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What Are the Contraindications for Lateral or Medial Unicondylar Knee Arthroplasty?

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What are the Contraindications for Lateral or Medial Unicondylar Knee Arthroplasty?

Recommendation: In recent years, evidence suggests that many of the originally described contraindications to unicompartmental knee arthroplasty (UKA) are no longer applicable in modern clinical practice. The current contraindications for UKA include uncontrolled inflammatory arthritis, body mass index (BMI) > 35, flexion contracture > 10 degrees, coronal deformity > 10 degrees, and lateral facet patellofemoral arthritis.

Strength of Recommendation: Moderate.

Vote Results: Agree 81.9%, Disagree 9.6%, Abstain 8.5%

Rationale

Although several surgical techniques have been described for the treatment of single-compartment knee osteoarthritis, choosing the most appropriate intervention for a young, active patient can be challenging [1]. Recent data indicate that high tibial osteotomy, once popular for this demographic, has largely been replaced by unicondylar knee arthroplasty (UKA) in younger patients [2].

Several studies show that UKA is associated with reduced morbidity, decreased blood loss, shorter hospital stays, and improved postoperative range of motion compared to primary total knee arthroplasty (TKA) [3–7]. 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 [8,9]. However, not all patients who had single-compartment osteoarthritis are suitable candidates for UKA. In 1989, Kozinn and Scott were the first to describe the contraindications to receiving a UKA [10]. These include but are not limited to disease in greater than one compartment, inflammatory arthropathy, nonintact anterior cruciate ligament, lateral joint line tenderness, age less than 60 years, weight greater than 82 kilograms, preoperative range of motion less than 90 degrees, flexion

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contracture deformity (FCD) greater than five degrees, and coronal angular deformity greater than five degrees.

Given its association with the development of osteoporosis and osteopenia, rheumatoid arthritis was previously considered to be an absolute contraindication to UKA [11]. However, with the advent of disease-modifying antirheumatic drugs, the overall morbidity secondary to rheumatoid arthritis has been significantly reduced [12]. In a recent study, Deckey et al. found that there was no difference in 2-year revision rates in UKA patients who had rheumatoid arthritis when compared to those who did not have rheumatoid arthritis (2.6 versus 2.0%, respectively, $P = 0.310$) [13]. Similarly, it was also believed that all UKAs inevitably fail and require conversion to a TKA. Therefore, to maximize implant longevity, patients who had single-compartment disease that were 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 above 75 years, there was no association between age and implant survivorship or functional outcomes in patients undergoing medial meniscal-bearing UKA [14]. 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 who had a BMI of ≥ 30, it has now been shown that mobile and fixed-bearing UKA demonstrate excellent results in the obese patient population [15]. Notwithstanding, there are data to suggest that patients who had 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 [16]. Additionally, a flexion contracture deformity of greater than five degrees was traditionally considered to be a contraindication for UKA; however, 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 who had a preoperative FCD of greater than 10 degrees had comparable outcomes to those who had an FCD of less than 10 degrees [17]. 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 [18]. Furthermore, patients in the UKA group had higher overall patient-reported outcome scores at the latest follow-up when compared to those that received TKA.

Over the years, there has been substantial evidence showing that not all of the originally described contraindications to UKA are applicable in modern clinical practice. Based on recent literature, the current contraindications to UKA are uncontrolled inflammatory arthritis, BMI > 35, flexion contracture > 10 degrees, coronal deformity > 10 degrees, and lateral facet patellofemoral arthritis.

CRediT authorship contribution statement

Saad Tarabichi: Writing – review & editing, Writing – original draft. **Fang Rui:** Conceptualization. **David G. Deckey:** Conceptualization. **Jens T. Verhey:** Conceptualization. **Paul Van Schuyver:** Conceptualization. **Mohamed Rashed:** Conceptualization. **Usama Saleh:** Conceptualization. **Ali Albelooshi:** Conceptualization. **Chuan He:** Conceptualization. **David Jevsevar:** Conceptualization. **David Musil:** Conceptualization. **Mark J. Spangehl:** Conceptualization. **Joshua S. Bingham:** Conceptualization.

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