Free Paper Session I — Sports

1.1

Review of 1-Year Results of Surgical Treatment of Patellar Dislocations in a Local Institution

HL Lee,[1] WP Yau[2]
[1]Department of Orthopaedics and Traumatology, Queen Mary Hospital, Hong Kong
[2]Department of Orthopaedics and Traumatology, The University of Hong Kong, Hong Kong

Introduction: Surgery is indicated in recurrent patella dislocations and acute patellar dislocations associated with osteochondral fractures. The role of surgery for acute patellar dislocations without osteochondral fractures is controversial. This study aimed to share our experience of surgery for patellar dislocation and to review its results.

Materials and Methods: Patients who underwent surgery for patellar dislocation according to a predetermined treatment algorithm from January 2011 to April 2014 at Queen Mary Hospital were reviewed. Pre- and post-operative International Knee Documentation Committee (IKDC) scores, Tegner scores, presence of apprehension, and knee flexion range were analysed.

Results: A total of 25 patients were identified. Among them, 14 underwent surgery for recurrent patellar dislocation, including 13 medial patellofemoral ligament (MPFL) reconstructions and 1 combined MPFL reconstruction with Fulkerson osteotomy to correct bony malalignment. Besides, 12 underwent MPFL repair for acute patellar dislocation. There were no postoperative dislocations. For the MPFL reconstruction group, IKDC score improved from 67.7 to 80.8 ($p=0.02$); there was also significant improvement of apprehension ($p=0.01$) but not for Tegner score. For the MPFL repair group, IKDC score at 1 year postoperation was 83.6, Tegner score at 1 year returned to similar level as pre-injury. There was no restriction of postoperative knee flexion range.

Discussion and Conclusion: Surgery according to our treatment algorithm for management of patella dislocation is effective in preventing further dislocations and restoring satisfactory functional outcomes.

1.2

Early Local Experience of Patient-specific Guided Glenoid Baseplate Positioning for Reverse Shoulder Arthroplasty

MMY Chow, PK Yee, KC Poon
Department of Orthopaedics and Traumatology, Pamela Youde Nethersole Eastern Hospital, Hong Kong

Introduction: Proper glenoid component positioning is critical for the success of reverse shoulder arthroplasty. Improper glenoid baseplate positioning may lead to early loosening, scapular notching, and acromion fracture. Surgical planning for patient undergoing reverse shoulder arthroplasty can be improved by using 3-dimensional reconstruction of computed tomography to create a patient-specific drill guided for glenoid baseplate placement in reverse shoulder arthroplasty.

Materials and Methods: In 2015, patient-specific glenoid baseplate drill guide for reverse shoulder arthroplasty was produced and used for 2 patients.

Results: Patient-specific glenoid baseplate drill guide produced satisfactory clinical and radiological outcomes for both patients.

Discussion and Conclusion: Patient-specific glenoid baseplate drill guide produces satisfactory clinical and radiological outcomes. Larger number of patients are needed for the assessment of this technology.

1.3

A Clinically Friendly Motion Capture System to Evaluate Knee Instability in Patients with Anterior Cruciate Ligament Deficiency

MY Yeung, SC Fu, TC Wong, APH Chan, PSH Yung, KM Chan
Department of Orthopaedics and Traumatology, Prince of Wales Hospital, Hong Kong

Introduction: Knee instability related to anterior cruciate ligament deficiency (ACLD) is an important criterion for diagnosis and decision of return to sports (RTS). Currently, the assessments rely on subjective physical examinations, while objective measurements with conventional motion capture system (MCS) is not readily available in most sports clinics. OptiKnee is a compact MCS that enables collection of knee kinematic data. In this study, we used OptiKnee to compare knee kinematics in ACLD patients with healthy controls .

Materials and Methods: A total of 10 unilateral ACLD patients and 10 healthy controls were recruited. Demographic data and International Knee Documentation Committee scores were collected. All participants performed a standardised single-leg hop landing (SLHL) task on both legs. At least 5 trials were collected for each leg. Knee kinematics was obtained and changes at 250 ms after landing were examined. Comparisons were made between the injured and contralateral sides in ACLD subjects, and their side-to-side difference (SSD) were compared with the controls.

Results: The ACLD limbs demonstrated a decrease in maximum knee flexion and an increase in internal rotation and adduction after landing in SLHL task as compared to the contralateral limb, while no significant difference was detected between both limbs in the controls. Significant SSD in knee flexion and internal rotation was detected between ACLD patients and the controls.

Discussion and Conclusion: Our results demonstrated that OptiKnee was able to detect kinematic changes related to knee instability in ACLD patients. This clinically friendly system may enable objective quantitative assessment of knee function and provide evidence for decision of RTS.

1.4

Result of Arthroscopic Cystotomy for Treating Popliteal Cyst in a Case Series with Follow-up Period up to 5 Years

YB Yung, PH Li, YC Wong, YL Wai
Department of Orthopaedics and Traumatology, Yan Chai Hospital, Hong Kong

1.5

High Prevalence of Magnetic Resonance Imaging Lesions of the Knee in Asymptomatic Professional Basketball Players of Hong Kong

YB Wong, WH Yip, W Li
Department of Orthopaedics and Traumatology, Queen Elizabeth Hospital, Hong Kong

Introduction: Knee injuries are common among basketball players and magnetic resonance imaging (MRI) of the knee is useful in diagnosis of these injuries. We evaluated the prevalence of ligament and cartilage lesions in the knees of asymptomatic male professional basketball players in Hong Kong with MRI.

Materials and Methods: Two teams in the men's professional league of the Hong Kong Basketball Association were included. Magnetic resonance imaging scan of specific sequence and clinical evaluation of the knee were performed before the start of the competition season. Cartilage lesions, meniscal pathology, ligamentous tear, and the presence of effusions were particularly looked for.

Results: A total of 24 players (48 knees) met the inclusion criteria and completed their pre-season physical examination and MRI. The overall prevalence of cartilage lesions on MRI was 50% (patellar cartilage 33%, medial femoral condyle 29%, lateral femoral condyle 25%, and trochlear groove 8%). The overall prevalence of meniscal lesions was 12.5% on MRI (medial 67%, lateral 33%). Also, 12.5% had patellar tendinopathy, 8% had partial anterior cruciate ligament rupture, and 8% had medial collateral ligament sprains.

Discussion and Conclusion: Our study showed a high prevalence of meniscal lesions and patellar tendinopathy in male professional basketball players. We also found a large number of patellofemoral cartilage lesions in our study population. These athletes continue to perform at a high demand level, which indicates that the presence of these lesions do not necessarily cause any functional disturbance.

1.6

Image-guided Platelet Rich Plasma Injection Provides Sustained Relief in Recalcitrant Overuse Tendinopathy of the Elbow and Knee

BLY Cheng, DHY Tai, YB Wong, WH Yip, W Li
Department of Orthopaedics and Traumatology, Queen Elizabeth Hospital, Hong Kong

Introduction: This study aimed to compare short-term (6 weeks) and mid-term (6 months and 1 year) treatment outcomes in terms of pain relief, function, and quality of life between extracorporeal shockwave therapy (ESWT), ultrasound-guided single-puncture platelet rich plasma injection (USGPRPI), and blind multi-puncture platelet rich plasma injection (BMPPRPI) in patients with elbow or knee tendinopathies having limited relief from conventional treatments.

Materials and Methods: A total of 60 patients with recalcitrant tennis elbow, golfer's elbow, or patellar tendinitis were subjected to either ESWT, USGPRPI, or BMPPRPI treatment. The ESWT group received 5 sessions of weekly treatment by physiotherapist. The PRPI group completed 3 tri-weekly sessions, half of the subjects received USGPRPI by surgeon A and the other half were treated under BMPPRPI by surgeon B. Assessment tools for pain relief, function, and quality of life were visual analogue scale, Oxford Elbow Score / Kujala Knee Score and 36-item Short-form Health Survey, respectively.

Results: All 3 groups showed similar baseline pain severity, functional and quality of life disturbance before intervention. At 6 weeks, all groups showed statistically significant improvement in the above 3 aspects. At 6-month assessment, slight but insignificant decrease in improvement was noted in both ESWT and BMPPRPI groups, which became significant at 12-month assessment. No major complications were detected.

Discussion and Conclusion: Both ESWT and PRPI are effective treatment for recalcitrant overuse tendinopathy of the elbow and the knee. Sustained relief was observed in image-guided PRPI. Results support that accurate delivery of platelet rich plasma is an important factor for sustained improvement.

1.7

Knee Injury Prevention Programme Improves Biomechanics in Jumping and Landing in Basketball Players, and Reduces Knee Injuries Resulting from Basketball Matches and Practice

WH Yip,[1] YB Wong,[1] WM Chung,[2] KC Lai,[3] MK Chan,[3] W Li[1]
[1]Department of Orthopaedics and Traumatology, Queen Elizabeth Hospital, Hong Kong
[2]Department of Physiotherapy, Queen Elizabeth Hospital, Hong Kong
[3]Department of Radiology, Queen Elizabeth Hospital, Hong Kong

Introduction: This study aimed to investigate the effects of a knee injury prevention programme (KIPP) on the lower limb biomechanics in male professional basketball players of Hong Kong, and its correlation with subclinical and actual knee injury rates.

Materials and Methods: Two teams in the men's professional league were invited to join the study, with magnetic resonance imaging (MRI) of the knee and clinical evaluation done before the start of competition season. Three-dimensional biomechanical motion analysis was done. Hip and knee flexion angles, knee joint varus and valgus torques were calculated. One team (X) was assigned to incorporate the KIPP into their usual warm-up regimen, while the other (Y) continued the normal regimen. After 2 seasons these 3 tests were repeated. The clinical injury rate was documented. Any changes in the subclinical injury severity on MRI were compared.

Results: A total of 20 players (40 knees) completed both phases of the study. Pre-intervention biomechanical motion analysis showed similar values in both teams. After intervention, team X players landed with significantly less valgus angle, as well as more knee and hip flexion than team Y players. Two players in team Y suffered from severe knee injuries over the 2-year period. Significant changes on the post-intervention MRI were also found.

Conclusion: Knee Injury Prevention Programme improves jumping and landing biomechanics in basketball players by adopting a less valgus knee, and more flexed hips and knees on landing, which was correlated with less acute and subclinical knee injuries.

1.8

Prognostic Factors of Retear after Arthroscopic Repair of Massive Rotator Cuff Tear

MTY Ong,[1] PSH Yung,[2] CK Lo,[1] TC Wong,[1] KM Chan[2]
[1]Department of Orthopaedics and Traumatology, Alice Ho Miu Ling Nethersole Hospital, Hong Kong
[2]Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong, Hong Kong

Introduction: Retearing after arthroscopic repair of massive rotator cuff tear has been reported to range from 20% to 60%. This study aimed to evaluate the possible prognostic factors relating to retear of repaired massive tears of rotator cuff.

Materials and Methods: A total of 24 patients underwent arthroscopic repair of massive tears of rotator cuff during the period of 2009 to 2012. They were assessed and reviewed with clinical signs and functional assessment with University of California at Los Angeles and American Shoulder and Elbow Surgeons Shoulder Scale score as the assessment criteria, as well as pre- and post-operative magnetic resonance image (MRI) assessment performed. The following factors were compared between the intact group versus retear group for final analysis: age of patient, smoking, diabetes mellitus (DM), history of significant trauma to the shoulder, presence of subscapularis tear, long head of the biceps (LHB) tendon condition, delamination, size of tear, and presence of significant muscle atrophy (preoperative MRI).

Results: With a mean follow-up of 32 months among these 24 patients (mean age, 55 years), MRI revealed a complete retearing in 4 (17%) cases and partial retearing in another 4 (17%) cases. Patients with complete retear were significantly older than the group without. None of the patient with a history of trauma got retear or partial retear. The retearing rate of patients with either DM, LHB tear requiring tenotomy, or subscapularis tear requiring repair was significantly higher than those without.

Discussion and Conclusion: Older age, DM, and presence of LHB tear requiring tenotomy or subscapularis tear requiring repair are relative poor prognostic factors for retearing of repaired massive rotator cuff tear.

1.9 ***(Royal College of Orthopaedic Surgeons of Thailand Ambassador Paper)***

Fluoroscopic Subacromial Lidocaine Injection — Does It Improve the Accuracy of Clinical Tests in Degenerative Rotator Cuff Syndrome?

P Tuntiyatorn, C Kijkunasathian, N Saengpetch, P Woratanarat, S Jaovisidha, C Angsanuntsukh
Department of Orthopedic Surgery, Faculty of Medicine, Ramathibodi Hospital, Rajchathewee, Bangkok, Thailand

Objective: Full-thickness rotator cuff tear is still a diagnostic challenge for orthopaedic surgeon. The diagnostic accuracy of clinical test is low and pain is the major confounding factor. This study aimed to compare the accuracy of standard shoulder examination before with after fluoroscopic subacromial lidocaine injection to detect full-thickness rotator cuff tear.

Study Design: Randomised diagnostic test study.

Methods: A cross-sectional study was conducted at orthopaedic clinic, Ramathibodi Hospital, Thailand between January and July 2014. Patients aged >40 years who suspected of rotator cuff syndrome, without neuromuscular diseases or previous surgery were recruited. All patients underwent shoulder examination for rotator cuff tear such as Neer, Hawkin, Jobe, Belly press, etc before and after fluoroscopic subacromial lidocaine injection in blinded fashion. Shoulder magnetic resonance imaging, as a gold standard, was performed after the intervention and interpreted by an expert musculoskeletal radiologist. Sensitivity, specificity, accuracy, likelihood ratio, and likelihood of having full-thickness rotator cuff tear were analysed by STATA 12.0 Program.

Results: The mean age of patients was 61.6 years and their mean duration of symptoms was 6 months. The prevalence of full-thickness rotator cuff tear was 35%. After 100% successful of subacromial lidocaine injection, the mean (± standard deviation) shoulder pain score was significantly reduced from 7.7 ± 1.84 to 2.82 ± 1.86. The accuracy of Neer, painful arc, and Jobe weakness tests were improved but not statistically significant. Only Hawkin test was significantly improved in accuracy. The positive result by a combination of Neer, Hawkin, painful arc, and Jobe weakness tests with combined sensitivity of 93% and the negative result all 4 tests presented a negative likelihood ratio of 0.16.

Conclusions: Subacromial lidocaine injection improved shoulder pain significantly and improved the accuracy of Neer, Hawkins, painful arc, and Jobe weakness tests. These combination tests increase ability to diagnose full-thickness rotator cuff tear precluding from unnecessary shoulder MRI saving cost and saving times for the patients.

1.10 ***(Singapore Orthopaedic Association Ambassador Paper)***

Outcomes of Arthroscopic Capsular Release for the Diabetic Frozen Shoulder

KL Puah, MS Salieh, AHC Tan
Department of Orthopaedic Surgery, Singapore General Hospital, Singapore

Introduction: A higher prevalence of frozen shoulder in diabetics has been described. Arthroscopic capsular release has been described for the frozen shoulder refractory to non-surgical treatment. We describe our single-surgeon experience with patients with diabetes mellitus presenting with a frozen shoulder.

Methods and Results: Data were prospectively collected from 25 patients from 2004 to 2010 who underwent arthroscopic capsular release for frozen shoulder with diabetes mellitus including the University of California at Los Angeles (UCLA) Shoulder Score by an independent observer. The mean (± standard deviation) age of patients at the time of surgery was 57.3 ± 10.9 years and their mean follow-up duration being 44.3 ± 22 months. Their mean duration of symptoms prior to surgery was 8.9 ± 7.5 months. A total of 10 right shoulders and 15 left shoulders were operated on. Arthroscopic capsular release was performed in the beach-chair position with the aid of a 90-degree electrocautery hook from the rotator interval to posterior capsule. Significant improvement in the mean UCLA scores (preoperative total score 15.8 ± 3.6 to postoperative 33.3 ± 2.5, $p<0.00$) was noted, including all domains of pain (3.9 ± 1.8 vs. 9.4 ± 0.9, $p<0.00$), function (4.8 ± 1.7 vs. 9.4 ± 1.4, $p<0.00$), active forward flexion (2.6 ± 0.7 vs. 4.6 ± 0.6, $p<0.00$), and satisfaction (0.0 ± 0.0 vs. 5.0 ± 0.0, $p<0.00$). No significant correlation between duration of symptoms and UCLA scores was found. Significant improvement in forward flexion (preoperative 100.4° ± 18.8° vs. postoperative 157.6° ± 15.9°, $p<0.00$) was observed. Although duration of symptoms correlated significantly with preoperative forward flexion, (r=0.443, $p<0.027$), there was no significant correlation with postoperative forward flexion (r=0.023, $p<0.91$). No axillary nerve palsy was observed.

Conclusion: The diabetic frozen shoulder can be treated favourably with arthroscopic capsular release and the duration of symptoms prior to surgery does not affect the outcome.

1.11 ***(Indonesian Orthopaedic Association Ambassador Paper)***

Functional Outcome Comparison of Implantless Bone-patellar Tendon Autografts Using Press-fit Fixation Technique and Hamstring Autografts Using Implant in Arthroscopic Anterior Cruciate Ligament Reconstruction

M Budimansyah,[1] IGMF Siswanto,[2] AMT Lubis[3]
[1]Division of Orthopaedics and Traumatology, Persahabatan Hospital, Indonesia
[2]Division of Orthopaedics and Traumatology, Gatot Soebroto Army Hospital, Indonesia
[3]Division of Knee, Shoulder and Sport Injury, Department of Orthopaedics and Traumatology, Ciptomagunkusumo Hospital / Faculty of Medicine University of Indonesia, Indonesia

Introduction: Anterior cruciate ligament (ACL) reconstruction is one of the most common procedures performed by many orthopaedic surgeons. The severity of injury, cost of implants, and high demanding technique operation leave enormous social and economic issues for the patient. Implantless ACL reconstruction with press-fit femoral fixation technique is one of the alternatives to solve the problems. This study aimed to find whether implantless ACL reconstruction gave comparable functional outcome (non-inferior) objectively and subjectively compared with the ACL reconstruction using implant technique.

Methods: A total of 12 patients underwent implantless ACL reconstruction with press-fit femoral technique and 24 patients underwent ACL reconstruction with implant between March 2013 and March 2014 at Gatot Soebroto Army Hospital, Jakarta, Indonesia. All patients were followed up preoperatively till a minimum of 6 months postoperatively (cohort prospective). Objective functional outcomes were measured using Rolimeter, and subjective functional outcomes were measured according to International Knee Documentation Committee (IKDC) and Tegner-Lysholm scores, as well as Knee Injury and Osteoarthritis Outcome Score (KOOS).

Results: There were no significant differences in objective and subjective functional outcomes between implantless group compared with implant group preoperatively, as well as at 1 month, 3 months, and 6 months postoperatively. Mean Rolimeter measurement result was obtained as objective functional outcome at 6 months postoperation with higher result in implantless group (95% confidence interval) of 0.82 (-0.09 to 1.73) mm (p=0.075). Rolimeter measurement at 6 months postoperation between the injured knee and the healthy knee (side-to-side difference) showed a median (interquartile range) of 1.00 (0.067-2.08) mm and 1.34 (0.33-1.92) mm (p=0.799). Median for Tegner-Lysholm score at 6 months postoperation for implantless group and implant group were 95.00 (87.00-100.00) and 95.00 (90.00-100.00), respectively (p=0.989). Mean (± standard deviation) IKDC score at 6 months postoperation in implantless group and implant group were 73.47 ± 10.473 and 69.65 ± 10.286, respectively (p=0.303). The median KOOS score at 6 months postoperation in implantless group and implant group was 90.20 (81.13-90.95) and 88.10 (84.65-93.35), respectively (p=0.999). Non-inferiority was checked parametrically and its border mean difference of 8 points for IKDC and 10 points for KOOS and Tegner scores were insignificant.

Conclusion: Objective and subjective functional outcomes of patients who underwent implantless ACL reconstruction using press-fit femoral fixation showed a non-inferior result compared with those who underwent ACL reconstruction using implant in 6 months' (short-term) follow-up.