

15th International Conference on
**Orthopaedics, Arthroplasty
and Arthroscopy**

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Scientific Tracks & Abstracts



Sessions

Orthopaedics Surgery | Joint Replacement | Arthroplasty | Traumatic injuries | Rheumatoid Arthritis



Session Chair:
Hans-Joachim Pössel
 Mediclinic Al Noor Hospital | UAE

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Open reduction internal fixation versus external fixation with limited internal fixation for displaced comminuted closed pilon fractures: a randomized prospective study

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Background: Pilon fractures involve the dome of the distal tibial articular surface. The optimal treatment for high-energy pilon fractures remains controversial. Some authors advocate the use of open reduction and internal fixation (ORIF) to avoid articular incongruence. Others advocate the use of bridging external fixation with limited internal fixation (EFLIF) to reduce soft tissue complications. Literature reports of prospective studies comparing the radio clinical outcomes of ORIF and EFLIF in high-energy fractures are scarce. Retrospective studies have their limitations because of insufficient randomisation. The objective of this randomised prospective study is to compare the clinical, radiologic, and functional outcomes of displaced and comminuted closed pilon fractures, Rüedi and Allgöwer type II and III, treated by either ORIF or EFLIF.

Materials and Methods: Forty-two patients were selected for the study. Twenty-two patients were subjected to ORIF and 20 patients were subjected to EFLIF. We used the American Orthopaedic Foot and Ankle Society score as a standard method of reporting the clinical status of the ankle. Patients were followed-up clinically and radiologically for over 2 years after the surgical treatment.

Results: The results of ORIF and EFLIF in the treatment of high-energy pilon fractures are equally effective in terms of functional outcomes and complication rates in the short term.

Conclusion: Soft tissue integrity and fracture comminution seem to have a significant influence on outcomes of intervention. A prospective multicentre study with a larger sample size that controls for other associated variables and comorbidities is warranted.

Recent Publications

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2. Amorosa LF, Brown GD, Greisberg J. A surgical approach to posterior pilon fractures. *J Orthop Trauma* 2010 Mar;24(3):188–93.
3. Conroy J, Agarwal M, Giannoudis PV, Matthews SJ. Early internal fixation and soft tissue cover of severe open tibial pilon fractures. *Int Orthop* 2003;27:343–7.

Biography

Alham Qureshi is a junior doctor working in trauma and orthopedics in the North West of England. She obtained her medical degree from the University of Glasgow in 2016. She is currently working at Royal Blackburn Hospital. Her interests include trauma, hand surgery, diversity and inclusivity, and yoga.

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Ischial screw fixation can prevent cup migration in 3D printed custom acetabular components for complex hip reconstruction

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Royal National Orthopaedic Hospital, UK

Introduction: Custom acetabular components have become an established method of treating massive acetabular bone defects in hip arthroplasty. Complication rates however remain high and migration of the cup is still reported. Ischial screw fixation (IF) has been demonstrated to improve mechanical stability for non-custom, revision arthroplasty cup fixation. We hypothesize that ischial fixation through the flange of a custom acetabular component aids in anti-rotational stability and prevention of cup migration.

Methods and Results: Electronic patient records were used to identify a consecutive series of 49 custom implants in 46 patients from 2016 to 2022 in a unit specializing in complex joint reconstruction. Ischial fixation (IF) was defined as a minimum of one screw inserted into the ischium passing through a hole in a flange on the custom cup. The mean follow-up time was 30 months. IF was used in 36 cups. There was no IF in 13 cups. There was no difference between groups in age (68.9 vs 66.3, $p=0.48$), BMI (32.3 vs 28.2, $p=0.11$) or number of consecutively implanted cups (3.2 vs 3.6, $p=0.43$). Aseptic loosening with massive bone loss was the primary indication for revision. There was no difference in Paprosky grade between the groups ($p=0.1$). 14.2% of hips underwent revision and 22.4% had at least one dislocation event. No ischial fixation was associated with a higher risk of cup migration (6/13 vs 2/36, $X^2=11.5$, $p=0.0007$). Cup migration was associated with an increased risk for all-cause revision (4/8 vs 3/38, $X^2=9.96$, $p=0.0016$, but not dislocation (3/8 vs 8/41, $X^2=1.2$, $p=0.26$).

Conclusion: The results suggest that failure to achieve adequate ischial fixation, with screws passing through the flange of the custom component into the ischium, increases the risk of cup migration which in turn is a risk factor for revision.

Recent Publications

1. Paprosky WG, O'Rourke M, Sporer SM. The treatment of acetabular bone defects with an associated pelvic discontinuity. *Clin Orthop Relat Res* 2005; 441: 216–220.
2. Migaud H, Common H, Girard J, et al. Acetabular reconstruction using porous metallic material in complex revision total hip arthroplasty: A systematic review. *Orthop Traumatol Surg Res* 2019; 105: S53–S61.
3. Gladnick BP, Fehring KA, Odum SM, et al. Midterm Survivorship After Revision Total Hip Arthroplasty With a Custom Triflange Acetabular Component. *J Arthroplasty* 2018; 33: 500–504.

Biography

Richard Galloway is an orthopedic-focused core surgical trainee, currently undertaking rotations across the north London deaneries. He completed his undergraduate studies at the University of Birmingham in 2019. He has since undertaken orthopaedic rotations at the Royal London Hospital and is currently working within the Sarcoma unit at the Royal National Orthopaedic Hospital, Stanmore. His interests are trauma, joint reconstruction, research, and medical education.

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Glenohumeral joint arthritis after Latarjet procedure: Risk factors and clinical significance

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Introduction: Instability in the shoulder frequently affects young patients of working age and can notably limit the quality of life (1-4). The surgical treatment for stabilization aims to return the patient to a stable ROM without pain (38,39). A decrease in external rotation, in comparison to the contralateral, is often observed. This can be further complicated by the onset of arthritis in the modified biomechanics of the shoulder (5-9).

Materials and methods: For this retrospective study, the researchers contacted patients who had undergone surgery for anteroinferior instability of the shoulder with the Latarjet technique in Jordan from 2007 to 2017, thereby ensuring a follow-up of at least 1 year. Within this cohort, 81 patients were identified. The researchers aimed to check all 81 operated patients. The patients were clinically checked using two separate protocols (Constant score UCLA score). In all cases, both patients' shoulders were radiographed in anteroposterior (AP) projection, for the evaluation of possible arthritis and axial projection of the operated shoulder, as well as to localize the position of the transposed coracoids and its consolidation. To compare the shoulder operated on with the non-operated; the presence of arthritis was studied through these radiographs of each patient's two shoulders and classified according to the criteria of Samson (60) which distinguishes arthritis in three degrees.

Results: All patients in the study were analyzed using the two protocols of evaluation: UCLA and Constant. Using the UCLA score, the average of the results was 33.6, with one score of 25 and 21 results of 35. The remaining 14 patients all recorded a score above 27.

Using the Constant method, the average of the results was 93.9, with one result of 68 and 11 results of 100 excellent. 18 patients recorded a good score, 5 had a good result, and 1 had a 'fair' result. The data analysis showed statistically significant values are found when the arthritis is associated with: the age at which the control is submitted for intervention. Position of the graft., Type of lesion present, and Time between the first episode and the intervention.

Conclusions: The indications for the use of the Latarjet technique in case of unidirectional instability with Bankart lesions are limited. However, in the researcher's experience, this technique has also been used for patients presenting a unidirectional traumatic instability with joint laxity, even in the absence of bony Bankart, without any difference in results between the two groups of patients. All the patients that participated in this study are satisfied with the intervention, as they have not felt limited in their daily actions; this also applies in cases where the ROM was reduced in either internal rotation or external rotation. The researchers feel confident it is not the Latarjet technique that favors the onset of arthritis, but instability and improper use of the technique.

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2. Morrey BF, An KN, Chao EYS. Functional evaluation of the elbow. *The Elbow and its Disorders*. Philadelphia, PA: WB Saunders. 1993; 86-97
3. Apolone G, Mosconi P. The Italian SF-36 Health Survey: translation, validation, and forming. *J Clin Epidemiol* 1998; 51(11): 1025-1036

Biography

Ala Almaitah Shoulder and Knee Soft Tissue Surgery Fellow. Orthopedics and Trauma Specialist. Specialist in Orthopedic Traumatology. He is from Jordan Country

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Comparison of kinematics using two 3D motion models in football

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Background: One of the world's most popular sports is football otherwise known as soccer. There has been very limited research into the biomechanics of the non-dominant support leg which could provide a vital insight into lowering injury rates. Various models are used for 3D motion analysis. In an extensive literature search, there was no similar topic where research was done. It will be very interesting to will compare the kinematics part of the biomechanics of football using these two motion models Vicon PiG and CGM2.1.

Method and materials: It is a retrospective study. Data were analyzed for 14 volunteers in the final study. During the analysis, three events were marked in the trial which is 1st - Foot strike (Foot Contact), 2nd – Foot off (Ball kick), and 3rd – End of swing (Leg follow through). Joint angles of the lower limb ankle, knee, and hip were tested in all three directions X, Y, and Z.

Results: The fourteen participants were aged between 19 and 24, with the average age being 21 years old (SD 1.31), average height 178.2 cm (SD 6.6), and average mass 76.12 kg (8.25). Overall, on comparing the results of lower limb hip, knee, and ankle angles in all the three planes during the three events marked during the trial both the models Vicon PiG and CGM 2.1 are statistically different however clinical both are the same.

Discussion: There has been no similar study conducted in past, the results of our study are exclusive. Overall, there is no statistical difference between the two models but clinical both are similar. Hence, all the previous studies conducted using the Vicon Pig model are still valid.

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2. Asai, T., Carre, M., AkatsUKa, T., & Haake, S. (2002). The curve kick of a football I: Impact with the foot. *Sports Engineering*, 5, 183–192. 390
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Biography

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Functional outcomes and complications of total hip arthroplasty with dual mobility cup, an audit

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Objective: To determine the functional outcomes of total hip arthroplasty with a dual mobility cup, performed in our hospital.

Methods: After receiving an exemption from the Ethics review committee of the hospital, data collection for the audit was started in January 2019. Records from July 2016 to June 2018 were included. All patients who underwent total hip arthroplasty with dual mobility prosthesis without any age limit were included. A proforma was prepared to collect the required information. Data was entered and analyzed on SPSS v. 21.

Results: Two hundred and ten patients were included, 114 females and 96 males. Of the total, 188 patients underwent unilateral surgery while 22 had bilateral hip arthroplasty. The mean postoperative hospital stay was 5.91 ± 3.9 days. The mean pre-op Harris score was 33.7 ± 7.6 and the post-op means the score was 75.9 ± 5.34 . Eighty-three (39.5 %) patients had a neck or femur fracture, 31 (14.8%) had osteoarthritis and 28 (13.3%) had avascular necrosis. Post-surgery complications included wound infection, surgical site hematoma, and NSTEMI, and only one patient reported dislocation after the use of a dual mobility cup. Conclusion: The dislocation rate which was the prime concern, has been reduced with the use of dual mobility implants in total hip arthroplasty patients.

Recent Publications

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2. Saeed J, Khan MYD, Umer M, Fadoo Z. Primary lymphoma of bone in children-A case series. *Journal of Pakistan Orthopaedic Association*. 2021;33(04):180-3
3. Durrani MYK, Saeed J, Umer M, Hashmi P. Functional outcomes and complications of total hip arthroplasty with dual mobility cup: an audit. *JPMA The Journal of the Pakistan Medical Association*. 2021;71(8 (Suppl 5)): S87. * [IF:0.53]

Biography

Javeria Saeed, It's been almost 9 years that I am engaged in clinical research and specifically I have 8 years experience of working on cancer research to fulfill my passion for surgical oncology research and enrich my research writing and analysis skills. Besides being involved in research activities, I had been teaching medical research skills that include different research methodologies and the use of statistical software to medical residents. I have also been providing consultation to the residents of the Dept. of orthopedics, involved in orthopedic surgery research at Aga Khan University hospital. Presently I am working as an instructor in Research in the department of Surgery.

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Intelligent Surgical robot for fracture reduction

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Pelvic fractures are the most complex orthopedic trauma, and the mortality and disability rate rank first among all fractures. The biggest challenge of surgical treatment is fracture reduction. "Intelligent Surgical Robot for Fracture Reduction" is the latest achievement of the interdisciplinary collaboration between Beijing Jishuitan Hospital and Beihang University. Beijing Rossum Robot Technology Co., Ltd. is devoted to promoting product transformation.

In 2021, the system carried out the first clinical trial of robot-assisted pelvic fracture reduction around the world in Beijing Jishuitan Hospital. The excellent and good rate of closed pelvic fracture reduction was 95% in 22 patients, which significantly improved the minimally invasive treatment effect of complex fractures. At present, the system has completed product testing and entered the multi-center clinical trial.

The system achieves three-dimensional registration based on preoperative and intraoperative images to realize real-time navigation for fractured bones. The innovative automatic surgical planning technology based on geometric constraints is proposed to realize high-precision and personalized surgical planning. The force-position feedback control is applied in this robot system to establish high-precision operation under a heavy payload.

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2. Court-Brown, C.M.; Caesar, B. Epidemiology of adult fractures: A review. *Injury* 2006, 37, 691–697.
3. Bhandari, M.; Guyatt, G.H.; Swiontkowski, M.F.; Tornetta, P., III; Hanson, B.; Weaver, B.; Sprague, S.; Schemitsch, E.H. Surgeons' preferences for the operative treatment of fractures of the tibial shaft: An international survey. *JBJS* 2001, 83, 1746–1752

Biography

Xinbao Wu is an orthopedic surgeon and he is from 312 Administration Building, 31 Xijiekou East Street, Xicheng District, Beijing, 100035.

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Triceps tendon avulsion: A case study to often missed and exceedingly rare diagnosis

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Triceps tendon rupture is a rare injury that accounts for fewer than 1% of all upper-extremity tendon injuries. Although ruptures at the musculotendinous junction have been observed, the osseo-tendinous insertion in the olecranon is the most prevalent site. Trauma is the most common cause of triceps tendon rupture; however, several systemic concomitant disorders such as Marfan syndrome, hyperparathyroidism, osteogenesis imperfecta, systemic lupus erythematosus, or individuals on steroids can also result in rupture owing to decreased tensile strength. This injury is most common in middle-aged males, but cases have been reported in people of all ages, including youngsters before epiphyseal fusion and the elderly. Because of their rarity, such injuries are commonly overlooked and should be considered as a differential diagnosis in all patients who report with pain and swelling at the back of the elbow following a traumatic event.

Method: A 31-year-old man arrived with pain and swelling in his left elbow after falling from a height of 2 meters and catching his elbow under his body while bouldering. The left elbow was tender on clinical examination, with minimal swelling at the triceps insertion and no discernible gap, and active flexion and extension of the afflicted elbow were painful. The characteristic flake sign on lateral elbow radiography indicated acute triceps tendon rupture. The location of rupture was exposed through a posterior midline incision, and the flake of bone with the triceps tendon was repaired using the Krakow procedure, which consisted of a 4-strand No.2 Ethibond suture achieving a satisfactory result.

Conclusion & Significance: The summary emphasises the significance and necessity of a comprehensive evaluation because triceps rupture is an uncommon injury and classical clinical signs may not always be present. A strong index of suspicion, physical examination for a palpable gap, and lateral radiographs with a "flake" fracture will help in diagnosis. These injuries are usually overlooked in a typical accident and emergency scenario, and delayed surgical therapy results in long-term functional disability. Hence, a thorough radiological and repeat clinical examination is warranted in doubtful scenarios. Early identification of these injuries and prompt surgical intervention are the cornerstones of a successful functional outcome and good rehabilitation.

Recent Publications

1. Sharma, Pulak, et al. "Triceps tendon avulsion: a rare injury." Ethiopian journal of health sciences vol. 24,1 (2014): 97-9.
2. Mirzayan R., Acevedo D.C., Sodl J.F. Operative management of acute triceps tendon ruptures: review of 184 cases. Am J Sports Med. 2018; 46:1451–1458.
3. Tagliafico A., Gandolfo N., Michaud J. Ultrasound demonstration of distal triceps tendon tears. Eur J Radiol. 2012; 81:1207–1210

Biography

Kristo Qylafi graduated with an MBBS from Athens Medical University in 2017. He served as a military physician for 1 year and afterward, he worked for 2 years in the A&E department of numerous hospitals throughout the country's rural areas. He currently works as an SHO in the Orthopaedic department at Guy's and St Thomas' Hospital.

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Arthroscopy-assisted reduction and internal fixation for tibial plateau fractures

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The goal of surgical treatment for tibial plateau fracture is to reconstruct the articular surfaces, to obtain a stable fixation for early motion, and repair all concomitant lesions. With the assistance of arthroscopy, the articular surface can be readily seen and the intra-articular structures can be thoroughly examined while the fragments are fixated with minimal soft tissue dissection. The purpose of this study was to evaluate the functional and radiographic results and the complications of arthroscopically assisted reduction for tibial plateau fractures. Forty-three patients were treated with arthroscopically assisted reduction for tibial plateau fracture, with an average follow-up period of 2 years from 2014 to 2017. Evaluations were performed clinically and radiologically with modified Rasmussen's criteria.

According to the Schatzker classification, the fractures types were as follows: type I, 1 (2%); type II, 9 (21%); type III, 7 (16%); type IV, 7 (16%); type V, 14 (33%); and type VI, 6 (14%). The mean age at operation was 46.7 years (range, 17 to 66 years). Thirty-one of 43 patients (72.1%) in our series had associated intra-articular lesions. The mean postoperative Rasmussen clinical score was 28.1 (range, 18 to 30), and the mean radiologic score was 16.0 (range, 11 to 17). Good or excellent clinical and radiologic results were achieved in 93% of patients. Secondary osteoarthritis was noted in 5 injured knees (11.6%). All 43 fractures were successfully united. No complications directly associated with arthroscopy were noted.

With the assistance of arthroscopy, the advantages included direct visualization of intra-articular fractures, accurate fracture reduction, reduced morbidity in comparison to arthrotomy, simplified diagnosis and treatment of meniscal and ligamentous injuries, and thorough joint lavage and removal of loose fragments. Arthroscopic surgery for tibial plateau fractures is a safe, reproducible, and effective procedure that provides precise diagnosis and effective treatment.

Recent Publications

1. Reasons for failure of surgical treatment in 25 tibial plateau fractures, Huang PH, Cheng CY, Chen YJ, Chen ACY, Hsu KY, Chan YS*, Chen WJ. *Formosan Journal of Musculoskeletal Disorders* Feb. 3 (2012) 14-18.
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Biography

Po Hua Huang completed the following education and training: *1999 -2004, Chung Shan Medical University, Taichung, Taiwan*2005 ~ 2006 Clerk and Internship, Medical student, Chang Gung Memorial Hospital, linkou, Taiwan *2007 ~ 2012 Residency, Department of Orthopaedic Surgery, Chang Gung Memorial Hospital, linkou, Taiwan *2012 ~ 2013 Fellowship, Division of Sports Medicine, Department of Orthopaedic Surgery, Chang Gung Memorial Hospital, linkou, Taiwan Employment *2013~till now Attending, Department of Orthopaedic Surgery, Chang Gung Memorial Hospital, Kaohsiung, Taiwan. Research interest: Orthopaedic Surgery, Orthopaedic Sports medicine, Arthroscopic Surgery.

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