

Resurfacing unicondylar knee arthroplasty: Refining the Repicci MIS technique for ease, accuracy and reproducibility

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Introduction: The intent of resurfacing unicondylar knee arthroplasty (UKA) is to re-create the patient's anatomy and alignment as it was before the arthritic process. Repicci (1999) introduced the minimally invasive surgical (MIS) technique for UKA which initially gained early attention and acceptance, but waned with the difficulty in teaching and the lack of reproducibility. The purpose of this paper is to re-introduce a refined version of the original MIS UKA technique and report the results of this procedure.

Materials and Methods: A single surgeon patient cohort of 293 UKAs was followed retrospectively to report the outcome of the more recent modifications of the procedure. In all cases, the Freedom Partial Knee System was used. All patient demographic and satisfaction information was recorded and all patients were contacted for satisfaction, and medical records reviewed for indication of any adverse events. Adverse events were separated into early (less than or equal to 90 days postop) or late (greater than 90 days). Descriptive statistics were applied and Kaplan-Meier survival was calculated.

Results: There were 326 UKAs performed in 322 patients of which 147 (46%) were female and 175 (54%) were male and there were 27(9%) bilateral cases. The average patient age was 69.8 ±9.9 years (range: 37 - 87 years). of the 322 patients surveyed 172 (535) responded. Of the satisfaction levels, patients reported 92% reported mild to no pain, 144 (90%) were active of which 119 (75%) had unlimited activity, and 151 (91%) were stable on ambulation. In reviewing patient records, there were no cases of revision or recommendation for revision reported.

Conclusion: Studying the issues with the Repicci technique, we refined the MIS UKA procedure to focus on the following keys to success: 1) accurate tibial component placement, 2) proper femoral component positioning guided by the tibial component, 3) proper cementing technique, 4) knee preservation with alignment to the pre-disease state. Modifications to the instrumentation for the Freedom® Partial Knee System included the use of positional and cutting guides to maximize reproducibility and operative efficiency. Addressing the component, technique and instrumentation, we have been able to develop a procedure that yields reproducible results and surgical methods that are teachable to a large cross-section of surgeons.