

## Free Paper Session VII: Adult Joint Reconstruction II

### FP7.1

#### Dressing Protocol for Shorter Hospital Stay

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**Introduction:** The current development in joint replacement surgery is directed towards achieving fast-track or even outpatient joint replacement surgeries. To work towards this goal, it is vital to look into the six main criteria that dictate hospital stay: wound status, pain control, mobility, deep venous thrombosis, blood management, and patient self-care. This study focuses on a new dressing protocol and its associated complications. The new dressing protocol proposed involves intra-operative bleeding management with leak test, and use of absorbent dressing, plain gauze, velband, and crepe bandaging immediately after surgery. There is no wound review or dressing change until 14 days after surgery unless indicated otherwise.

**Methods:** This was a prospective study from May 2018 to December 2018, collating cases of joint replacement from two centres. The new dressing protocol was adopted in all cases and outcomes were evaluated.

**Results:** In total, 215 cases were included, with mean age 69 years. Cases included 93 total knee replacements, 39 bilateral total knee replacements, 59 partial knees, and 9 bilateral partial knees; 15 cases were excluded. Also, 37 patients necessitated the use of a drain. Overall, 27 (13.5%) patients required a dressing change before discharge and 30 (15.0%) patients required dressing changes within the first 14 days after discharge.

**Conclusion:** Wound complication is a major factor to consider when discharging a patient from hospital. The new dressing protocol is able to shorten hospital stay but requires patient cooperation, good self-care, optimal rehabilitation plan, and adequate nursing support.

## FP7.2

### **Combined Adequate Pressure and Silicone Therapy versus Conventional Pressure Therapy for Hypertrophic Scar in Lower Limb Arthroplasty: Early Results from a Randomised Control Trial**

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**Introduction:** Pressure therapy and silicone therapy are recommended as a first-line non-invasive treatment for hypertrophic scar. However, the effectiveness of the combination of these two treatments has not been established. The aim of this study was to examine the outcome of this combined therapy through a randomised control trial.

**Methods:** Since March 2019, all patients have been reviewed for scar management after lower limb arthroplasty. Scars are evaluated based on the Vancouver Scar Scale (VSS). Those with VSS score of  $\geq 4$  are randomised into the interventional trial. Patients with VSS score of  $< 4$  are monitored for 6 months. Outcome measurements including the thickness of the hypertrophic scar and the global scar condition will be assessed.

**Results:** In the research sample (n=49; 79.6% female), total knee replacement rate was 83.7% and median age was 72 years. A total of 24% of the sample population developed hypertrophic scarring tendency. Comparing VSS scales at second screening with first screening, four (18.2%) of 22 patients developed hyperpigmentation from normal appearance, four (18.2%) turned red from normal vascularity, six (27.3%) showed "supple" or "yielding", and five (22.7%) had scar height increased from  $> 1$  to 2 mm from flat. Four patients reported a change in pain score from 0 to 5, and two increased from 0 to 7 in itchiness score.

**Conclusion:** Early data suggest the prevalence of hypertrophic scar after lower limb arthroplasty is lower than previously reported. However, more long-term follow-up of these patients is needed to assess the benefit of interventional therapy.

## FP7.3

### **Tissue Adhesives for Total Knee Arthroplasty Wounds: A Randomised Controlled Trial**

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**Introduction:** Patients who undergo total knee arthroplasty (TKA) conventionally receive wound dressing and are advised against water contact for 2 weeks after surgery. Cyanoacrylate tissue adhesive (CTA) is waterproof and provides a physical barrier to microbial penetration; therefore, we aimed to assess its efficacy and safety for TKA wounds.

**Methods:** A total of 75 patients receiving primary TKA were randomised to receive either CTA, CTA with mesh, or steristrips, with 25 patients per group. The TKA wounds were closed in three standard layer sutures using barbed sutures for arthrotomy, subcutaneous, and subcuticular layers. Patients who received CTA were encouraged to shower without covering the wound from day 3 after surgery onwards. A logbook was given to patients to record the frequency of showering and wound coverage. Wound oozing, bruising, allergic reactions, and Southampton Wound Scale score at day 14 were documented.

**Results:** All wounds healed at 2 weeks without infection. Mild blood staining of the outer dressing was observed in 28%, 37.5%, and 56.5% of patients in the CTA, CTA with mesh, and steristrip groups, respectively, and all resolved spontaneously. In all, 83.3%, 83.3%, and 56.5% patients, respectively, reported showering within 2 weeks. In total, 55% of CTA with mesh and 35% of CTA patients had wounds uncovered during showering as instructed. The mean number of times showered within 2 weeks was 7.8, 8.2, and 5.5 for the CTA, CTA with mesh, and steristrip groups, respectively.

**Conclusions:** The CTA reduces wound oozing and allows patients to safely shower without increasing risk of infection or delaying wound healing.

**FP7.4****Closed Incisional Negative Pressure Wound Therapy Effect on Wound Complication Rate in Arthroplasty: A Retrospective Review****KH Lam, SL Cheung, PK Chan, AKP Cheung, CH Yan, KY Chiu***Department of Orthopaedics and Traumatology, Queen Mary Hospital, Hong Kong*

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**FP7.5****Alternative Techniques for Microbiological Yield in Prosthetic Joint Infection****KF Tang,<sup>1</sup> PK Chan,<sup>1</sup> DL Hung,<sup>2</sup> WC Fung,<sup>1</sup> CH Yan,<sup>1</sup> KY Chiu<sup>1</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital, Hong Kong*<sup>2</sup>*Department of Microbiology, Queen Mary Hospital, Hong Kong*

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**FP7.6****Early Outcome of Unicompartmental Knee Replacement Compared with a Matched Cohort of Total Knee Replacement****HK Yu, BYH Tang, HL Wong***Department of Orthopaedics and Traumatology, Tuen Mun Hospital, Hong Kong*

**Introduction:** The aim of this study was to compare the early outcomes of patients who underwent unicompartmental knee replacement (UKR) with a matched cohort of patients who underwent total knee replacement (TKR) in the treatment of knee osteoarthritis involving mainly the medial compartment.

**Methods:** In all, 28 patients who underwent UKR were matched with 28 patients who underwent TKR based on age, body mass index, preoperative range of motion (ROM), Knee Society Score (KSS), and alignment. Immediate outcomes were assessed by postoperative pain (patient-controlled analgesia use and pain score), blood loss (haemoglobin drop), and length of stay. Early functional outcomes were measured with KSS and ROM at 3 months after surgery.

**Results:** Compared with those in the TKR group, patients in the UKR group had statistically significant higher KSS (154.3 for UKR, 141.2 for TKR,  $p=0.01$ ) and ROM ( $114.8^\circ$  for UKR,  $99.1^\circ$  for TKR,  $p<0.01$ ) at 3 months after surgery. The KSS at 1-year after TKR is comparable to that 3 months after UKR. There was no significant difference in early postoperative pain score ( $p>0.05$ ) but mean postoperative patient-controlled analgesia use was lower in the UKR group than in the TKR group. Patients in the UKR group had less haemoglobin drop (1.2 g/dL for UKR, 1.7 g/dL for TKR,  $p=0.02$ ) and shorter length of stay (4.4 days for UKR, 6.1 days for TKR,  $p=0.001$ ) compared with patients in the TKR group.

**Conclusion:** Patients in the UKR group had less postoperative patient-controlled analgesia use and blood loss, shorter length of stay, and faster recovery with better early KSS and ROM than did patients in the TKR group. Further study is necessary for comparison of long-term outcomes and survivorship between the two groups.

## FP7.7

### Early Results of Oxford Mobile-bearing Prosthesis-based Bicompartamental Knee Arthroplasty

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**Introduction:** Bicompartamental knee arthroplasty (BKA) is a bone-preserving and ligament-preserving procedure. Two separate implant techniques allow the surgeon to concentrate on one area at a time without compromising other. Conventionally, a fixed-bearing unicompartmental knee arthroplasty (UKA) implant was used for this purpose. However, the narrow gap between two implants made sizing and positioning of the implant challenging. The unique geometry and instrumentation of the Oxford mobile-bearing prosthesis can potentially solve this problem. We performed Oxford-based BKA since 2018 with the rationale that it would be more knee-preserving with a lower complication rate.

**Methods:** Indication for BKA followed the Oxford criteria for medial UKA except that we included the patellofemoral joint with lateral facet arthritic change with grooving or bone loss and age <85 years. The operating time, blood loss, length of stay, and range-of-motion and knee scores before and at 6 months after surgery were studied.

**Results:** From January 2018 to June 2019, 10 BKA surgeries were performed. After exclusion of two fixed-bearing robotic-assisted BKA; eight Oxford-based in 7 patients were included. There were 2 men and 5 women with mean age 69 (range, 65-79) years. Mean operative-time was around 103 minutes. Average haemoglobin drop was 1.8 g/dL. No cases needed transfusion or had any major complications. Average length of stay was 4.2 days. All cases showed functional improvement in terms of range-of-motion and knee scores.

**Conclusion:** Oxford-based BKA is technically easier than UKA with conventional instrumentation. The early clinical outcomes from our study are promising. However, longer follow-up evaluation is necessary to study on performance and survivorship to compare with fixed-bearing BKA and total knee replacement.

## FP7.8

### Application of Digital Templating in Oxford Unicompartmental Arthroplasty

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**Introduction:** This study aimed to investigate preoperative digital templating for component size in Oxford unicompartmental knee arthroplasty (UKA) specific to our Asian population.

**Methods:** Preoperative X-ray digital templating on 50 consecutive patients planned for Oxford medial UKA. Operating surgeons were not informed of templating measurements. Intra-operatively, femoral component size was determined by sizing spoon. Tibial component size was determined by matching the opposite tibial template tray on excised plateau and confirmed by hooking the posterior cortex. Postoperative radiographs were analysed for accuracy of component size.

**Results:** A total of 47 knees in 37 patients had Oxford UKA. Tibial components that were the same size as templated had significantly fewer of suboptimal size on postoperative radiograph (0% vs 28.6%, p=0.0146). Tibial components within one size as templated also had significantly fewer of suboptimal size (8.1% vs 50%, p=0.0067). For femoral components, no significant difference was seen for implanted components that were the same size as templated (p=1.0) or within one size difference (p=0.34). Combinations in which both component sizes were the same as templated had significantly fewer suboptimal sizes on postoperative radiograph (0% vs 32.4%, p=0.0459). Where both components were within one size as templated, there were significantly fewer of suboptimal size (13.9% vs 63.6%, p=0.0026).

**Conclusion:** This study demonstrated that preoperative templating provides an accurate estimation for component size in the Oxford UKA for tibia components.

## FP7.9

### Accuracy of Microplasty Instrumentation in Oxford Mobile-bearing Unicompartmental Knee Arthroplasty Compared with Conventional Fixed-bearing Unicompartmental Knee Arthroplasty

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**Introduction:** Unicompartmental knee arthroplasty (UKA) requires accurate positioning of components. We compared the accuracy of instrumentation between conventional fixed-bearing UKA and Oxford UKA.

**Methods:** A total of 150 patients (194 knees) were included between April 2013 and June 2019. Postoperative radiographs and computed tomography were performed. On anteroposterior (AP) views, the varus/valgus alignment of the femoral and tibial components was measured relative to the anatomical axis. The knee rotation angle was the difference between the femoral and tibial axial rotation. A rotational mismatch was defined as a knee rotation angle of  $>10^\circ$ .

**Results:** Between April 2013 and March 2019, 112 patients (150 knees) received Oxford UKA, one patient (2 knees) had Journey UKA, and 37 patients (42 knees) received Zimmer UKA. All femoral component Oxford UKA were implanted within the reference range. 63.4% of fixed-bearing UKA were implanted outside of the reference range of  $7 \pm 5$  degrees ( $p < 0.001$ ). 88.3% of Oxford UKA tibial component fell within the reference range, whereas 56.1% knees fell within the reference range ( $p < 0.001$ ). In all, 97.5% of Oxford knees had tibial slope that fell within reference range, whereas 53.7% fell within range for fixed-bearing UKA. Knee rotation angle of  $>10^\circ$  was noted in 13.8% in Oxford UKA and 20.5% in fixed-bearing UKA.

**Conclusion:** Microplasty instrumentation for Oxford mobile-bearing UKA is more accurate compared with conventional fixed-bearing UKA in sagittal, coronal, and axial alignment.

## FP7.10

### Influence of Component Alignment on Short-term Clinical Outcomes in Oxford Unicompartmental Knee Arthroplasty

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**Introduction:** Unicompartmental knee arthroplasty (UKA) is an established treatment option for patients with isolated medial or lateral compartment knee osteoarthritis. In this study, we aimed to investigate whether component alignment in Oxford UKA has any influence on short-term clinical outcomes.

**Methods:** All patients undergoing Oxford mobile-bearing UKA between March 2018 and 2019 were included. Clinical outcomes were quantified by Knee Society Functional Assessment, Modified Knee Society Knee score, and Oxford Knee Score. Femoral and tibial component alignments were measured on anteroposterior and lateral radiographs. Femoral and tibial axial rotations were obtained on computed tomography axial cuts.

**Results:** Of the 112 patients (150 knees), 90 patients (120 knees, 80%) were included in the clinical outcome analysis (mean follow-up: 182.6 days). All of the femoral component coronal alignment was within acceptable range. The tibial coronal alignment was acceptable in 106 knees (88.3%). In all, 96% of knees were within the recommended range for femoral flexion angle. Mean tibial slope was within the recommended range in 97.5% of cases. There was no correlation between component positioning and overall clinical scores. Eleven patients (13.8%) had rotational mismatch between the femoral and tibial components. There was no correlation between component rotation and clinical outcomes.

**Conclusion:** The short-term outcomes are not affected by the coronal, sagittal, and rotational alignment for Oxford UKA when they are implanted within the recommended reference ranges.

### FP7.11

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#### **On Table Conversion from Unicompartmental Knee Arthroplasty to Total Knee Replacement**

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### FP7.12

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#### **Long-term Outcomes of High Tibial Osteotomy and Conversion Total Knee Replacement in a Local Joint Replacement Centre**

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**Introduction:** High tibial osteotomy (HTO) has been a common surgical treatment for knee medial compartment osteoarthritis. There are different methods of HTO including lateral closing wedge, medial open wedge, and dome osteotomy. This study aimed to report the outcomes of HTO and total knee replacement (TKR) after HTO.

**Methods:** There were 107 HTO done from 1995 to 2019 in our centre. Survival analysis was done with Kaplan-Meier method, with conversion TKR as the endpoint. All conversion TKR done in our hospital were evaluated. Wound exposure, choice of TKR implant, operative details, and operating time were reviewed.

**Results:** In all, 25 HTO were converted to TKR at a mean  $12.9 \pm 8.7$  years after HTO, with 86.7% survivorship by 10 years. Together with five conversion TKR for HTO done in other hospitals, we included total 30 conversion TKR from 1999 to 2019. Fifteen cases required quadriceps snip to facilitate exposure. Eight cases had HTO implant removal during TKR. A conventional TKR prosthesis was implanted in 21 cases (70%), six required tibial stemmed implant (20%) and three required semi-constrained TKR (10%). No obvious relationship was seen between the type of HTO and TKR. Mean operating time was  $134.9 \pm 52$  minutes. Only one of 30 conversion TKR required revision due to aseptic loosening.

**Discussion:** High tibial osteotomy performed in our centre showed satisfactory survivorship. In conversion cases, with careful preoperative planning and corresponding addresses to various technical difficulties, most of them can be converted to conventional TKR with satisfactory results.

**FP7.13****Descending High Tibial Osteotomy: A Local Case Series****H Pang,<sup>1</sup> RCW Wan,<sup>1</sup> LCM Lau,<sup>1</sup> YW Hung,<sup>2</sup> CKB Kwok,<sup>3</sup> JCH Fan<sup>2</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital, Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, Alice Ho Miu Ling Nethersole Hospital, Hong Kong*<sup>3</sup>*St Teresa's Hospital, Hong Kong*

**Introduction:** High tibial osteotomy (HTO) is an effective intervention in active patients with medial knee osteoarthritis (OA). Conventional methods of HTO including opening and closing wedge would alter patellar height and potentially affect knee function. In our centre, we performed descending HTO (dHTO) in patients with large calculated osteotomy gap, with the rationale that it would not affect patellar height, and thus result in better postoperative function.

**Methods:** In our centre, patients with medial knee OA fitting ISAKOS protocol and large osteotomy gap (>2 cm) were recruited for dHTO. Perioperative history, physical examination, functional scores, and radiography were documented. Descending HTO was performed by a single surgical team with TomoFix plate, tibial tuberosity screw, and iliac crest bone autograft, and followed a standardised rehabilitation protocol.

**Results:** From 2016 to 2018, our centre performed four dHTO (out of 55 HTO in total) on two patients (ie, sequential dHTO on both knees). There was one male patient aged 63 years, and one female patient aged 51 years. Each case was followed up for at least 1 year after dHTO with clinical and radiographic outcomes documented. Three dHTO were performed with freehand technique, and one with three-dimensional printed jig. One out of four dHTO had loss of fixation requiring revision at 8 weeks after surgery, after which recovery was uneventful. All cases of dHTO improved clinically and radiologically.

**Conclusion:** This case series demonstrates that dHTO is a viable approach for active patients with medial OA and a large osteotomy gap.

**FP7.14****Allowable Opening Gap in Medial Opening Wedge Ascending High Tibial Osteotomy: A Retrospective Review from a Local Joint Centre****RCW Wan,<sup>1</sup> H Pang,<sup>1</sup> JCH Fan,<sup>2</sup> YW Hung,<sup>2</sup> CKB Kwok,<sup>3</sup> LCM Lau<sup>2</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Prince of Wales Hospital, Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, Alice Ho Miu Ling Nethersole Hospital, Hong Kong*<sup>3</sup>*Private Practice, Hong Kong*

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## FP7.15

### Semi-automated Computer-aided Surgical Planning System for High Tibial Osteotomy

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**Introduction:** With three-dimensional (3D) printing technology, osteotomies can be planned preoperatively with multiplanar corrections and executed in operations accurately. However, 3D printing has not yet become a routinely used technology owing to time-consuming planning, lacking of user-friendly 3D planning software available for surgeons in the market, and extra investment needed for developing a technical team.

**Methods:** We have developed a modular software system for osteotomy planning and personalised surgical instrument design using the Python environment and (Python™, United States) based on the Visualization Toolkit (Kitware, United States). Ten patients with medial knee osteoarthritis fitting the ISAKOS protocol were recruited for descending high tibial osteotomy. All surgeries were planned by the software system and performed by a single surgical team with TomoFix plate and iliac crest autograft.

**Results:** An average of 10 minutes was needed to familiarise the surgeon with the software and 20 minutes was needed to plan and design the patient-specific instruments. This is much faster than using commercially available Mimics software alone, which requires 2 to 3 hours by an experienced engineer, not including communication time. All varus knees were corrected to less than 3° valgus which is acceptable according to the literature.

**Conclusion:** The developed software system reduced the preoperative time for 3D printing-assisted osteotomy significantly; reduced the software learning time and communication time for surgery; and generated accurate plans for surgery. With such software systems, more patients could benefit from 3D-printing technology.

## FP7.16

### Radiographic Difference and Correlation between Medial and Lateral Tibial Plateau Coronal Obliquity in Native Knees

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**Introduction:** We aimed to investigate whether there is any radiographic difference or correlation between medial and lateral tibial plateau coronal obliquity in native knees.

**Methods:** We recruited 48 (40 male, 8 female) young patients (mean age, 25.1 years) with 50 anterior cruciate ligament (ACL)-deficient knees. Standard anteroposterior non-weight-bearing radiographs of the 50 ACL-deficient knees were used for measurement. For reference purposes, knee joint line was defined as a line intersecting the most distal points of medial and lateral femoral condyles. We then measured the medial and lateral tibial plateau coronal obliquity, defined as the angle between the joint line and the line joining the most medial and lateral points of articular surface of each tibial plateau. For comparison, positive angles denoted lateral inclination while negative angles denoted medial inclination. Paired t test was performed to analyse the mean difference between medial and lateral tibial plateau coronal obliquity. We further assessed the association between medial and lateral obliquity using a Pearson correlation.

**Results:** Significant difference was found between medial (mean  $-1.3 \pm 2.5^\circ$ ) and lateral obliquity ( $+0.8 \pm 2.9^\circ$ ) [ $p < 0.001$ ]. The mean difference was  $3.3 \pm 2.9^\circ$  (range,  $0-11.8^\circ$ ). On calculating the Pearson correlation coefficient, there was no significant correlation between medial and lateral obliquity ( $r=0.06$ ,  $p=0.69$ ).

**Conclusion:** We found a significant difference without correlation between medial and lateral tibial plateau coronal obliquity in native knees. Our results highlight the importance of individualised assessment of mediolateral tibial plateau coronal obliquity in considering knee joint line obliquity.

## FP7.17

**Unresurfaced Patella in Total Knee Replacement: A >10-Year Follow-up****A Cheung,<sup>1</sup> MH Cheung,<sup>2</sup> PK Chan,<sup>1</sup> H Fu,<sup>1</sup> CH Yan,<sup>2</sup> KY Chiu<sup>2</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital, Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong, Hong Kong*

**Introduction:** To resurface or not to resurface the patella in total knee arthroplasty (TKA) is still controversial. Radiographic change in the unresurfaced patella articulation after TKA and how this related to clinical outcome remains understudied.

**Methods:** Eighty-eight TKAs were performed without patella resurfacing between 2000 and 2002, all using the same brand of prosthesis (LCS, DePuy Synthes Joint Reconstruction, Warsaw [IN], United States) were assessed. Latest skyline view radiographs of each TKA were compared to the initial postoperative radiograph. Rehabilitation parameters and presence of anterior knee pain were recorded.

**Results:** Mean duration of follow-up was 15.5 (standard deviation=1.5; range, 10-17) years. No revisions for patellofemoral issues or secondary patella resurfacing was required. 6.3% of TKAs had issues related to anterior knee pain at latest follow-up. 41% of TKAs had no evidence of radiographic changes over the patellofemoral joint (PFJ). No relationship was found between presence of PFJ radiological changes and anterior knee pain (Chi squared test,  $p=0.158$ ) and postoperative rehabilitation outcomes. Postoperative pain scores and Knee Society Knee Scale scores were high.

**Conclusion:** Patella resurfacing, a procedure fraught with risk of dire complications, may not be necessary for good outcome after TKA. Despite presence of radiological progression of patellar degenerative changes, the incidence of anterior knee pain and patellofemoral issues after TKA is low.

## FP7.18

**High Prevalence of Radiological Patellofemoral Joint Arthritis after Total Knee Replacement: A Retrospective Study with >5-Year Follow-up****DKH Wong, SMH Cheung, H Fu, A Cheung, CH Yan, KY Chiu***Department of Orthopaedics and Traumatology, Queen Mary Hospital, Hong Kong*

**Introduction:** Osteoarthritis (OA) of the knee is one of the most common degenerative conditions affecting the elderly people. Arguably the most effective surgical treatment for end-stage OA knee is total knee replacement (TKR). Whether the patella should routinely be resurfaced during TKR remains controversial. Proponents of resurfacing believe that it reduces anterior knee pain and improves knee function after surgery. Opponents of resurfacing argue that it is associated with increased complication rates without any reduction in anterior knee pain. This study aimed to evaluate the long-term incidence of radiological patellofemoral joint arthritis in a cohort of patients from our centre at more than 5 years post-TKR.

**Methods:** All patients who had a TKR operation done at our hospital in 2013 were retrospectively reviewed. Skyline radiographs up to 6 months after surgery were compared with the most recent follow-up skyline radiographs. These radiographs were evaluated for new incidence of patellofemoral joint arthritis after TKR as manifested by new osteophyte formation, joint space narrowing, or subchondral sclerosis or cyst formation.

**Results:** A total of 256 patients were included. Adequate follow-up was available for 231 patients. The incidence of radiological patellofemoral joint arthritis at >5 years after surgery in this cohort was 29.7%.

**Conclusion:** Patellofemoral joint arthritis after TKR is a common radiological finding on long-term follow-up. Further studies should be performed to see if this finding is clinically significant; if it is, routine patella resurfacing in TKR should be reconsidered.

### FP7.19

## **Modifying Patient Expectations before Total Knee Replacement Using a Structured Preoperative Education Module**

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**Introduction:** Unmet expectations after total knee replacement (TKR) is a major reason for patient dissatisfaction after TKR. Preoperative education regarding realistic expectations after TKR may potentially serve as a means of modifying patient's preoperative expectations and eliminating unreasonable expectations.

**Methods:** A total of 86 patients were randomised to either standardised preoperative education (control, n=37) or usual education with the addition of a module regarding realistic expectations for long-term recovery after TKR (intervention group, n=49). The Hospital for Special Surgery (HSS) Knee Replacement Expectations Survey was used to assess patient's expectations after education. Knee Society Knee Score (KSKS), Knee Society Functional Assessment (KSFA), and patient-reported satisfaction scores were assessed at 6 weeks and 3 months after surgery.

**Results:** Overall, 73% of patients expect complete alleviation of knee pain after surgery and 78% of patients expect to be able to walk for long distances (>2 km). No significant difference in the baseline characteristics of the control and intervention groups was noted. Average preoperative HSS expectations score was 30.7 and 32.2 in the intervention and control groups, respectively (p=0.306). No significant difference was noted in the satisfaction, KSKS and KSFA scores at 6 weeks and 3 months after surgery.

**Conclusion:** Overall, patients have high expectations for long-term recovery after TKR. The HSS expectations scores were lower in the intervention group than in the control group but this was not significant. Further study into methods of modifying patient expectations is warranted.

### FP7.20

## **Tibial Tray Thickness Does Not Significantly Increase Medial Tibial Bone Resorption: Using Tibial Bone Density as an Objective Measurement Method**

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**FP7.21****In-vivo Oxidation of Highly Crosslinked Polyethylene and Effect on Wear in Total Hip Arthroplasty****A Cheung,<sup>1</sup> CH Yan,<sup>2</sup> PK Chan,<sup>1</sup> H Fu,<sup>1</sup> MH Cheung,<sup>2</sup> KY Chiu<sup>2</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital, Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong, Hong Kong*

**Introduction:** Retrieval studies of highly crosslinked polyethylene (HXLPE) acetabular liners have demonstrated presence of in vivo oxidation which may result in loss of mechanical properties. Whether time-dependent in vivo oxidation affects the wear properties of HXLPE is still poorly understood with few studies examining this relationship.

**Methods:** A total of 43 total hip arthroplasties (THAs) using a single brand of HXLPE liner (Marathon), cementless cup (Duraloc), and 28-mm hip ball were performed in 33 patients. Clinical outcomes were evaluated. Linear and volumetric wear were determined using the Martell method. Presence of osteolysis and acetabular abduction and version angles were also assessed.

**Results:** Average age at time of operation was 41.1 (29-50 ± 6.8) years. Average duration of follow-up was 12.3 (range, 8-15) years. One patient underwent revision at 9.8 years after surgery for reasons unrelated to polyethylene wear. Overall, for the entire study period excluding creep, linear wear rate was 0.046 mm/year. Calculated wear rates during years 2-5, 5-10 and 5-15 after implantation were 0.0408 mm/year (0-0.165 ± 0.0439), 0.0437 mm/year (0-0.169 ± 0.0472) and 0.0549 mm/year (0.0247-0.116 ± 0.0289), respectively, p=0.384. There was no evidence of osteolysis on latest postoperative radiographs.

**Conclusion:** Wear rates were not found to vary significantly with the in vivo duration. This suggests that remelting is indeed an effective strategy in the removal of free radicals and thus, the mechanical properties of the liner are not compromised over time. In vivo duration is not a significant factor affecting rates of wear of remelted HXLPE used in THA. Clinical performance is excellent even at >10 years after surgery.

**FP7.22****Excellent 10-Year Survival of Highly Crosslinked Polyethylene in Large-diameter Hip Ball: A Prospective Helical Computed Tomography Study****MH Cheung,<sup>1</sup> H Fu,<sup>2</sup> A Cheung,<sup>2</sup> PK Chan,<sup>2</sup> CH Yan,<sup>1</sup> KY Chiu<sup>1</sup>**<sup>1</sup>*Department of Orthopaedics and Traumatology, The University of Hong Kong, Hong Kong*<sup>2</sup>*Department of Orthopaedics and Traumatology, Queen Mary Hospital, Hong Kong*

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