Oxford Partial Knee 40 Year Symposium

26-27 September 2016

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Oxford® Partial Knee

Oxford® Partial Knee

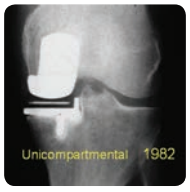
The most widely used and clinically proven[1] partial

First patent filed regarding the innovative design of the Oxford Partial Knee (Inventors: Professor John O'Connor & Mr. John Goodfellow)

1974

1976

The first Oxford Partial Knee is implanted by Mr. John Goodfellow



Oxford Partial Knee replacement is used for the treatment of anteromedial osteoarthritis after correct indications have been identified

1982

1987

Oxford Phase 2: Introduction of second generation Oxford Partial Knee which patented a method of milling the distal medial condyle with a spherical reamer

Oxford Phase 3: Improved design suitable for minimally invasive use and Oxford Instructional Courses are introduced

1998

2004

Oxford Cementless Partial Knee is launched with a PPS® and HA coating

Oxford Domed Lateral Knee comes to market; the design concept mimics the movement of a healthy knee

2006

2009

Launch of the Oxford Knee with a TiNbN coating

knee system in the world

2011

Launch of Microplasty® Instrumentation, designed for ease of use and reproducible results

2011

Long-term study shows 91% survivorship of Oxford implants at 20 years[2]

2011

The Oxford Partial Knee celebrates its 35th anniversary

2012

The Oxford Partial Knee is made available with Signature™ Personalized Patient Care*, an image-based approach to preoperative planning using patient-specific positioning guides

2014

First publication of results of Microplasty Instrumentation – more accurate and more reproducible than Phase 3 Instrumentation[3]

2015

Launch of Oxford Fixed Lateral PKR: designed for optimal coverage of the lateral compartment

2015

Zimmer and Biomet combine to create Zimmer Biomet

2015

5-year independent Oxford Cementless study shows 99% survivorship[4]

2016

Oxford Partial Knee celebrates 40 Year Anniversary

Thank you for attending the Oxford Partial Knee 40 Year Symposium, 26-27 September 2016

We want to thank you for attending the Oxford Partial Knee 40 Year Symposium 26-27 September 2016. We look back on what we think was a great and unforgettable meeting and are happy that you wanted to commemorate the 40th anniversary of the Oxford Partial Knee with us. We certainly hope that you found the symposium educational, enjoyable and worthwhile.

We think that there are very few products that have stood the test of time and have a clinically proven track record like the Oxford Partial Knee. At the same time the range of presentations at the symposium has shown that there is still strong belief for the Oxford Partial in the treatment of anteromedial osteoarthritis and through innovation continues to improve and evolve.

In this booklet, you will find the 40 year timeline of the Oxford Partial Knee, as well as, key questions presented to 10 orthopaedic surgeons from around the world.

Again, it was great meeting you at the Oxford Partial Knee 40 Year Symposium and your presence helped to make this event a great success.

We hope to see you again soon.

Yours sincerely,

Dr. Keith Berend
White Fence Surgical Suites
New Albany, USA

Mr. William Jackson
Nuffield Orthopaedic Centre
Oxford, UK

Dr. Sander Spruijt
Sint Maartenskliniek
Woerden, NL

Oxford Partial Knee 40 Year Symposium:

Ten Questions answered by Ten Oxford Partial Knee Surgeons

Dr. M. Berend
Mr. Bottomley
Dr. Christen
Dr. Kendall
Dr. Oosthuizen
Dr. Maxwell
Dr. Strömmer
Dr. van Geenen
Professor In
Dr. Yoshida

Dr. M. Berend

United States

Q: What percentage of your primary knee arthroplasty practice consists of partial knee arthroplasty (PKA)?

A: *55% (includes approximately: 90% medial, 9% lateral and 1% patellofemoral arthroplasty)*

Q: Do you consider patellofemoral OA to be a contraindication for medial or lateral PKA?

A: *I consider medial patellofemoral OA with lateral facet PFJ bone on bone to be a contraindication. However, I do not consider medial facet patellofemoral disease, either radiographic or intraoperatively, to be a contraindication.*[5,6]

Q: When should patellofemoral OA be seen as a contraindication?

A: *I would need more data to make that determination.*

Q: What is your standard radiographic workup for PKA?

A: *Standing AP, PA flex, sunrise, lateral with overlapping condyles, varus or valgus stress.*

Q: What are the advantages (and disadvantages) of PKA compared to TKA?

A: *Quicker recovery*[7]*, save 2/3 of normal knee, better ROM*[7]*, lower risk of death and infection complications.*[8] *There is also equal 8 year risk of reoperation*[9] *with the potential for outpatient opportunities.*

Q: What prevents you from doing more of your knee arthroplasties as Oxford Partial Knees?

A: *I think I am trying to identify all patients with AMOA and am maxed out on the portion of my practice that are candidates.*

Q: What is the minimal percentage of total volume of PKA a surgeon should perform to obtain good results?

A: *In my opinion, 3-4 per month.*[13]

Q: Is the localisation of pain important to you when considering a PKA?

A: *Not at all.*

Q: Do you think education is key/mandatory for any surgeon who starts with PKA?

A: *Absolutely critical.*

Q: What percentage of all primary knee arthroplasty should partial knees be in 5 years' time?

A: *Over 30% – with driving factors including outpatient opportunities, patient interest, patient satisfaction, and lower complication rate.*

Mr. Bottomley

United Kingdom

Q: What percentage of your primary knee arthroplasty practice consists of partial knee arthroplasty (PKA)?

A: *49%*

Q: Do you consider patellofemoral OA to be a contraindication for medial or lateral PKA?

A: *No. The evidence shows that the most important indications for a medial mobile bearing partial knee replacement are: functionally intact ligaments[10], full thickness medial cartilage loss[11], and preservation of the lateral compartment cartilage[12]. There are only very few contraindications arising from the PFJ for the mobile bearing medial UKA (see below).*

Q: When should patellofemoral OA be seen as a contraindication?

A: *When there is advanced arthritis of the lateral facet of the patella, with full thickness cartilage loss and grooving of the subchondral bone, I tend not to perform a UKA.*

Q: What is your standard radiographic workup for PKA?

A: *Standing AP, Rosenburg, long leg alignment and skyline views. As supplementary imaging, I may utilise stress radiographs or perform an MRI scan.*

Q: What prevents you from doing more of your knee arthroplasties as Oxford Partial Knees?

A: *I believe my practice is well balanced already.*

Q: What are the advantages (and disadvantages) of PKA compared to TKA?

A: *The evidence shows that after PKA, patients have roughly half the risk of death, infection and thromboembolism in comparison to patients after TKA.[8] In my patient group, the length of stay is lower after a PKA with a greater number reporting an excellent outcome and a lower number reporting a poor outcome. This pattern is also seen national joint registry reports.[22]*

Q: What is the minimal percentage of total volume of PKA a surgeon should perform to obtain good results?

A: *Individual surgeons may well achieve great results with different volumes of UKA. In general, I would recommend trying to build toward at least 20% of practice being UKA.[15] I believe the key to this is how cartilage damage in the PFJ is interpreted.*

Q: Is the localisation of pain important to you when considering a PKA?

A: *No. I ignore the site of pain in the knee and stick to the indications of functionally intact ligaments, full thickness medial cartilage loss, and preservation of the lateral compartment cartilage.*

Q: Do you think education is key/mandatory for any surgeon who starts with PKA?

A: *Yes. As with any operation, it is absolutely essential to understand both the indications and operative technique. I have found the Microplasty Instrumentation immensely helpful but a solid education in its use is essential.*

Q: What percentage of all primary knee arthroplasty should partial knees be in 5 years' time?

A: *All patients with the correct indications! In practice, this could be between 20% and 50% of primary knee arthroplasty depending on the patient group.*

Dr. Christen

Switzerland

Q: What percentage of your primary knee arthroplasty practice consists of partial knee arthroplasty (PKA)?

A: *Almost 50%.*

Q: Do you consider patellofemoral OA to be a contraindication for medial or lateral PKA?

A: *No, if the lateral facet is not the dominating location.*

Q: When should patellofemoral OA be seen as a contraindication?

A: *It should be seen as a contraindication if it is the leading structure to explain the pain or functional deficit of the patient. A contraindication is a dysplasia of the trochlear groove in combination with femoropatellar arthritis. Special attention is necessary in case of medial arthritis in combination with femoropatellar arthritis involving mainly the lateral facet.*

Q: What is your standard radiographic workup for PKA?

A: *Long leg view standing, lateral view 90°, skyline view, full leg view standing with both legs, varus and valgus stress views.*

Q: Do you think education is key/mandatory for any surgeon who starts with PKA?

A: *Yes, absolutely.*

Q: What are the advantages (and disadvantages) of PKA compared to TKA?

A: *Better function[7], no feeling of an artificial knee[16, 17], less complications[8], faster rehabilitation[7], backup of TKA still available.*

Q: What prevents you from doing more of your knee arthroplasties as Oxford Partial Knees?

A: *Intraoperative missing ACL, cartilage defect on lateral condyle, or respect for the wish of the patient who votes for TKA even when he would be candidate for a UKA.*

Q: What is the minimal percentage of total volume of PKA a surgeon should perform to obtain good results?

A: *According to publications, you should perform more than 22 UKA a year.[13] The percentage is less important.*

Q: Is the localisation of pain important to you when considering a PKA?

A: *No, not anymore.*

Q: What percentage of all primary knee arthroplasty should partial knees be in 5 years' time?

A: *I'm an orthopaedic surgeon, not a predictor of the future or a marketing or sales manager.*

Dr. Kendall

Canada

Q: What percentage of your primary knee arthroplasty practice consists of partial knee arthroplasty (PKA)?

A: *Presently, 20-25% is PKA.*

Q: Do you consider patellofemoral OA to be a contraindication for medial or lateral PKA?

A: *I am less inclined to perform a PKA in a knee with LATERAL facet OA where a patient identifies this as an area of perceived pain.*

Q: When should patellofemoral OA be seen as a contraindication?

A: *If the PFJ is identified as the major location for the pain.*

Q: What is your standard radiographic workup for PKA?

A: *Standing AP, lateral and Skyline views of the knee at the time of first assessment. AP valgus stress views in potential candidates. I rarely use MRI.*

Q: Is the localisation of pain important to you when considering a PKA?

A: *Only in the face of significant patellofemoral OA.*

Q: What is the minimal percentage of total PKA volume a surgeon should perform to obtain good results?

A: *Rather than percentage, I think one needs to perform at least 15-20 per year.*[21]

Q: What are the advantages (and disadvantages) of PKA compared to TKA?

A: *a. Shorter hospital stay*[7]

b. Lowered complication risk[8]

c. Shorter recovery/rehab with better predictable ROM[7]

d. Low morbidity procedure in the elderly (>80)[19]

e. Predictable interim solution in the low to moderate demand young patients (Age <55)[20]

Q: What prevents you from doing more of your knee arthroplasties as Oxford Partial Knees?

A: *Patient reluctance and poor workers' compensation outcomes.*

Q: Do you think education is key/mandatory for any surgeon who starts with PKA?

A: *Absolutely.*

Q: What percentage of all primary knee arthroplasty should partial knees be in 5 years' time?

A: *The percentage that you feel is appropriate to provide a predictable outcome for your patients (i.e. do those cases which you know should do well and expand indications as you feel confident). Ask yourself during TKA, "Could I have done a partial?" and "Why wasn't a PKA chosen for this particular case?"*

Dr. Oosthuizen

South Africa

Q: What percentage of your primary knee arthroplasty practice consists of partial knee arthroplasty (PKA)?

A: *At least 70% of my knees assessed qualify for PKA.*

Q: Do you consider patellofemoral OA to be a contraindication for medial or lateral PKA?

A: *The short answer is no.*

The clinical and X-ray evaluation is important in assessing the pathology but PFJ rarely affects the final decision.

Q: When should patellofemoral OA be seen as a contraindication?

A: *With degenerative lateral facet grooving or a dysplastic lateral subluxation.*

Q: What is your standard radiographic workup for PKA?

A: *a) AP, lateral, and skyline patella b) 15°PA – (medial wear) or 45°PA – (lateral wear) (Rosenberg) c) Varus and valgus stress view in 20° flexion.*

Q: What are the advantages (and disadvantages) of PKA compared to TKA?

A: *PKA is a conservative approach in degenerative knee pathology and appropriate in at least 50% of knees with restoration of the constitutional alignment. This leads to improved function[7], less morbidity[8], less neuropathic pain[7] and a happier patient[16] despite the perceived high failure rate.[22]*

Disadvantages include:

1. *The lack of appropriate knee selection for the procedure (TKA is the default position for most surgeons).*

   With recent developments to identify the appropriate knee e.g. the X-ray Knee Instability and Degenerative Score (XKIDS), the Decision Aid (DA), and the Knee Osteoarthritis Grading System (KOGS) the selection process should improve as it identifies the focal degeneration.

2. *The surgical technique has been a further disadvantage but vastly improved with the Microplasty Instrumentation and new robotic systems.*

3. *The biggest disadvantage is the surgeon's perceived perception of an increased incidence of complications with PKA and the obligatory TKA to follow in revision.*

   The potential early revision is the most feared complication from the surgeons' point of view who would rather err to the "acceptable TKA" (the default position) even if inappropriate with a focal degenerative lesion.

The complications include the dislocation in the mobile variety and early wear with the fixed bearing option with both requiring revision surgery. These complications can be addressed by new technology whereby the tibia prosthesis is adaptable as a mobile and fixed option (whether spherical or anatomical femoral design) and can be used to replace the dislocated bearing with a fixed bearing, or the worn fixed bearing replaced to a "new retread" when required through a mini-incision (TKA not required).

Q: What prevents you from doing more of your knee arthroplasties as Oxford Partial Knees?

A: *The default position in knee arthroplasty for me is an Oxford/PKA despite the possible complications e.g. dislocation as this is rare with the Oxford (medial) but very high on the lateral side with the mobile bearing. Therefore, I prefer a fixed bearing for the lateral side in the older patient (over 70 years).*

Generally the surgeon could select the PKA if the potential for revision to TKA is reduced.

Q: What is the minimal percentage of total volume of PKA a surgeon should perform to obtain good results?

A: *20%* [15]

Q: Is the localisation of pain important to you when considering a PKA?

A: *Rarely.*

Q: Do you think education is key/mandatory for any surgeon who starts with PKA?

A: *It is the most important aspect of the PKA-journey.*

Q: What percentage of all primary knee arthroplasty should partial knees be in 5 years' time?

A: *Literature confirms that it should currently be 47.6%* [14]*, and will rapidly evolve from the current 8-15%* [14] *utilisation rate to 20-25% of the market.*

The partial knee is becoming the conservative form of knee arthroplasty and with education, recognition of the suitable knee, better surgical technique and new prosthetic design at least 40% of constitutional degenerative knees should receive a PKA in 10 years time.

Dr. Maxwell

New Zealand

Q: What percentage of your primary knee arthroplasty practice consists of partial knee arthroplasty (PKA)?

A: *Including PFA, medial and lateral UKA, PKA comprises 75% of my primary knee arthroplasty practice.*

Q: Do you consider patellofemoral OA to be a contraindication for medial or lateral PKA?

A: *Patellofemoral OA is not a contraindication unless there is a significant component of anterior knee pain. This is a clinical decision.*

Q: When should patellofemoral OA be seen as a contraindication?

A: *Patellofemoral OA is a contraindication in a) the uncommon scenario of lateral patellofemoral OA with medial compartment OA, and b) when there is a significant anterior knee pain component to symptoms.*

Q: What is your standard radiographic workup for PKA?

A: *Radiographic workup is weight bearing AP, lateral, and skyline patella views; plus Rosenberg view for medial OA, varus/valgus 30 degree flexion AP stress views for lateral OA, and MRI for patellofemoral OA.*

Q: Is the localisation of pain important to you when considering a PKA?

A: *Localisation of pain is only relevant for anterior knee pain symptoms.*

Q: What are the advantages (and disadvantages) of PKA compared to TKA?

A: *Advantages of PKA are too numerous to list in the space available here. Obviously, patient satisfaction, which relates to low morbidity of procedure[8] and maintenance of near-normal biomechanics[17] are the key factors. Revision rates do not need to be higher than for TKA with good patient selection and surgical technique.[9]*

Q: What prevents you from doing more of your knee arthroplasties as Oxford Partial Knees?

A: *I have no limitations on my Oxford UKA practice.*

Q: What is the minimal percentage of total volume of PKA a surgeon should perform to obtain good results?

A: *Rather than percentage, which depends on practice volume, I think net number is more important. 20 per year would be my recommendation for minimum volume.[9]*

Q: Do you think education is key/mandatory for any surgeon who starts with PKA?

A: *I think educational courses and surgeon-to-surgeon visitations should be mandatory for surgeons starting out with PKA.*

Q: What percentage of all primary knee arthroplasty should partial knees be in 5 years' time?

A: *Once you adopt the attitude of asking yourself why you shouldn't do a UKA, rather than asking yourself if you should do a UKA, you find your UKA percentage will rise. I see no reason why the percent UKA shouldn't be 50% in a typical knee arthroplasty practice in 5 years.*

Dr. Strömmer

Sweden

Q: What percentage of your primary knee arthroplasty practice consists of partial knee arthroplasty (PKA)?

A: *70%*

Q: Do you consider patellofemoral OA to be a contraindication for medial or lateral PKA?

A: *Generally, no (see question 3).*

Q: When should patellofemoral OA be seen as a contraindication?

A: *Long-term history of present PF joint symptoms that have preceded the femorotibial joint OA, and previous PF joint surgery that did not correct the patient's symptoms.*

Q: What is your standard radiographic workup for PKA?

A: *Standard workups for all knee replacements are: weight bearing A/P and lateral view of the knee (no PFJ view) + weight bearing A/P full length view of both lower limbs.*

Q: What prevents you from doing more of your knee arthroplasties as Oxford Partial Knees?

A: *Nothing.*

Q: What are the advantages (and disadvantages) of PKA compared to TKA?

A: *Advantages include: better knee function[7], less pain[7], quicker rehab[7], shorter admission times[7], lower surgical risk[8], fewer complications[8], preoperative perfect balance control, and easy revision (not a reason for choosing UKA, but still a fact[22]). Disadvantages: registry data[9] that makes you have to explain to the patient why UKA is a superior operation and a more complex OR setup for staff - especially the leg holder.*

Q: What is the minimal percentage of total volume of PKA a surgeon should perform to obtain good results?

A: *20%[16]*

Q: Is the localisation of pain important to you when considering a PKA?

A: *No.*

Q: Do you think education is key/mandatory for any surgeon who starts with PKA?

A: *Yes.*

Q: What percentage of all primary knee arthroplasty should partial knees be in 5 years' time?

A: *It should be at least 50%. Unfortunately, I think it will take longer than 5 years before we get there.*

Dr. van Geenen

Netherlands

Q: What percentage of your primary knee arthroplasty practice consists of partial knee arthroplasty (PKA)?

A: *I work in an orthopaedic unit of 15 orthopaedic surgeons. In this group, 6 surgeons do hip and knee arthroplasty and 3 surgeons do Oxford UKA. The overall percentage of OUKA in our practice increased from 9.2% in 2012 to 32.2% last year. In my own practice, this percentage is even higher at 48.1% as a result of referrals from colleagues within our group.*

Q: Do you consider patellofemoral OA to be a contraindication for medial or lateral PKA?

A: *Lateral PFOA is considered a contraindication in medial or lateral PKA in case of: absent joint space in the lateral facet on skyline view, or exposed bone on the lateral patellofemoral on both the femoral and patellar side during surgery.*

Q: When should patellofemoral OA be seen as a contraindication?

A: *See answer to question 2.*

Q: What is your standard radiographic workup for PKA?

A: *Weight bearing Rosenberg, patella skyline view, varus and valgus stress x-rays*

Q: What prevents you from doing more of your knee arthroplasties as Oxford Partial Knees?

A: *More referrals from other colleagues.*

Q: What are the advantages (and disadvantages) of PKA compared to TKA?

A: *Better ROM[7], better satisfaction[16], fewer complications[8], less mortality[8], rapid recovery[7], and outpatient[18,23] surgery.*

Q: What is the minimal percentage of total volume of PKA a surgeon should perform to obtain good results?

A: *More than 20%, based on findings from the Liddle study.[15]*

Q: Is the localisation of pain important to you when considering a PKA?

A: *In case of distinct lateral pain, we perform an MRI to exclude lateral meniscal rupture.*

Q: Do you think education is key/mandatory for any surgeon who starts with PKA?

A: *Yes absolutely. The correct diagnosis,indication and understanding of the concept is essential because it is very different from the routine TKA.*

Q: What percentage of all primary knee arthroplasty should partial knees be in 5 years' time?

A: *It should be about 50 but that is too much to ask within 5 years. More than 20% would be more realistic.*

Professor In

Korea

Q: What percentage of your primary knee arthroplasty practice consists of partial knee arthroplasty (PKA)?

A: Around 10 %.

Q: Do you consider patellofemoral OA to be a contraindication for medial or lateral PKA?

A: No, if there is no bone on bone OA or severe anterior knee pain, I do PKA.

Q: When should patellofemoral OA be seen as a contraindication?

A: K-L grade IV OA & detectable anterior knee pain.

Q: What is your standard radiographic workup for PKA?

A: Standing AP, lateral, merchant, Rosenberg view, lower extremity scanogram, and valgus and varus stress radiographs.

Q: What are the advantages (and disadvantages) of PKA compared to TKA?

A: Advantages include: rapid recovery[7], no mechanical sound, less LOS[7], and ease of revision.[22]

Q: What prevents you from doing more of your knee arthroplasties as Oxford Partial Knees?

A: The Korean National Insurance System. The government strictly doesn't reimburse PKA in patients less than 65 years with less than K-L grade 4 OA.

Q: Is the localisation of pain important to you when considering a PKA?

A: Yes, the pain should be localised to the medial compartment in medial PKA.

Q: Do you think education is key/mandatory for any surgeon who starts with PKA?

A: Yes, PKA is technically demanding. I think the learning curve of the PKA is longer than that of TKA.

Q: What percentage of all primary knee arthroplasty should partial knees be in 5 years' time?

A: 10%.

Dr. Yoshida

Japan

Q: What percentage of your primary knee arthroplasty practice consists of partial knee arthroplasty (PKA)?

A: *Over the last ten years about 60% UKA utilisation on average.Last year, 66% were UKA and 34% TKA.*

Q: Do you consider patellofemoral OA to be a contraindication for medial or lateral PKA?

A: *No, depending on the severity of patellofemoral OA.*

Q: When should patellofemoral OA be seen as a contraindication?

A: *If major pain origin is on the patella, especially in the lateral facet, I exchange patellae and use bi-cruciate TKA.*

Q: What is your standard radiographic workup for PKA?

A: *Varus and valgus stress X-rays in 20 degrees.*

Q: What are the advantages (and disadvantages) of PKA compared to TKA?

A: *Small incision, minimally invasive, preservation of good bone stock, rapid recovery[7], less pain[7], better ROM[7], expecting full squat and normal kinematics[17], preserving any soft tissue stabilisers and proprioception.*

Q: What percentage of all primary knee arthroplasty should partial knees be in 5 years' time?

A: *30 to 50%.*

Q: What prevents you from doing more of your knee arthroplasties as Oxford Partial Knees?

A: *Many primary orthopaedic outpatient clinician practitioners, who should recommend Oxford, do not know about the benefits of PKA well. They think their patients are too young to perform a salvage operation. Widened indications may cause dislocation of the bearing or sinking of the components.*

Q: Is the localisation of pain important to you when considering a PKA?

A: *Localisation of pain is sometimes misunderstood by the patient; tenderness on the joint line may be helpful to locate the pain origin.*

Q: Do you think education is key/mandatory for any surgeon who starts with PKA?

A: *Yes, knowledge already mastered as a TKA surgeon should be modified and adapted to PKA.*

Oxford Partial Knee
40 Year Symposium

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