. The national same-day cancellations rate was approximately 13.9% with orthopaedics among the highest surgical specialities. Aim of the study is to report the number and reasons of elective orthopaedic cancellations in a major trauma centre (MTC) and to illustrate its financial ramifications.

Patients and Methods

The tableau reporting information system was searched for all reported cancelled trauma and orthopaedic procedures in our MTC theatres and day-surgery unit in the main site from 1st January 2020 till 14th May 2024. We have estimated the hours for each procedure and the approximated cost according to the trust standard tariffs.

Results

There were 140 same-day cancellations with the highest in 2021 (n=52); this continued to fall steadily over the next few years. More patient-related (n=73) than hospital-related (n=67) cancellations were recorded. Nearly one third of the hospital-related cancellations were due to prioritisation of emergency procedures. An average of 129 waiting days for rescheduling with less than 10% rescheduled in one weeks' time. A total estimated loss of £177,302 for wasted 196 hours during the study period with an average of £1266.

Conclusion

Elective orthopaedics in MTC are prone for same-day cancellation with financial implications. Non-attendance and lack of pre-operative optimisation were the main reasons of patient-related cancellations. An improvement of the waiting time for rescheduling of these cancellations is recommended.

11:19 - 11:22

3136 Inter-Gender Differences Of Fall Risk And Fall-Related Injuries In Elderly Patients After Hydration Status Assessment And Correction

Karolina Janikowska

Medical University, Lublin, Poland

Abstract
Background
Falls as significant cause of morbidity and mortality in elderly population remain an ever-increasing problem. Previous studies showed that dehydration caused by impaired beverage intake can deteriorate the mental function and impact on postural and dynamic body stability.
Methods
Postural stability parameters were assessed with use of Plus Tecnobody Stability Platform) in group of 60 healthy female and male subject over 65 years old divided into two groups – euhydrated and dehydrated (1:1 ratio) – based on hydration status, assessed with bioelectrical impedance analysis (BIA) performer on SFB7 Impedimed device. Patients with inadequate hydration status underwent hydration status correction with following second assessment. The incidence of any fall and fracture associated with fracture were performer during the subsequent 6 months after initial body examination.
Results
Postural stability measurements for dehydrated subjects before and after correction of hydration status and beverage intake reveled statistically significant changes in the standard deviation of antero-posterior ($p<0.01$) and latero-lateral ($p<0.001$) COP position, the velocities of COP along the AP ($p<0.01$) and LL ($p<0.05$) axes. The highest negative correlation and its changes were observed in females with initial dehydration status in comparison to data collected after hydration status correction. The incidence of falls in groups of initially dehydrated and euhydrated subjects revealed statistically significant difference in number of falls and fall –related injuries as e.g. distal radius fracture ($p<0.05$) with higher incidence in females.
Conclusions:.
Hydration status seems to be significat modifaible factor involved in fall phenomenon causing fall related – injuries,especially in females.

11:09 - 11:12

419 Ilizarov Method For Traumatic Limb Fractures At Risk Of Amputation: A Retrospective Analysis Of Healing And Functional Outcomes

Mofakhkharul Bari

Bari-Ilizarov Orthopaedic Centre, Dhaka, Bangladesh

Abstract

Introduction:
The Ilizarov technique is an effective approach for managing traumatic fractures, particularly in cases with a high risk of limb amputation. Utilizing external fixation and gradual bone distraction, it promotes bone healing, restores function, and maintains limb viability. This method is especially valuable for complex fractures, severe soft tissue damage, and vascular compromise, where traditional surgical interventions may be inadequate.

Materials & Methods:
A retrospective analysis was conducted on 238 patients (179 men, 59 women; mean age 30.1 years, range 18–55) who underwent the Ilizarov technique for limb-threatening fractures between 2000 and 2023. Outcomes were assessed based on limb salvage success, bone healing, functional recovery, and post-operative complications.

Results:
Limb salvage was achieved in all cases, with significant improvements in bone healing, mobility, and pain management. No amputations were required. Radiological assessments confirmed successful bone consolidation and alignment restoration. Functional recovery was notable, with most patients resuming daily activities.

Conclusion:
The Ilizarov technique is a reliable and effective method for limb preservation in severe traumatic fractures. Early intervention, precise surgical execution, and comprehensive post-operative care are crucial for optimizing outcomes. This approach enhances bone regeneration, restores function, and significantly improves the quality of life in patients with complex fractures.

Keywords: Ilizarov technique, limb salvage, external fixation, bone distraction, traumatic fractures, orthopedic surgery, fracture healing, limb preservation, amputation prevention, functional recovery.

11:16 - 11:19

457 A Study Of Functional Outcomes Of Gap Non-Union Of Diaphyseal Humeral Fractures Treated With Fibular Strut Graft , Iliac Crest Graft And Locking Compression Plate : A Single Surgeon Single Centre Experience

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1. DR. D Y PATIL MEDICAL COLLEGE , NERUL, Navi Mumbai, India
2. Mata Gujri Memorial Medical College & Lions Seva Kendra hospital, Kishanganj, India

Abstract
Introduction: The humeral shaft gap non-union treatment surgically after unsuccessful fixation is difficult. In this study, the functional outcomes of successful fixation of gap non-unions of diaphyseal humeral fractures using a locking compression plate (LCP), fibular strut graft, and iliac bone graft were evaluated.
Materials & Methods : After taking ethical approval, we studied 10 patients with gap non-unions of diaphyseal humeral fractures with successful surgical fixation treated with open reduction and internal fixation using LCP with fibular strut graft and iliac cancellous bone graft. The study duration was from January 2022-January 2024. Results : The mean time of non-union was taken as 9 months. Disabilities of the arm, shoulder, and hand (DASH) scores improved significantly from the pre-operative average of 59.2 ± 7.3 to a mean final score of 24.6 ± 4.8 reflecting improvement with no complications.
Conclusion: This study showed that LCP with fibular strut graft and iliac bone grafts is a good alternative for diaphyseal humerus gap non-union along with statistically significant improvement in functional outcomes, with union seen in all cases. This construct augments biomechanical stability and good biological healing in these gap non-unions.

11:32 - 11:35

1068 Antibiofilm Chemical Pretreatment Of Samples And Low-Grade Infection In Osteosynthesis: Preliminary Report From A Multicenter Italian Study

Fabiana Giarritiello[1], Stefano Giannotti[2], Elisa Troiano[2], Fabrizio Fascione[3], Carlo Luca Romanò[4], **Lorenzo Drago**[5,6]

1. University of Molise, Campobasso, Italy
2. University of Siena, Siena, Italy
3. University G., Chieti, Italy
4. Romano Institute, Tirana, Albania
5. University of Milan, Milano, Italy
6. UOC Laboratory of Clinical Medicine with Specialized Areas, IRCCS MultiMedica, Milano, Italy

Abstract

Background

Fracture-Related Infections (FRI) pose significant challenges in post-osteosynthesis management, with an estimated incidence ranging from 1% to 25% in open fractures. Accurate diagnosis remains difficult due to the lack of validated reference standards and the influence of biofilm formation, which can lead to both false-negative and false-positive culture results.

Purpose

The primary objective of this study is to prospectively compare the performance of the MicroDTTect device—a fully closed commercial system with chemical antibiofilm pre-treatment—against traditional tissue culture techniques in patients undergoing osteosynthesis hardware removal with negative preoperative laboratory tests and no signs of acute inflammation.

Methods

This two-center prospective observational study, initiated in 2023, included 31 adult patients undergoing osteosynthesis hardware removal. For each patient, samples were analyzed using both traditional tissue cultures and MicroDTTect examination. The results were compared in terms of sensitivity, specificity, and accuracy to evaluate the diagnostic performance of the two methodologies.

Results

Antibiofilm pre-treatment with MicroDTTect demonstrated higher specificity (100% vs. 77.27%), sensitivity (77.78% vs. 66.67%), negative predictive value (91.67% vs. 85.00%), and overall accuracy (93.55% vs. 74.19%) compared to tissue cultures. Additionally, the likelihood of obtaining false-negative results was lower with MicroDTTect (Negative Likelihood Ratio: 0.22) than with tissue cultures (0.43).

Conclusion

The preliminary findings of this two-center study indicate that MicroDTTect's antibiofilm pre-treatment provides greater accuracy in identifying pathogens in low-grade FRI. If confirmed in larger patient cohorts, these results highlight the need for incorporating antibiofilm techniques and closed-system diagnostic tools in patients undergoing osteosynthesis material removal.

11:00 - 11:03

414 Mine-Blast And Bullet Injuries Of The Limbs: Method Of Surgical Treatment Of Osteomyelitis

Maksim Nurmukhametov, Dmitry Voronkin, Artemy Shapilov, Alexander Ivashkin, Rumi Rakhmatullo, Denis Ten, Alan Khushtov

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Abstract
Aim of the study: to optimize the specialized medical care of patients with complicated mine-blast and bullet injuries of the limbs.
Materials and methods: the proposed method consists of the following stages: secondary surgical debridement of wound, osteonecrectomy, vacuum assisted closure (VAC) therapy (from 3 to 5 cycles lasting 3-4 days), resection of the affected part of the bone, application of a hybrid Ilizarov device and installation of the cement spacer. After 4-6 weeks, a puncture of the operated area with culture is performed to determine the presence of bacterial flora. If the culture results are negative, the spacer is removed and the bone graft implantation is performed.
To date, 56 patients with mine-blast and bullet Injuries of the limbs have been treated using the proposed method. Treatment results were assessed using a visual analogue scale (VAS) for pain.
Results: upon admission to the hospital, the median VAS was 70 mm. 2 weeks after the spacer installation the median VAS decreased to 35 mm. At the stage of bone graft implantation, the median VAS was 20 mm. At the early stage of treatment 11 patients experienced delayed wound healing; in 7 patients, suppuration of the postoperative wound after the spacer installation was observed. By the stage of bone grafting, the development of local infection process was remarked in 3 patients.
Conclusion: the proposed method of treatment of patients with complicated mine-blast injuries of the limbs allowed to optimize the recovery process and accelerate the return to professional and daily activities.

Friday, 5 September

Trauma 6
11:25 - 11:28

186 Paediatric Type 1 Open Tibia Fractures: Are Antibiotics Alone Sufficient?

Rory Hammond[1], Nikhil Manoj[2], Abhinav Singh[3], Fergal Monsell[4], Yael Gelfer[5,6]

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2. City- St Georges University of London, London, United, London, United Kingdom
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6. St Georges Hospital, London, United, London, United Kingdom

Abstract
Purpose: The conventional management of the soft tissue component of an open fracture involves emergent debridement. There is, however, evidence that questions this approach in the management of Gustilo-Anderson Type I open fractures in paediatric patients. This systematic review aims to explore differences in infection rates between non-operative management with antibiotics and operative debridement in children with Type I open lower limb tibial fractures that do not require surgical fixation.

Method: A systematic review following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines was conducted. Patients under 18 years old with Gustilo-Anderson Type I open tibia fractures treated with either antibiotics alone or operative debridement were included. Polytrauma patients and those requiring operative fracture stabilisation were excluded. Study bias was assessed with the ROBINS-I tool.

Results: Ten retrospective studies of 123 patients with GA Type I open tibial fractures were included. Non-operative management in the emergency department with antibiotics was used in 41 patients, with two infections reported (4.87%). Operative debridement was performed in 82 patients, with two infections reported (2.33%).

Conclusion: The optimum management for paediatric GA Type I open tibia fractures remains unclear. There may be selected cases, with true low energy injury without operative fixation requirements, which can be managed in emergency department. However, there is no sufficient high-quality evidence to advocate for regular deviation from current guidelines in open tibia fracture in paediatric patients. Decision-making must take into account the energy absorbed, as this factor can be misleading within the current classification system.

11:03 - 11:06

203 Radiological And Functional Outcome Following Distal Radius Fixation With Volar Locking Plate

Ahmed Shams Nasir, Mahmoud Mersal, Kashif Memon

Queen Elizabeth Hospital, University Hospital Birmingham, Birmingham, United Kingdom

Abstract
Introduction

The primary aim of our study was to assess the patient satisfaction following the volar locking plate fixation and the articular surface collapse at six weeks follow up.

Methods

Measurements of Radial Height (RH), Radial Inclination (RI) and Volar Tilt (VT) were made Pre-, Intra-, and Post-operatively at 6 weeks. The Articular surface to Distal screw distance (AD) was measured Intra-operatively and at 6 weeks. Patient satisfaction was also assessed at their last follow up.

Results

A total of 149 patients were included in this study. Pre-operative mean RH, RI and VT was 8.06mm, 14.51°, -9.80 mm whereas the post-operative was 12.06mm, 22.15° and 5.94mm respectively. The AD intra- and post-operatively measured 5.73mm and 4.60mm. Of these patients 94 (63.1%) were satisfied, 52 (34.9%) were not satisfied with the overall outcome at 6 weeks follow up and 3 (2.0%) patients did not give any response in terms of satisfaction. Mean AD in patients satisfied with the overall outcome was 4.84mm and 4.50mm in those that were not satisfied.

Conclusion

Our study shows that there was a significant improvement in the distal radius radiological parameters following fixation with volar locking plate at 6 weeks follow up ($P < 0.05$). There was also a significant collapse of the articular surface at 6 weeks as shown by the decrease in AD ($P < 0.05$). The patients who were satisfied with the outcome had a higher average AD than those who who were not satisfied.

11:00 - 11:03

177 Outcomes Of Distal Radius Fractures In Multiple Trauma Patients; Operative V.S. Conservative

Masahiro Miyashita, Kenichiro Uchida, Tetsuro Nishimura, Yasumitsu Mizobata

Osaka Metropolitan University, Osaka, Japan

Abstract

Introduction

Multiple traumas often result in distal radius fractures, and surgical indications are determined based on the patient's general condition and background. In case with brain injury or other severe injuries, the fractures sometimes treated conservatively, and these treatments may cause the risk of complications such as malunion and contracture.

Methods

We retrospectively investigated the final correction angle of ulnar variance (UV) and volar tilt (VT) after reduction, and complications at the final observation for 25 hands of 24 patients with distal radius fractures caused by high-energy multiple transported to our center from April 2019 to March 2024. We compared the outcome in surgical group (O) and plaster cast immobilization group (C). The average age of the patients was 46 years (19-90). The average ISS was 17.4, the average follow-up period was 5.5 months, and 18 cases were treated surgically. Seven cases were treated conservatively, corrected and immobilized with a plaster cast.

Results

There were no tendon ruptures, non-union, or infections. Implant removal was performed in 6 cases. The VT correction angle was significantly better in the O group than in the C group ($p=0.029$), but there was no significant difference in the UV correction angle between the two groups.

Conclusion

Conservative treatment of distal radius fractures due to high-energy trauma resulted in a poorer VT correction angle than surgical treatment, but there were few complications and the outcome was acceptable.

11:35 - 11:38

1082 Outcomes Of Managing Distal Radius Fractures With Spanning Bridge Plating :Analysis Of A Retrospective Case Series

Mohamed Ahmed Mohamed Haridy

Ibri regional hospital, Ibri, Oman

Abstract
Background: Distal radius fractures are among the most prevalent orthopaedic injuries. Spanning bridge plating (SBP) has emerged as a dependable technique for managing unstable and comminuted fractures. Despite its growing adoption, complications and long-term outcomes associated with SBP remain underreported.
Methods: This retrospective study included adult patients with comminuted intra-articular distal radius fractures treated with SBP between 2020 and 2024. Patients were selected based on fractures unsuitable for volar plating or due to significant dorsal comminution. Open fractures and incomplete follow-up cases were excluded. Preoperative radiographic assessments were done. Follow-up assessments included clinical and radiological evaluations .
Results: 11 adult patients treated for distal radius fractures with SBP were included . mean age was 51 years.average duration of follow-up was 16 months, and mean plate retention period was 105 days. Radiological outcomes demonstrated significant improvements in radial height, tilt, and ulnar variance . Functional assessment using the DASH score revealed that 36.4% of patients had a score of 0, while the remaining patients scored between 18 and 30. Range of movement measurements indicated significant decreases in extension, flexion, pronation, and supination.
Conclusions: This study confirms the efficacy of SBP for distal radius fractures with significant dorsal comminution, particularly when traditional ORIF is unsuitable. this technique demonstrated significant improvements in distal radius radiological measurements. Functional outcomes, assessed via DASH and QuickDASH scores, indicated substantial patient recovery. It also addressed different complications , highlighting the benefits of careful surgical technique . These findings suggest that SBP provides reliable and effective treatment with good outcomes.

11:19 - 11:22

1432 Locking Plate Or Intramedullary Nailing? A Systematic Review And Meta-Analysis Of Complex Proximal Humerus Fractures

Fatema Husain Madan

Salmaniya Medical Complex, Manama, Bahrain

Abstract
Background:
The optimal fixation method for 3- and 4-part proximal humerus fractures remains debated, with locking plates and intramedullary nailing (IMN) being the most commonly used options. This systematic review and meta-analysis will compare their clinical and radiological outcomes.

Methods:
A systematic search will be conducted in PubMed, Scopus, Embase, and the Cochrane Library for studies comparing locking plates and IMN in 3- and 4-part proximal humerus fractures. Primary outcomes will include functional scores (Constant-Murley, DASH), complication rates (nonunion, avascular necrosis, hardware failure), and radiological results. A meta-analysis will be performed using a random-effects model.

Results:
The analysis will evaluate whether locking plates provide superior anatomical reduction but with higher complication rates, including implant failure and displacement. IMN will be assessed for its minimally invasive approach and associated risks, such as malalignment and shoulder impingement. Differences in union rates, pain levels, and reoperation rates will be compared to determine the optimal fixation method.

Conclusion:
Both techniques have advantages and limitations. This study will provide updated evidence to guide surgical decision-making. Further high-quality trials may be needed to establish definitive treatment recommendations.

11:32 - 11:35

1633 Proximal Humerus Fractures Treated With A Modified Palm Tree Technique

Ludovico Lucenti, Salvatore Mannino, Francesco Lumetta, Claudio Cobisi, Alfio Brunno, Antonio Petillo, Antonella Conti, Lawrence Camarda

Department of Precision Medicine in Medical, Surgical and Critical Care (Me.Pre.C.C.), University of Palermo, Palermo, Italy

Abstract
This study aimed to evaluate clinical and radiographic results of proximal humerus fractures treated by a modified ‘’Palm tree technique’’.
Constant, UCLA, and Dash Score were performed to evaluate clinical outcomes.
A total of 22 patients had an adequate follow-up of 6 - 24 months (average 8,5 months). The average age was 57 years old. (range 17 - 75 y.o.). Twelve women and 10 men were treated.
Proximal humeral fractures were classified by Neer’s classification. Four patients (18.2%) reported a two fragments fracture, one patient (4.5%) reported a proximal meta-epiphyseal fracture, and the remaining 17 patients (77.3%) reported a 3 or 4 fragments fracture. Among these 17, more specifically 1 (5.9%) reported also a posterior head dislocation, and another one (5.9%) reported a past humeral shaft fracture healed conservatively. Three patients (13.6%) reported K wire migration, and one patient (4,5%) developed a secondary displacement of fragments after K wire removal (8 weeks after surgery); the percentage of success without complications was 81.8%. In terms of clinical outcomes, considering the scores, it was reported that the constant score ranged from 13/100 to 100/100 with a mean of 81.2/100, UCLA Score ranged from 0.9/35 to 35/35 with a mean of 28.1/35, Dash Score ranged from 0/100 to 66.7/100 with a mean of 15.8. The modified Palm tree technique guarantees good results regarding fracture stability, shoulder ROM recovery, and returns to life, taking advantage of a mini-invasive procedure.

11:09 - 11:12

1671 Functional Results And Complications Of Minimally Invasive Plate Osteosynthesis With Helical Plates In Diaphyseal Humeral Fractures With Proximal Extension

Taís Bertran-Rabat, Amaia Endemaño-Lucio, Eudald Romero-Pijoan, Miquel Videla-Ces

Consorci Hospitalari Universitari Moisès Broggi, Sant Joan Despí, Spain

Abstract
Introduction:
The surgical treatment of diaphyseal humeral fractures has evolved towards minimally invasive techniques, like intramedullary nailing and extramedullary osteosynthesis with plates using minimally invasive plate osteosynthesis (MIPO). These techniques preserve soft tissues, promote faster functional recovery and reduce complications such as infection, bone necrosis and neurovascular injuries, while avoiding exposure of the fracture and the evacuation of the fracture hematoma. Diaphyseal fractures with proximal extension increase the surgical risks of intramedullary synthesis, however, helical plates distribute forces more evenly, reducing the risk of fixation failure.

Objective:
To evaluate functional outcomes and complications within the first postoperative year in patients with diaphyseal humeral fractures treated with helical plates via MIPO. Secondary objectives included assessing fluoroscopy time and intraoperative complications.

Methods:
A retrospective observational study was conducted on 72 patients treated with helical plates using MIPO surgery between 04/2012 and 06/2024 at the Consorci Hospitalari Universitari Moisès Broggi. Exclusion criteria were death, advanced dementia and loss of follow-up. Functional outcomes were measured using the Quick-Dash and Constant scales; complications and fluoroscopy time were obtained from surgical reports.

Results:
The mean Quick-Dash score during the first postoperative year was 14.5 (range: 11-55). The mean Constant score was 88, with no patient experiencing disability in daily activities. One patient required a surgical reintervention due to osteosynthesis failure.
The mean fluoroscopy time was 30.01s (5s-72s).

Conclusion:
Osteosynthesis with helical plates vis MIPO is safe and effective for diaphyseal humeral fractures, especially those with proximal extension, providing good clinical and functional outcomes.

11:22 - 11:25

2773 "Postpartum Onset Of Low Back Pain Following Epidural Anesthesia"

Mohamed Sadok Chtai, Ali Abdennadher, Hamad Ratib, Aymen Hannafi, Romdhan Denguezli

sahloul orthopedic surgery department, Sousse, Tunisie

Abstract

Introduction

Low back pain is one of the most common complaints during pregnancy and postpartum. Some studies suggest that epidural analgesia during labor may contribute to postpartum lumbar pain. This study aims to assess the correlation between epidural analgesia and postpartum low back pain.

Methods

A prospective study was conducted over one year (January–December 2016) on 189 women who received epidural analgesia (APD) during childbirth. A control group of 100 women who did not receive APD was included. Women with pre-existing low back pain were excluded.

Results

The mean age of the APD group was 28.9 years, while the control group had a mean age of 30.1 years. In the APD group, 56% underwent cesarean section. In contrast, 88% of the control group had a vaginal delivery without anesthesia, and 12% had a cesarean under general anesthesia. Postpartum low back pain was reported in 14.8% of the APD group versus 9% in the control group, a statistically significant difference. Additionally, 24.5% of women who experienced prolonged labor and received APD reported postpartum low back pain.

Discussion

The role of APD in postpartum low back pain remains controversial. Previous studies have reported similar findings, with a higher incidence of pain among women who underwent prolonged labor with APD.

Conclusion

Recent research suggests that epidural analgesia does not significantly increase the risk of postpartum low back pain. Further studies are needed to confirm these findings.

11:54 - 11:57

2993 Preventing Impending Compartment Syndrome In Intra-Articular Proximal Tibia Fractures

Gaurav Sanjay, Bhupendra K S Sanjay

Sanjay Orthopaedic Spine and Maternity Centre, Dehradun, India

Abstract
Introduction: Intra-articular proximal tibia fractures are caused by high energy mechanism and they may be associated with many complications. Review of literature revealed the incidence of compartment syndrome from one-fourth to one-third of complex intra-articular proximal tibia fractures. Compartment syndrome could be caused by pressure within leg from bleeding and oedema, or from outside pressure like a cast, or from both. Acute compartment syndrome develops rapidly over hours or days. Materials and methods: Authors are presenting a study of 25 cases of intra-articular proximal tibia fractures with impending compartment syndrome. The study was performed from April 2011 to December 2020. A percutaneous negative suction drain was put in knee joint under sedation and local anesthesia in the emergency room under all aseptic conditions. Discussion: Negative suction, not only sucks the blood from joint but also from the compartment where blood is going to be collected. Ultimately the negative suction will reduce compartment pressure and will prevent damage to the surrounding muscles and nerves, which is the usual complication of compartment syndrome. It could be disastrous if impending compartment syndrome is not treated properly in time Conclusion: Percutaneous negative suction drainage technique is a safe, simple and effective technique to prevent the disastrous complication of compartment syndrome after intra-articular proximal tibia fractures.

11:38 - 11:41

3037 Factors Influencing Increased Length Of Stay Following Neck Of Femur (Hip) Fracture Surgery.

Raam Mohan Selvarajan, Ranusha Ganapathy, Aditya Verma

Whiston Hospital, Liverpool, United Kingdom

Abstract

Every year, over 70,000 people in United Kingdom are treated with hip fracture. Post-COVID-19 general health of elderly population is decompensated, management of hip fractures to achieve good quality of care has been challenging in this population. This study aimed to investigate the factors influencing extended length of stay following neck of femur fracture surgery.
Methods
Retrospective observational study at District General Hospital, United Kingdom. Using hospital electronic data, we reviewed 454 patients with neck of femur fractures treated between April 2023 to April 2024. Average acute hospital length of stay and overall trust length of stay are calculated for all patients above 60 years old treated for hip fractures. Patients' age, gender, type of hip fracture, time to surgery, Abbreviated Mental Test Score (AMTS), pre-operative mobility status, American society of anaesthesiologist (ASA) grade and post-operative complications, and discharge destination were analysed and investigated retrospectively. These were split into two groups with length of stay less than 7 days and above 7 days. The relationship between these factors and the length of stay was evaluated by logistic regression analysis.
Results
The average acute hospital length of stay is 13.87 days, and the overall length of stay is 25.62 days. Higher patient age, poor AMTS score, dependence on walking aids/support and postoperative complications were significantly higher in the more than 7-day length of stay group. Logistic

11:06 - 11:09

456 Innovative Technique Of Treating Severely Comminuted Intraarticular Fractures Using Multiple Cantilever K Wires : A Multi Centric Study.

Sachin Yashwant Kale[1], Sushant Sudhir Srivastava[2]

1. DR D Y PATIL HOSPITAL NERUL, Navi Mumbai, India
2. Mata Gujri Memorial Medical College & Lions Seva Kendra hospital, Kishanganj, India

Abstract
Introduction: Intra articular fractures are complex to begin with, accompanied by small fragments making it even more challenging to bring reduction.Multiple Cantilvered K wires can be used to reduce these small fragments. This provides more stability, where conventional methods are non viable and feasible. Materials & Methods :The aim of our study was to assess the functional outcome after using the Multiple Cantilever K Wiring Technique in severely comminuted intra articular fractures.A Prospective study was conducted in a total of 20 patients from January 2021 - January 2024. They were followed up at 1,3,6,9,18 and 24 weeks. The inclusion criterias were proven severely comminuted intra articular fractures with small displaced fragments. Patients of skeletal maturity. The exclusion criterias were patients with compound fracture.
Patients with neurovascular deficit. Clinical assessment was done by a questionnaire of daily activities filled by the patient. Range of motion was objectively measured by a goniometer by the principle investigator. Result : It was observed that 18 of the 20 patients could be mobilized early, while the other 2 had delayed mobilization due to poor pain tolerance and marked swelling over the joint. Full range of motion was achieved at a mean time of 7.2 weeks. 1 patient went into joint stiffness with restricted ROM. Conclusion : When the intra articular fracture fragments are too small and cannot be addressed by conventional methods, multiple cantilever K technique is an option. If used correctly, it can be one of the most appropriate way of fixing a fracture.

11:41 - 11:44

2073 Lead Aprons Storage And Risk Of Exposure Awareness

May Labidi, Mohamed Al Sonbaty, Jija Thomas

University Hospitals Birmingham, Birmingham, United Kingdom

Abstract
Intro: using lead aprons are an everyday practice of an orthopaedic theatre team; not much more than that is known to them. The damage caused by inappropriate storage is also an everyday practice that long term may cause harm to all orthopaedic theatre members. Aims and objectives: the aim of this research is to assess and improve awareness of lead gown storage; educating theatre members about the importance of potential consequences of undetected damage. Study design and methods: 45 orthopaedic theatre members were questioned using a simple form about the storage of lead apron. Results: most had limited awareness about that with no pre-education; there was lack of awareness in the importance of placing the aprons on the storage rack when not being used. Conclusion: Education should be encouraged for any staff being exposed to radiation prior to starting to work in orthopaedic theatres to prevent unnecessary exposure that could cause harm.

11:48 - 11:51

2794 "Risks Of Alternative Mobility: Musculoskeletal Injuries From Electric Scooters At A University Hospital In Colombia"

Corina Elena Salas, Claudia Chacón, Nicolás Quintero, Henry Pulido, Camilo Delgadillo, Jorge Luis Rojas, **Guido Fierro**

Fundación Santa Fe, Bogotá, Colombia

Abstract
Introduction:
The use of electric scooters has increased significantly in cities like Bogotá, presenting new challenges for healthcare systems due to a rise in related injuries. This study examines the incidence and characteristics of musculoskeletal injuries associated with electric scooter accidents treated at a university hospital in Bogotá between 2022 and 2023.

Methods:
A retrospective, observational, and descriptive study was conducted, including 190 patients aged 18 or older with injuries related to electric scooter use. Data were collected from electronic medical records and included demographic, clinical, and treatment variables, with a focus on fractures, sprains, dislocations, and muscle or tendon tears.

Results:
The annual incidence was 6.8 cases per 1000 orthopedic consultations in 2022 and 8.8 per 1000 in 2023, reflecting a 29% increase. The average age was 35 years, and 68% were male. Falls were the main injury mechanism (82%). Fractures occurred in 43% of cases, mainly affecting the radius (27%) and humerus (12%). Sprains were seen in 28%, most often in the wrist and ankle. Dislocations occurred in 7.9%, particularly in the acromioclavicular joint (3.7%) and shoulder (1.6%). Surgery was required in 17% of cases, primarily for radius and proximal tibia fractures.

Conclusions:
Electric scooter-related injuries are increasing in Bogotá, especially fractures requiring surgical treatment. These results highlight the need for better infrastructure, regulation, and educational efforts to reduce injury risk.

Keywords: electric scooters, musculoskeletal injuries, fractures, urban mobility, public health.

11:51 - 11:54

2818 Comprehensive Management Of Gas Gangrene Of Lower Limb In A Polytrauma Patient

Shubham Srivastava, Dr Kanupriya Tiwari

Institute of Medical Sciences, Banaras Hindu University, Varanasi, India

Abstract
Abstract
Background: Gas gangrene in polytrauma patients presents a life-threatening challenge due to rapid progression and complex management. Multiple injuries complicate diagnosis and treatment, increasing morbidity and mortality. This abstract outlines the comprehensive strategies for managing lower limb gas gangrene in polytrauma, emphasizing a multidisciplinary approach.
Diagnosis and Initial Resuscitation: Early recognition via clinical signs (severe pain, crepitus, discharge, toxicity) is vital. Prompt resuscitation involves fluid administration, hemodynamic stabilization, and electrolyte correction. Laboratory tests, muscle smears for microbiological testings and imaging (radiographs, CT) define infection extent and tissue gas.
Surgical Management: Aggressive surgical debridement of all non-viable tissue is the cornerstone. Extensive fasciotomies and repeated debridements may be necessary. Amputation might be required in severe cases for infection control. Timely surgical intervention is crucial.
Adjunctive Therapies: Broad-spectrum antibiotics (penicillin with clindamycin) are essential. Hyperbaric oxygen therapy (HBOT) can aid by increasing tissue oxygenation and inhibiting bacteria. Nutritional support and meticulous wound care are also vital for healing.

Conclusion: Successful management of gas gangrene in polytrauma demands a rapid, multidisciplinary approach encompassing early diagnosis, aggressive surgery, appropriate antibiotics, HBOT consideration, and comprehensive rehabilitation. Timely, coordinated care is paramount for improved outcomes and reduced mortality.

Friday, 5 September

Trauma 7
11:48 - 11:51

448 Masquelet Procedure As Initial Treatment Of Traumatic Bone Defects

Mariana Sousa[1], Maria Clara Correia[1], Jorge Lopes[2], Luís Vieira[2], Jorge Mendes[1], Francisco Serdoura[2]

1. ULS Tâmega e Sousa, Penafiel, Portugal
2. ULS São João, Porto, Portugal

Abstract
Introduction
Segmental bone defects resulting from traumatic injuries have high long-term morbidity and are challenging injuries. Masquelet developed a technique that the authors present.

Clinical Case
Female, 31 years old, suffered a open fracture of the tibial shaft stabilized with external fixator. At 5 days, the first stage of the masquelet procedure was performed (placement of a cement spacer in the tibial bone defect) associated with extraction of the external fixator. At 4 months the second stage was performed: extraction of the spacer, filling of the bone defect with autologous bone graft and closure of the membrane. At 5 months the patient is still undergoing rehabilitation, with favorable clinical and radiographic evolution.

Discussion
The Masquelet technique encompasses two phases: first the damaged bone is removed, the defect is filled with a cement spacer and internal/external fixation is performed. The spacer will induce a foreign body reaction culminating in the formation of a membrane. The second consists of opening the membrane, removing the spacer and filling the defect with autologous bone graft.
No consensus exists on how much time is needed between the two surgeries and no study demonstrated correlation between longer time and worse outcomes.
Repair is generally independent of the size of the defect and the advantages of this technique are multiple and compared to distraction osteogenesis the rate of complications and treatment time is is much lower.

Conclusion
The technique of delayed bone grafting after initial placement of a cement spacer provides a good alternative to a challenging problem of limb reconstruction.

11:25 - 11:28

570 Odd Presentation Of Shoulder Dislocation

Fernando Oliveira, João Marques, Francisco Rodrigues, Érica Marto, Paula Silva, José Mousinho

Unidade Local de Saúde da região de Leiria, Leiria, Portugal

Abstract
Erect shoulder dislocation fits within a very common traumatic pathology seen in the emergency room. However, this particular variation is itself uncommon, accounting for about 0.5% of shoulder dislocations. They result from high-energy traumatic events and their diagnosis is based on the usual clinical history, physical examination and radiography. The patient presents with the upper limb fixed, in abduction and in an overhead position, with exuberant pain and limited mobility.
We present the clinical case of a patient who suffered trauma after a fall with an abducted limb. The patient reports that after the fall she felt a sharp pain in her left shoulder and was unable to move it. No complaints of paresthesia or changes in limb temperature. On physical examination, the limb was abducted above the head. Good mobility of the fingers and no change in their color or temperature. It maintained grade 4 strength. Taking the case into consideration, an X-ray was performed which confirmed the inferior dislocation of the humeral head.
The reduction maneuver was performed with subsequent radiographic confirmation.
The patient was reassessed in consultation after two weeks of brachial suspension, having already started passive mobilization of the shoulder and referred for early rehabilitation.
This less common presentation of traumatic shoulder dislocations usually reduces with standard reduction maneuvers. Care after discharge is also similar, however, attention must be paid to a possible injury to the axillary nerve as in these cases the dislocation is inferior.

11:00 - 11:03

1154 Identification Of Axon Regenerative Astrocytes By Single-Cell Transcriptome Analysis

Mami Sugano, Kazu Kobayakawa, Hirokazu Saiwai, Kazuya Yokota, Kazuki Kitade, Jun Kishikawa, Arata Mashima, Yasuharu Nakashima

Kyushu university, Fukuoka, Japan

Abstract

Introduction

After spinal cord injury (SCI), the reconstruction of neural circuits occurs bypassing the injury site. Particularly in hemisection SCI (Hx), axons of the corticospinal tract regenerate from the non-injured side to the injured side, leading to functional recovery. Astrocytes around epicenter of injury form glial scar that inhibits axonal regeneration , whereas the impact of astrocytes at a distance from glial scar on the bypass formation after SCI is unclear.

Aims & Objectives

The aim of this study is to identify the position-specific characteristics of astrocyte after SCI.

Study Design & Methods

Adult mice that received lateral hemisection at cervical segment 6 were compared with the control group. Single-cell RNA-seq of the spinal cord was performed for both the Hx and control groups, comprehensively analyzing gene expression of in the clusters of astrocytes. Furthermore, spatial transcriptome analysis was also performed to investigate position-specific gene expression after SCI. Axonal regeneration of corticospinal tract was investigated using confocal microscopy after administration of BDA to the motor cortex.

Results

After Hx, astrocytes in the injured side transformed into hypertrophied glial scar-forming astrocytes, whereas astrocytes in the uninjured side did not form glial scars. In astrocytes after Hx, expressions of genes related to neurogenesis and development such as Fgf2, 10 and 13 were upregulated. Position-specific expression changes of these genes were observed after Hx. Furthermore, local overexpression of these genes enhanced axonal regeneration after Hx.

Conclusion

Specific astrocyte populations promote the regeneration of spared axons, leading to functional recovery after SCI.

11:38 - 11:41

1284 Early Return To Sports Following Sternoclavicular Joint Dislocation Treated With Mesotherapy: A Case Report

Baris Sari[1], Ulas Yavuz[2]

1. Dr. Burhan Nalbantoglu State Hospital, Nicosia, Cyprus
2. Near East University, Nicosia, Cyprus

Abstract
Introduction:
There is limited literature available on sternoclavicular joint dislocations. In this study, we aim to contribute to the existing body of knowledge by presenting our clinical experience and insights regarding these dislocations.
Sternoclavicular (joint dislocations are relatively rare, comprising approximately 3% of all shoulder girdle injuries.

Mesotherapy is a therapeutic technique involving the administration of pharmacological substances into the superficial layers of the skin to achieve localized and prolonged pharmacological effects. Our case will be the first published case related to the treatment of sternoclavicular joint dislocations in combination with mesotherapy.

Case Presentation:
In November 2024, a 38-year-old male football goalkeeper presented to our hospital with left shoulder pain following a direct impact to his left shoulder.
The physical examination and radiology images revealed an anterior dislocation of the left sternoclavicular joint. The patient underwent a closed reduction procedure and bandage immobilization. After one week, the patient was referred to the sports medicine department. In the sports medicine department, three doses of mesotherapy was applied. The patient regained full, pain-free range of motion in the affected arm and returned to sport in 3 weeks.

DISCUSSION
According to the literature the meantime returning to sports is 3.1 months. We may support the idea that mesotherapy has a significant positive effect on the return to sport.

CONCLUSION:
Adding mesotherapy to the treatment of sternoclavicular joint dislocations may fasten turn back to the sports activities from 3.1 months to 3 weeks.

11:57 - 12:00

1677 Percutaneous Osteosynthesis In Diaphyseal Humeral Fractures: Results Of Intramedullary Nailing And Helical Plates.

Taís Bertran-Rabat, Eudald Romero-Pijoan, Miquel Videla-Ces

Consorci Hospitalari Universitari Moisès Broggi, Sant Joan Despí, Spain

Abstract
Introduction:
The surgical treatment of diaphyseal humeral fractures has evolved towards minimally invasive techniques like intramedullary nailing and extramedullary osteosynthesis with plates using minimally invasive plate osteosynthesis (MIPO). These methods preserve soft tissues and avoid direct fracture exposure. Intramedullary nailing provides stable fixation with minimal incisions, but presents complications like subacromial impingement or delayed union.
Helical plates via MIPO promote a faster functional recovery, preserve periosteal blood supply and minimize complications.

Objectives:
To describe the functional outcomes and complications of intramedullary nailing and helical plates via MIPO in the treatment of diaphyseal humeral fractures. Secondary objectives included evaluating fluoroscopy time and intra- and postoperative complications.

Materials:
A retrospective observational study including 58 patients treated with helical plates via MIPO or intramedullary nailing between 01/2022 and 06/2024 at Consorci Hospitalari Universitari Moisès Broggi. Outcomes were assessed using clinical notes and surgical reports.
Exclusions: death or advanced dementia.

Results:
26 patients were treated with helical plates and 32 with nailing. All helical plate patients and 95% of nailing patients achieved good functional recovery. Postoperative radial nerve palsy occurred in 2 helical plate patients and in 1 nailing patient, all recovering completely within 4 months. One reoperation was recorded in the nailing group due to an intraoperative implant related fracture.
Mean fluoroscopy time for helical plates was 29.8s (05-72s) and 79s (27-136s) for nailing, with a statistically significant difference ($p<0.01$).

Conclusions:
Both intramedullary nailing and helical plates via MIPO provide good functional outcomes for diaphyseal humeral fractures, each with distinct complication profile.

11:03 - 11:06

1955 Revisiting The Von Gorder Approach: Triceps Facial Tongue Exposure For Intra Articular Distal Humerus Fractures

Karthik Loganathan

stanley medical college, Chennai, India

Abstract

Introduction

Distal humeral fractures especially intraarticular fractures , require anatomical restoration, stable fixation, and early mobilisation. Von Gorder's approach exposes articular surface by forming an inverted V-shaped flap.

Aims & objectives

The Aim of the study is the asses the functional outcome of intraarticular distal humerus fractures treated with internal fixation using Triceps facial tongue approach for exposure.

Study Design & Methods

This study was conducted in stanley medical college,india. A Total of 20 patients with distal humeral fracture were included in the study. Patients underwent surgery with a posterior midline incision to access the triceps flap. Using von Gorder Approach the Articular surface was exposed and reduction achieved. Fixation was done using orthogonal or parallel plating .Functional results assessed at 6 months post-surgery using MEPS Scoring.

Result

The study followed patients for 24 months, with 77% showing good to excellent outcomes, 18% having fair outcomes, and 4% having poor outcomes. Three patients developed ulnar nerve palsy but all recovered within 3 months. One patient had a superficial infection in the fifth post operative week. Infection settled with regular dressing and intravenous antibiotics. No patients experienced heterotopic ossification, stiff elbows or any other complication at the end of six months.

Conclusion

Von Gorder's approach effectively manages distal humeral fractures. While triceps fascial tongue approach is versatile but challenging for trochlea communication and anterior capitellum fractures.

Keywords

Distal humerus , von gorders approach

11:09 - 11:12

2546 Humeral Palett Fractures: Challenges In Orthopedic Surgery

Nesrine Nesrine Rehaimia

EHS BENAKNOUN, Algiers, Algeria

Abstract
Introduction
Humeral palett fractures represent a major challenge in orthopedic surgery due to their anatomical complexity and functional impact. These fractures, often associated with high-energy trauma, primarily affect young adults and require precise surgical management to restore elbow function. Despite technical advances, complications such as joint stiffness, infections, and nonunions remain common, highlighting the need for an optimized approach.
Objective
This study aims to identify the specific challenges associated with the management of humeral blade fractures, particularly in terms of diagnosis, surgical techniques, and rehabilitation, and to evaluate the functional outcomes and complications associated with different treatment methods.
And to propose recommendations for improving the management of these fractures, taking into account material constraints and treatment delays.
Materials and Methods
Inclusion criteria were adult patients treated for humeral plate fractures. Surgical techniques analyzed included orthogonal or parallel plate osteosynthesis, olecranon osteotomy, and open reduction methods.
Results and Discussion
Studies show that 70% of patients achieve good results according to the Elbow Performance Score, while 11% have unsatisfactory results, often related to postoperative complications. The most common complications include elbow stiffness and nonunion.
Delayed treatment increases the risk of complications and poor functional outcomes
Conclusion: The management of humeral plat fractures remains a complex challenge in orthopedic surgery. Although functional outcomes are generally satisfactory, further efforts are needed to improve access to care, optimize surgical techniques, and reduce complications. International collaboration and local capacity building could play a key role in improving long-term outcomes.

11:19 - 11:22

2570 Nicotinamide Riboside Promotes Skin Flap Survival By Enhancing Autophagy Via The NAD+/SIRT1-FOXO1 Pathway

Panshen Xu[1], **Dingsheng Lin**[2]

1. The Second Affiliated Hospital of Wenzhou Medical University, Wen Zhou, China
2. Department of Hand and Plastic Surgery, The Second Affiliated Hospital of Wenzhou Medical University, Wenzhou, China

Abstract
Background: Skin flap transplantation is widely used for wound repair, functional reconstruction, and aesthetic enhancement. However, distal ischemic necrosis remains a significant postoperative complication. Enhancing angiogenesis and mitigating ischemia-reperfusion injury (IRI) are critical for preventing skin flap necrosis. Nicotinamide riboside (NR) can alleviate ischemic tissue damage; however, its precise regulatory mechanism in promoting skin flap survival remains unclear.
Methods: RNA sequencing was performed to identify potential targets of NR in ischemic skin flaps. The McFarlane skin flap model in rats and the OGD/R model of HUVECs were established to simulate skin flap IRI. The survival and blood flow of the skin flaps were assessed on postoperative day 7. Biochemical assays were performed to measure NAD+, ROS, and MDA contents, while SIRT1 and SOD activity were analyzed. Western blot and immunofluorescence techniques were utilized to assess protein expression related to autophagy, angiogenesis, oxidative stress, apoptosis, and the SIRT1-FOXO1 pathway.
Results: RNA sequencing identified gene expression changes in autophagy, oxidative stress, and angiogenesis. In vitro experiments, NR treatment increased intracellular NAD+ levels, activating SIRT1-mediated FOXO1 deacetylation. SIRT1 agonist SRT1720 and inhibitor EX527 confirmed that the NAD+/SIRT1-FOXO1 pathway played a critical role in autophagy regulation. In vivo experiments, NR treatment improved skin flap survival by enhancing autophagy, promoting angiogenesis, and reducing oxidative stress and inflammation.
Conclusion: NR promoted the skin flap survival by activating NAD^+/SIRT1-FOXO1 deacetylation pathway to enhance autophagy, increasing tissue blood perfusion, and reducing oxidative stress, inflammation, and apoptosis.
[Keywords] Nicotinamide riboside; Skin flap; SIRT1/FOXO1; Angiogenesis; Oxidative stress; Inflammation

11:54 - 11:57

2879 Rotational Traumatic Injuries Of The Cervical Spine: A Study Of 52 Cases

Mohamed Sadok Chtai, Rami Ben Mhenni, Aymen Hanafi, Romdhane Denguezli, Mahmoud Ben Maitigue, Mourad Mtaoumi, Mohamed Ali Khalifa, Karim Bouattour

Department of Orthopedic Surgery, CHU Sahloul, Sousse, Tunisia

Abstract
Introduction:
Traumatic cervical spine injuries are common and present significant diagnostic and therapeutic challenges. These injuries may lead to two major complications: neurological deficits and permanent intervertebral instability.
The aim of this study was to evaluate the epidemiological, clinical, and radiological aspects of rotational injuries of the lower cervical spine and to analyze the outcomes of surgical management.

Material-and-Methods:
We conducted a retrospective, single-center study over a 30-year period, including patients who underwent surgery for lower cervical spine injuries with a rotational mechanism. Anatomo-radiological outcomes were assessed using the Kempf-score.

Results:
Our series included 52 surgically treated patients (36males, 16females) with a mean age of 36years. Road traffic accidents were the leading cause, and neck pain was the most common presenting symptom. Preoperative neurological complications were observed in 24 cases, predominantly radicular deficits (19cases). The most frequently affected level was C6-C7 (19cases). Gradual transcranial traction was the commonly used reduction method (39cases). Surgical approaches included isolated anterior cervical discectomy and fusion in 46-cases, combined anterior and posterior approaches in 5-cases, and isolated posterior fixation in 1-case.
Postoperatively, transient dysphagia occurred in 7-patients, transient dysphonia in 5-patients, neurological deterioration in 1-patient, and 1-patient died on postoperative day 1. The overall Kempf-score was favorable in 35-cases.

Conclusion:
Rotational injuries of the cervical spine are rare but severe, with potential neurological complications and potential life-threatening risks. These lesions must be actively investigated, particularly in high-energy trauma patients, especially in cases of road traffic accidents.

Keywords: Cervical spine trauma, Rotational injury, Spinal instability

11:32 - 11:35

892 High-Frequency Ultrasound-Guided Manual Reduction And Small Splint Fixation In The Treatment Of Stable Fractures Of The Distal Radius

Dechao Yuan, Yuanchao Luo, Xu Liu, Jian Xu, Renjian He

Department of Orthopedics, Zigong First People's Hospital, Zigong, China

Abstract
Objective To evaluate the feasibility of high-frequency ultrasound-guided manual reduction combined with small splint fixation in the treatment of stable fractures of the distal radius. Methods Eighty patients who were diagnosed with unilateral stable distal radius fracture at Zigong First People's Hospital from June 2022 to January 2024 were randomly divided into two groups (n=40 per group): an experimental group and a control group. The initial reduction success rate, wrist function scores, and imaging scores were compared between the two groups during 12-month follow-up. Results The success rate of initial reduction in the experimental group was significantly better than that in the control group ($P < 0.05$). The excellent rate of imaging evaluation was 90.5% and 61.2% in the experimental group and the control group, respectively, immediately after reduction, and there was a significant difference between the two groups ($P < 0.05$). At 2 months after reduction, the excellent rate of imaging evaluation was 81.7% and 53.6% in the experimental group and the control group, respectively, and there was a significant difference between the two groups ($P < 0.05$). At 12 months after reduction, the excellent rate of wrist function evaluation was 90.9% and 64.5% in the experimental group and the control group, respectively ($P < 0.05$). Conclusion All these findings indicate that the high-frequency ultrasound-guided manual reduction with small splint fixation can improve the reduction success rate and quality, and improve the wrist function in patients with stable fracture of the distal radius.

11:22 - 11:25

558 Aseptic Non-Union Of Shaft Of Humerus Fracture: A Single Surgeon Single Centre Experience.

Sushant Sudhir Srivastava

Mata Gujri Memorial Medical College & Lions Seva Kendra Hospital, Kishanganj, India

Abstract
Introduction: Aseptic humeral shaft nonunions are rare. This low incidence explains why they are difficult to manage. They can be hypertrophic or atrophic, with or without a defect. The diagnosis is made based on radiographs and/or CT scan images. Non-union is suspected early on when a patient presents with abnormal motion at the fracture site, 6 weeks after the initial injury event in the context of conservative treatment or has large residual displacement after initial treatment or an open fracture with fixation.
Materials & Methods: At our centre we had 10 cases between January 2022 to January 2024 who presented with aseptic humeral shaft nonunions. The gold standard remains open treatment, removing the initial fixation devices, excision of interposed scare tissues, shingling of the medullary canal on either side of the fracture, reduction under visual control and internal fixation with a rigid compression plate combined with cancellous autograft in situ, all within a favorable biological environment provided. Results: The mean follow-up period was 12 months. During the first year, no adverse events were observed. All wounds healed within 2 weeks and sutures were removed . There were no cases of deep infection or hardware failure. The average time of bone healing was seen in 5 months. Conclusion: The results of full bone healing, recovery of the range of motion and the lack of complications is seen in this study. Plating with supporting allograft is a good choice of treatment in the cases of aseptic non-union of the humeral shaft.

11:06 - 11:09

1961 Comparison Of The Functional Outcome Of Proximal Humerus Fractures Managed With Percutaneous Pinning Technique Versus PHILOS Plating Using Constant And Murley's Score

TARIQ Siddique[1], Saba Tufail[2], Shuja Ul Din[1], MUHAMMAD Hanif[1], **Muhammad Siddique Hamid**[3]

1. LAHORE GENERAL HOSPITAL, Lahore, Pakistan
2. Siddique medicare HOSPITAL, Kamoki, Pakistan
3. Orthopaedic Department Jinnah Hospital, Lahore, Pakistan

Abstract
Abstract:
Background: Fractures occurring in the upper part of the arm bone, known as the proximal humerus, account for around 4% of all fractures and 26% of fractures specifically in the humerus. The management of proximal humerus fractures has consistently been a topic of debate. Multiple studies suggest that the conservative strategy yields the most positive outcomes for these fractures. Contrary to other findings, some research indicates that surgical intervention is superior.
Objective: To compare the functional outcome of proximal humerus fractures managed with percutaneous pinning technique versus PHILOS plating using Constant and Murley's score.
Study Design: Prospective randomised Controlled Trial. Setting: Department of Orthopedic Surgery Unit-2, Services Hospital, Lahore. Duration of Study: Study was carried out over a period of 18 months from 01-06-2020 to 31-12-2021.Material and Methods: After approval from IRB, informed consent was taken from 128 patients fulfilling inclusion/exclusion criteria and willing to participate in study were included. After demographic details were obtained, patients included in the study were assigned a group using lottery method, group A (Percutaneous Pinning)64 patients and Group B (PHILOS plate) 64 patients. Group A was operated by closed reduction and K-wire fixation and group B underwent open reduction and internal fixation using PHILOS plate. The Mean of constant murley's score at 24th week was calculated for each group. Patients falling under category of excellent and good scores were labelled as favourable outcome.
Results: Phylous has a superior outcome as compared with k wires in proximal humerus.

11:35 - 11:38

2618 Epidemiology Of Gunshot Injuries To The Femoral Epicondyle

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Abstract
Introduction. Given the conduct of military operations on the territory of Ukraine in the period 2014-2025, the number of injuries in the area of the femoral condyles increases every year, as a result of which the relevance of disclosing this topic and approaches to diagnosis and treatment is relevant.
Objectives. To improve the diagnosis and surgical treatment of patients with gunshot fractures of the femoral epicondyles.
Research design and method.
A retrospective analysis of patients with gunshot fractures of the femoral epicondyles was conducted, for the period from August 2022 to March 2025, 38 wounded with gunshot trauma of the femoral bone were undergoing surgical treatment in the clinic of Severe Polystructural Trauma of the State Institute of Traumatology and Rehabilitation of the National Academy of Medical Sciences of Ukraine, of whom 18 (45.9%) had injuries to the femoral epicondyles and were classified according to the BASIC scale.
Results.
18 patients with gunshot fractures of the femoral epicondyles were surgically treated, including BASIC 0 -3(16.6%) patients, BASIC 1 -2 (11.1%) patients, BASIC 2 -3 (16.6%) patients, BASIC 3 -6(33.35), BASIC 4 -3 (16.6%) patients. The results were evaluated using The Lysholm knee scoring, LEFS, Kellgren-Lawrence scale.
Conclusion. Gunshot combat injuries of the femoral epicondyles are a severe polystructural injury that requires an individual approach to diagnosis and treatment.
Keywords: femoral, gunshot, combat.

Friday, 5 September

Knee 7
11:56 - 11:59

604 Does Advanced Osteoarthritis Mimic Neuropathic Joint?

Ashraf Shaikh[1,2]

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Abstract
Introduction:
Osteoarthritis (OA) is a prevalent condition among elderly and leads to pain and functional limitations. Radiographic imaging often fails to correlate with symptom severity, and advanced OA may exhibit features reminiscent of neuropathic joints. This study explored the clinicopathological and histopathological correlations between advanced OA and neuropathic joints, hypothesising clinical similarities.

Methods: A retrospective study involving 43 patients who underwent total knee arthroplasty for advanced knee OA was conducted. Clinical, radiological, and histopathological evaluations were performed. Advanced OA was defined as an Ahlbach grade IV or above. The functional Knee Society Score (KSS) was used to assess clinical severity, and histopathology was considered "significant" if the results were consistent with the neuropathic joint findings.

Results: The mean age was 57.63 ± 17.13 years, and most patients were females (69.77%). A total of 53.49% of the grading systems yielded histopathological findings resembling those of neuropathic joints. Univariate analysis revealed significant correlations between histopathology and the functional KSS, Ahlbach grade, and NRS score ($p < 0.01$). Binary logistic regression confirmed that KSS (<40) and NRS score (<7) were significant predictors ($p < 0.001$, Nagelkarke $R2 = 0.576$).

Conclusion: Patients with advanced knee OA may exhibit characteristics resembling those of neuropathic joints, particularly individuals with a poorer functional knee. Thorough assessments are crucial for distinguishing between primary OA and neuropathic joint pathology. This study provides valuable insights into the complex presentation of advanced knee OA and highlights the importance of using more constrained prosthesis and long stem components for potentially better outcomes.

11:15 - 11:18

471 Systematic Review And Meta-Analysis: Procalcitonin'S Role In The Diagnosis Of Septic Knee Arthritis

Nauman Saeed

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Abstract
Introduction: Septic arthritis of the knee is a medical emergency requiring prompt diagnosis to prevent joint destruction and systemic complications.
Aims & Objectives: Procalcitonin (PCT), a biomarker associated with bacterial infections, has been proposed as a diagnostic tool for septic arthritis. This systematic review and meta-analysis evaluates the diagnostic accuracy of PCT in predicting septic knee arthritis, synthesizing evidence from published studies.
Study Design & Methods: A comprehensive search identified 12 studies involving 1,245 patients.
Results: Pooled analysis revealed that PCT had a sensitivity of 88% (95% CI: 84–91%), specificity of 82% (95% CI: 78–86%), and an area under the curve (AUC) of 0.91 (95% CI: 0.88–0.94).
Conclusion: PCT outperformed traditional biomarkers like C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR) in differentiating septic arthritis from non-infectious causes. These findings suggest that PCT is a reliable predictor of septic knee arthritis, particularly when used in conjunction with synovial fluid analysis.

11:47 - 11:50

1125 Distribution Of Coronal Plane Alignment Of The Knee Classification In Female Han-Chinese Patients With Knee Osteoarthritis

Fan Zhang

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Abstract
Introduction: The coronal plane alignment of knee (CPAK) classification system has been proposed as a pragmatic, comprehensive classification for coronal knee alignment, based on constitutional alignment and JLO. Aims & Objectives: This study aimed to evaluate the phenotype of knees in the female Han Chinese population based on the CPAK system. Study Design & Methods: Randomly chosen 359 osteoarthritic knees of female Han Chinese patients underwent radiological assessment with long-leg radiographs and were classified based on the CPAK system. Measurements included the arithmetic hip–knee–ankle angles (aHKA), joint line obliquity (JLO), lateral distal femoral angle (LDFA) and medial proximal tibial angle (MPTA). Knees were grouped into 9 CPAK phenotypes based on aHKA and JLO. Results: Most knees were distributed in Type I (38.5%) with constitutional varus and apex-distal joint line orientation. followed by type IV (25.4%), type II (13.6%), type III (9.5%), and type VII (4.7%), types V (4.2%), type VI (3.3%), type VIII (0.8%), type IX was not distributed. Conclusion: The majority of female Han Chinese population was found to have constitutional varus alignment and apex-distal joint line orientation.Keywords:CPAK, Han-Chinese, osteoarthritis, knee, female

11:18 - 11:21

1243 High Posterior Condylar Angle, Low Popliteus Sulcus Depth And Low Popliteus Sulcus Depth Lateral Condyle Width Ratio Are Parameters Associated With

Aberrant Anterior Tibial Artery, MRI-Based Study

Serhat Akçaalan, Abdürrahim Kavaklilar, Burak Çagri Özbas, Ceyhun Çaglar, Mahmut Ugurlu, Hakan Özsoy, Metin Dogan, Mehmet Ismail Safa Kapicioglu

bilkent city hospital, Ankara, Türkiye

Abstract
Background:Aberrant Anterior Tibial Artery(AATA) is a not so rare variation of the anterior tibial artery.It is an important vascular variation that increases the risk of vascular complications in some knee surgeries.
Methods:Between December 2022-December 2024,knee magnetic resonance imaging (MRI) scans were scanned to detect AATA.Images in which image analysis was not optimal due to artifact, images of patients with previous surgery around the knee, and patients with vascular malformations in the lower extremity were excluded.Condylar twist angle(CTA), posterior condylar angle(PCA), posterior tibiofemoral angle(PTFA),popliteus sulcus depth(PSD) and PSD/LCW parameters were measured on the MRIs of all patients and recorded for each patient.Patients with AATA variation were scanned for the presence of MRI of the opposite knee outside the time interval determined for the study and it was analyzed whether patients with opposite knee MRIs had bilateral AATA.
Results:After applying the inclusion and exclusion criteria,4075 knee MRIs were scanned.78 AATA variations were detected and the prevalence was 1.91%.The prevalence of AATA was 2.04% in women and 1.78% in men.PCA was statistically higher in patients with AATA compared to the control group ($p<0.005$).PSD and PSD/LCW were found to be lower in patients with AATA compared to the control group($p=0.012$, $p=0.05$).The prevalence of bilateral AATA in patients with AATA variation was 48.5%.

Conclusion:The prevalence of AATA was found to be 1.91%.High PCA, low PSD and PSD/LCW are radiologic parameters associated with AATA variation.Both popliteus musculature and posterior femoral morphometry are associated with the occurrence of AATA variation.
Keyterms: aberrant anterior tibial artery , knee

11:21 - 11:24

1899 A PROSPECTIVE RANDOMIZED STUDY OF OUTCOME OF MULTIPLE DRILL HOLES IN ANTERIOR CORTEX OF DISTAL FEMUR ON FIXATION OF FEMORAL COMPONENT AFTER CEMENTED TOTAL KNEE ARTHROPLASTY

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Abstract
This study investigates the impact of multiple drill holes in the anterior cortex of the distal femur on cement penetration and fixation strength in cemented Total Knee Arthroplasty (TKA). While cement fixation remains the gold standard in TKA, aseptic loosening—often due to inadequate cement-bone interface—is a leading cause of late revisions. The research aimed to evaluate whether creating multiple drill holes enhances cement intrusion compared to conventional cementation techniques. A total of 60 patients were randomized to undergo either standard cementation or cementation with multiple drill holes in the anterior cortex. Results showed a significant increase in cement penetration (1.8 times greater) in the group with drill holes, improving the cement-bone interface. No significant difference was found in postoperative knee function or peri-prosthetic fracture rates between the two groups. This technique may reduce the risk of aseptic loosening and revision surgeries, though further studies with longer follow-ups are needed to confirm these findings.

11:24 - 11:27

2085 Impact Of Extra-Articular Tenodesis On Knee Compartmental Pressure Following ACL Reconstruction

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Abstract

Introduction:Residual anterolateral rotational laxity remains a concern after anterior cruciate ligament reconstruction (ACL-R), leading to increased interest in extra-articular procedures such as anterolateral ligament reconstruction (ALL-R). While ALL-R may enhance knee stability, its effect on lateral tibiofemoral compartment pressure remains unclear.

Aims&Objectives:To determine whether adding an extra-articular procedure to ACL-R alters lateral compartment pressure.

Design&Methods:Patients who underwent ACL-R between 2020 and 2023 were divided into two groups: isolated ACL-R and ACL-R combined with AL-LR. One year postoperatively, functional scores (KOOS and IKDC) and gait analysis using an inertial kinematic measurement system (Xsens) were assessed. Knee compartment pressure was estimated using musculoskeletal modeling software (Anybody) based on data collected during walking, running, and stair-climbing.

Results:The study included 47 patients (19 ACL-R-alone and 28 ACL-R+ALL-R), with a mean age of 29.1±11.3 years (72.3% males). No significant difference in lateral tibiofemoral compartment pressure was found between groups. The direct comparison of pressure variation between the operated and native knees in the ACL-R-alone and ACL-R + ALL-R groups showed a mean difference of 0.040 MPa ($p=0.620$). Functional outcomes were similar, with no significant differences in KOOS ($p=0.825$) and IKDC ($p=0.962$) scores between ACL-R-alone and ACL-R+AL-LR groups.

Conclusion:The addition of ALL-R as a complementary procedure to ACL-R does not significantly alter lateral tibiofemoral compartment pressure on a medium-term follow-up, suggesting it does not lead to over-constraint. Considering evidence that increased pressure in the lateral tibiofemoral compartment may contribute to osteoarthritis, these results suggest that pressure differences following ALL-R are unlikely to contribute to osteoarthritic progression.

11:31 - 11:34

2356 A Closed Loop Audit Of Consent In Primary Hip And Knee Arthroplasty Operations

Prashant Awasthi

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Abstract
Background: Documenting consent for hip and knee replacement surgery is a priority for quality improvement, as errors or omission of information can confuse patients and expose surgeons to litigation, particularly in "failure to warn" cases. The British Orthopaedic Association (BOA) standards serve as the benchmark for evaluating consent quality.
Methods: This retrospective audit evaluated consent compliance for patients undergoing primary hip and knee replacements using Electronic Patient Records (EPR). Data from consent forms was collected and analysed using Microsoft Excel. Two audit loops were performed: the first from August to November 2022, and the second after intervention (introduction of consent stickers) from December 2022 to February 2023.
Results: In the first audit (30 patients), compliance with BOA standards varied: high-risk issues like bleeding, infection, nerve damage, blood clots, and leg length difference were documented in 100% of the consent forms, but persisting pain (15%), stiffness (70%), death (67%), loosening (73%), and scar/wound problems (7%) were inconsistently recorded. After introducing consent stickers, the second audit achieved 100% compliance across all areas.
Conclusion: The introduction of consent stickers markedly improved compliance with BOA standards in primary hip and knee arthroplasty, ensuring comprehensive patient information and minimizing risk associated with litigation. This simple, scalable intervention offers a powerful solution for enhancing consent documentation in elective orthopaedic surgeries.

11:37 - 11:40

2576 Efficacy Of Intra-Articular Injections Of Platelet Rich Plasma (PRP) In Osteoarthritis Knee

Talha Mushtaq

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Abstract
ABSTRACT
Objective: To determine the effectiveness of intra-articular injections of Platelet Rich Plasma (PRP) in early Osteoarthritis knee in terms of pain reduction and improvements in functional outcome.
Methods: This descriptive study was conducted in Department of Orthopedics Surgery Punjab Rangers Teaching Hospital Lahore/ Rahbar Medical and Dental College Lahore from 23rd March 2018 to 23rd March 2021.All patients with early osteoarthritis knee fulfilling the inclusion criteria were administered two intra-articular pure PRP injections. Follow up assessment was done at 6 weeks, 3 months, 6 months and one year for pain reduction measured on Visual Analog Scale (VAS) and functional improvement assessed with Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) questionnaire. The pre and post injection WOMAC and VAS values were compared P value calculated with Student-t test. P value <0.05 was considered significant.
Results: Two intra-articular injections of PRP were administered to 84 knees in 61 patients. Female patients were 35(57.37%) and male 26(42.62%). The mean age was 61.5±2.3 years. Majority (60.71%,n=51) of knees had grade II Osteoarthritis while 33(39.28%) knees had grade I Osteoarthritis. In each follow up visit a significant improvement (P <0.05) in pain reduction(VAS) and functional outcome(WOMAC) was observed which persisted till last follow up visit at one year follow up. No complication was reported.
Conclusion: Two intra-articular PRP injections in early Osteoarthris knee yielded significant reduction in pain and improvement in functional outcome.

11:53 - 11:56

2224 Genuphonics, The Knee Communicates Its Concerns, Do We Understand Its Language?

Carolina Sol Stambolsky Duchini, Isabel Isabel Guillén Vicente, Pedro Guillén García

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Abstract
Introduction:
Knee pathologies, both intra- and extra-articular, require precise diagnosis to guide treatment effectively. While imaging techniques play a crucial role, early and accurate diagnosis often relies on clinical evaluation. We introduce genuphonics, a conceptual framework that synthesizes all available clinical information—anamnesis, functional signs, mechanical findings, and knee sounds—to develop diagnostic algorithms. This approach aims to refine knee pathology diagnosis before resorting to imaging, enhancing early detection and decision-making.
Methods:
We retrospectively analyzed patients with various knee pathologies, assessing the role of genuphonics in clinical diagnosis. The integration of patient-reported symptoms, physical examination findings, and mechanical cues was systematically evaluated. We examined how genuphonics could guide differential diagnosis and its correlation with imaging-confirmed pathologies.
Results:
A structured clinical approach incorporating genuphonics improved diagnostic accuracy before imaging. Anamnesis alone provided up to 70% accuracy, while integrating functional signs, mechanical assessments, and knee sounds allowed for refined diagnostic stratification. This method facilitated earlier identification of meniscal tears, ligament injuries, synovial conditions, and degenerative changes. By prioritizing clinical reasoning, genuphonics helped establish predictive diagnostic pathways, reducing unnecessary imaging and streamlining treatment decisions.
Conclusion:
Genuphonics represents a refined diagnostic methodology that integrates all aspects of clinical evaluation into predictive algorithms, improving early diagnosis of knee pathologies. By emphasizing a structured clinical approach before imaging, it enhances diagnostic efficiency, optimizes patient management, and offers a foundation for more individualized treatment strategies.

11:40 - 11:43

791 Methods Of Alignment In Total Knee Arthroplasty, Systematic Review.

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Abstract
Abstract
Introduction
In total knee arthroplasty, the primary methods of alignment include mechanical alignment, kinematic alignment, anatomical alignment, functional alignment, and variations like restricted kinematic alignment and inverse kinematic alignment, each aiming to achieve proper joint placement by considering different factors like bone cuts and soft tissue tension based on the patient's anatomy and pre-arthritic alignment.

Objective
The aim of this study is to perform a systematic review of the available clinical trials and observational studies comparing clinical and radiological outcomes of different methods of alignment (kinematic, anatomic, functional) to MA.
Methods
A systematic review is performed comparing results of patient reported outcome measures questionnaires, radiological angles, and range of motion.
Results
Kinematic and functional alignment show a slight tendency to obtain better PROMs compared to mechanical alignment. Complication rates were not significantly different between groups. Nevertheless, these results are not consistent in every study. Anatomic alignment showed no significant differences compared to mechanical alignment.
Conclusion
Kinematic alignment is an equal or slightly better alternative than mechanical alignment for patients included in this study. However, the difference between methods does not seem to be enough to explain the high percentage of dissatisfied patients. Studies implementing lax inclusion and exclusion criteria would be needed to resemble conditions of patients assisted in daily surgical practice. It would be interesting to study patients' knee phenotypes, to notice if any method of alignment is significantly better for any constitutional deviation.

11:50 - 11:53

114 A Retrospective Analysis On Balance Function After Unilateral Total Knee Arthroplasty In Patients With Bilateral Knee Osteoarthritis

Venkata Vinay Atluri

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Abstract
Background: Although total knee arthroplasty (TKA) is widely acknowledged for its efficacy in alleviating pain and improving both static and dynamic balance functions among individuals with end-stage knee osteoarthritis (OA), the durability of these improvements following unilateral TKA in patients with bilateral knee OA remains uncertain.

Materials and Methods: In this retrospective study, we analyzed the medical records and data of patients with bilateral OA with a Kellgren-Lawrence (K-L) classification grade greater than three who underwent unilateral TKA on the more symptomatic knee and did not return for the contralateral TKA within one year. The Timed Up and Go (TUG) test and the time required for One-leg standing (OLS) were evaluated at three time points: preoperatively, six months after unilateral TKA, and more than one year after unilateral TKA, which was considered the final follow-up.

Results: The data analysis included 51 patients. All evaluated indicators demonstrated a consistent trend, indicating a significant improvement from the preoperative period to six months after unilateral TKA. However, the beneficial effects of the unilateral TKA exhibited a decline in balance function at the final follow-up.

Conclusion: Unilateral TKA is an effective intervention for improving balance function in individuals with bilateral knee OA. However, it is essential to recognize that sustaining these positive outcomes over the long term may be challenging without addressing the contralateral knee.

11:34 - 11:37

130 Post-Operative Pain Management Using Local Infiltration Analgesia (LIA) In Total Knee Arthroplasty (TKA): A Prospective Study

Mahesh Kumar Reddy Vuruvakili

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Abstract

This study was conducted at SGITO, Bangalore during the period between August 2017 to April 2018. In this study, we used LIA consisting of the Ranawat Regimen for TKA patients which contains (bupivacaine with adrenaline, morphine, methylprednisolone, cefazoline and normal saline) to manage postoperative pain in all 53 patients presenting to our institute for primary TKA. Functional outcome was assessed in terms of post-op VAS score, ROM, and SLRT at 12hrs, 24hrs, and 48hrs post-op. Opioid consumption, and patient satisfaction was recorded and statistical analysis was done.

Results: The mean age of patients in the study was 60.83. Mean VAS pain score at 12hrs, 24hrs, and 48hrs post-op were found to be 5, 3.5 and 2.79 respectively which indicated a highly significant ($p<0.001$) reduction in pain following TKA. Majority of the patients (71.7%) did not require any opioid rescue analgesia. Post-op ROM was satisfactory and all patients were able to do SLRT by day 1 and there was excellent patient satisfaction at time of discharge.

Conclusion: Local Infiltration Analgesia is a safe, simple and efficient method of reducing post-operative pain after total knee arthroplasty (TKA) which facilitates early rehabilitation among the patients and has an overall improvement in patient satisfaction with the procedure.