

Will Increased Lateral Opening & High BMI Contribute To Poorer Functional & Radiologically Outcomes? Mid-Term Survival Of Patients With Medial Unicondylar Knee Arthroplasty In A High-Volume Arthroplasty Unit:

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Disclosures: None of the authors have any disclosures pertaining to this study. (Information for disclosures can be taken from the online abstract system after entering ALL authors.)

INTRODUCTION:

Unicondylar knee arthroplasty has become a standard of care procedure for younger patients with degenerative changes not enveloping the entire knee joint. A large section of Asian and middle eastern population is accustomed to religious and daily activities which require them to squat or sit with knees in deep flexion. As a result, there is increased collateral laxity seen in this group as compared to the Western population at large. This laxity contributes to joint instability, especially in absence of a functioning anterior cruciate ligament (ACL). Anteromedial osteoarthritis (AMO) has been described as a separate entity with a distinct antero-medial tibial wear pattern with an intact ACL. In the presence of lax collaterals, we see distinctly different wear patterns, more in the Centro-medial quadrants than the anterior¹. We had previously reported this distinct pattern in a cohort that has been regularly followed up to track the progress of the degenerative process as well as the outcomes.

We report here the 5-to-7-year outcomes of a prospectively followed cohort of patients who have undergone mobile-bearing medial compartmental unicondylar knee replacement surgery.

Material and Methods:

73 consecutive patients (Females : Males 45:21) between the ages of 39-81 years (Mean 59.5 ± 10.4) who were clinically diagnosed to be suffering from AMOA and ideal candidate for an unicondylar knee replacement were identified from the institution's arthroplasty registry. The BMI of the cohort ranged between 21.7 and 40.8 (Mean 29.7 ± 5.0). As part of clinical protocol, all patients were clinically assessed followed by radiographic examination including standard weight bearing long leg scanograms in antero-posterior view. AP valgus stress views along with single leg standing AP and lateral views were also taken to determine ligamentous laxity. During surgery, the resected tibial plateau biscuit was digitally imaged with a high-resolution camera. The ACL was graded to check for synovium loss or longitudinal splits.

RESULTS :

Nearly 80% (58/73) of the cohort was either overweight or obese. The mean Oxford Knee Scores improved to 45.6 ± 1.6 (range 39-48) from a mean pre-operative score of 34.3 ± 2.7 (range 28-39). The mean HKA angles as measured on the scanograms was $170^\circ \pm 3.59^\circ$ (range $162^\circ - 177^\circ$) preoperatively. This improved to $176.1^\circ \pm 2.1^\circ$ (range $168^\circ - 182^\circ$). Mean Preoperative Fixed flexion deformity of $3.8^\circ \pm 1.2$ (range 2° to 6°) improved to a mean post-operative value of $1.8^\circ \pm 0.8$ (range 1° to 3°). There was no correlation between the BMI and outcomes as reflected by the OKS. The lateral compartment of the knee had between 2.3 mm to 10.6 mm opening on the AP scanograms (mean 5.6 ± 1.7 mm). There was a mild correlation ($r = 0.37$) between BMI and the lateral compartment opening. 2 knees underwent revision to total knee replacement due to impending varus collapse of the tibial tray. 3 more patients have shown a gradual progressive tilt of their tibial tray and being closely monitored as they were unwilling to immediately undergo a revision to Total knee. One patient died in the Covid pandemic but had not reported any knee related issues until his last follow-up.

DISCUSSION

The use of modern pre-surgical digital planning along with precise surgical jigs and tools have helped improving the outcome for the patients undergoing the procedure. Moreover, in recent years, use of surgical robots has played a major role in eliminating surgical errors to a minimum. When the surgery is performed on a properly selected patient, the reported long-term outcomes for the surgical procedure approach nearly 93% in a younger cohort (<60 yrs.)². In the present cohort, the PROMs as reflected by the OKS showed continued satisfaction amongst the patients. Though the present cohort is small, the meticulous follow through has allowed the surgical team to identify and monitor impending failures.

SIGNIFICANCE/CLINICAL RELEVANCE: The study emphasizes the importance of registry data and role of continuous monitoring of the patients who are especially prone to complications.

IMAGES AND TABLES: Images and tables will appear at the end of the abstract and must be sized to fit within the abstract. Three images and/or tables are allowed per abstract.



Image 1.One of the patients who underwent revision at 6 years due to impending failure of the tibial tray

REFERENCES:

1. <https://doi.org/10.26226/morressier.5c8f9097b5d368000a26b904>
2. Mannan A, Pilling RWD, Mason K, Stirling P, Duffy D, London N. Excellent survival and outcomes with fixed-bearing medial UKA in young patients (≤ 60 years) at minimum 10-year follow-up. *Knee Surg Sports Traumatol Arthrosc.* 2020 Dec;28(12):3865-3870. doi: 10.1007/s00167-020-05870-4. Epub 2020 Feb 3. PMID: 32009205.