What are the contraindications for lateral or medial unicondylar knee arthroplasty?

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Recommendation: In recent years, evidence has emerged to suggest that majority of the originally described contraindications to UKA are not applicable in modern day clinical practice. It appears that all patients with unicompartmental arthritis may be a candidate for unicondylar knee arthroplasty.

Strength of Recommendation: Moderate

Rationale:

Although several surgical techniques have been described for the treatment of single compartment knee osteoarthritis, it can often be challenging for the orthopaedic surgeon to decide on the type of surgical intervention that is most appropriate in a patient who is young and active [1]. Recent data suggests that once popular high tibial osteotomy has been replaced for the most part by unicondylar knee arthroplasty in the younger patients [2-4].

Several studies in the literature have demonstrated that, when compared to primary total knee arthroplasty (TKA), UKA procedure is associated with a reduction in morbidity, less blood loss, a shorter length of stay, and improved range of motion following surgery [5–9]. Furthermore, recent advances in implant design and surgical technique have resulted in favorable clinical outcomes and significant improvement in implant survivorship in patients undergoing UKA [10,11]. However, not every patient with single compartment osteoarthritis is suitable candidates for this type of procedure. In 1989, Kozinn and Scott were the first to describe the contraindications to receiving a UKA [12]. These include but are not limited to disease in >1 compartment, inflammatory arthropathy, non-intact anterior cruciate ligament, lateral joint line tenderness, age less than 60 years, weight greater than 82 kg, preoperative range of motion <90, flexion contracture deformity (FCD) >5, and coronal angular deformity (CAD) >5.

Given its association with the development of osteoporosis and osteopenia, rheumatoid arthritis was previously considered to be an absolute contraindication to UKA [13]. However,

with the advent of disease-modifying antirheumatic drugs (DMARDs), the overall morbidity secondary to rheumatoid arthritis has been significantly reduced [14]. In a recent study, Deckey et al. found that there was no difference in 2-year revision rates in UKA patients that had rheumatoid arthritis, when compared to those that did not have rheumatoid arthritis (2.6% vs. 2.0%, respectively, p=0.310) [15]. Similarly, it was also believed that all UKAs inevitably fail and require conversion to a TKA. As such, in an effort to maximize implant longevity, patients with single compartment disease that are younger than 60 years were typically recommended to undergo TKA. However, in a prospective study that enrolled 1,000 patients, Kennedy et al. demonstrated that with the exception of patients that were >75 years, there was no association between increased age and either implant survivorship or functional outcomes in patients undergoing medial meniscal-bearing UKA [16]. Obesity is another comorbidity that was believed to have an impact on the success rates of UKA. Although this historically meant that UKAs were not performed in patients with a body mass index (BMI) of ≥30, we now know that mobile and fixed-bearing UKA demonstrate excellent results in the obese patient population [17]. Notwithstanding, there is data to suggest that patients with a BMI of ≥35 experience suboptimal outcomes with the use of a fixed bearing UKA construct, emphasizing the importance of appropriate implant selection in these patients [18]. In addition to this, although a flexion contracture deformity of >5 degrees was traditionally considered to be a contraindication for UKA, a number of studies have shown that UKA can be a viable option in patients who have FCD of up to 10 degrees. In a study by Chen et al., patients with a preoperative FCD of >10 had comparable outcomes to those with a FCD of <10 degrees [19]. In a different study, Purcell et al. found that even at a mean FCD of 14 degrees, there was no difference in implant survivorship between the UKA and TKA groups [20]. Furthermore, patients in the UKA group had higher overall patient reported outcome scores at latest follow-up, when compared to those that received TKA.

In recent years, there has been substantial evidence to suggest that not all of the originally described contraindications to UKA are applicable in modern day clinical practice. Given that it has been nearly three decades since the Kozinn and Scott criteria were first published, it may be time to revise the eligibility criteria for UKA to include patients that are older (<75 years), moderately obese (BMI <35), have rheumatoid arthritis, and those with FCD of up to 10 degrees.

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