

Ten-Year Survivorship and Patient Satisfaction of Robotic-Assisted Medial Unicompartamental Knee Arthroplasty: A Prospective Multicenter Study

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Introduction: Unicompartamental knee arthroplasty (UKA) has significant benefits over total knee arthroplasty (TKA) but revision rates are generally found to be higher. Robotic-assisted systems for medial UKA have been introduced to provide improved surgical precision, soft tissue balancing and component positioning in order to increase implant survivorship. Previous studies have demonstrated high survivorship at short- to mid-term follow-up for robotic-assisted UKA. However, reports in the literature of long-term outcomes following this technique are lacking. The purpose of this prospective multicenter study was to assess long-term survivorship and patient satisfaction following robotic-assisted medial UKA.

Methods: A total of 259 consecutive patients (321 knees) underwent robotic-assisted medial UKA by three surgeons in separate institutions between 2009 and 2011. A fixed-bearing metal-backed onlay tibial component was used for all cases. Patients were contacted at 10-year follow-up to determine survivorship and overall satisfaction using a five-series questionnaire. Revision to TKA was used as the primary endpoint, and revision for any reason was recorded as the secondary endpoint.

Results: Data was collected for 171 patients (216 knees) with an average follow-up of 10.3 ± 0.4 years. Two patients declined participation in the study, 56 were lost to follow-up and 30 patients deceased during the study period. Mean age was 64.4 ± 10.3 years, mean BMI was 29.9 ± 4.6 kg/m², and 49% of patients were female. A total of 45 patients (26%) received bilateral UKA. At 10-year follow-up, 15 knees were reported as revised to TKA, resulting in a survivorship of 93.1%. Additionally, two UKA components were revised, corresponding with a survivorship of 92.1%. Average time to revision was 6.0 ± 2.9 years. Of all patients without revision, 93% were either very satisfied or satisfied with their overall knee function.

Conclusions: In this prospective multicenter study, high survivorship and excellent patient satisfaction were found for robotic-assisted medial UKA at 10-year follow-up. Prospective comparative studies are necessary to assess differences in long-term survivorship and patient-reported outcomes between robotic-assisted UKA, conventional UKA and TKA.

**Please note that in December 2021 all patients (n=473) will reach their minimum follow-up of 10 years. Therefore, a complete data set can be presented during the AAOS meeting in March 2022.*