Mini-Midvastus Approach Shows Improved Short-Term Outcomes in Primary TKA Compared to Medial Parapatellar Approach

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Disclosure Statements

Dylan Young, B.S.
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Background

Total knee arthroplasty (TKA) had traditionally been performed using a standard medial parapatellar approach (MPP)

- This involves incising the quadriceps tendon

Since the early 2000’s, alternate minimally invasive surgical options have been introduced. The most common is the mini-midvastus approach (MMV)

- This involves incising the vastus medialis obliquus muscle and avoids the quadriceps tendon altogether
The Hypothesis

Primary TKA performed through the MMV approach will provide better subjective and objective outcomes when compared to the MPP approach up to one-year postoperatively.
Patient Selection and Methods

One TKA design used (Triatholon, Stryker, Mahwah, NJ)

Non-randomized: each surgeon chose their preferred surgical approach and did not mix surgical approaches

A total of 381 patients and 446 knees were divided into 2 cohorts
- MMV cohort (182 patients/221 knees)
- MPP cohort (199 patients/225 knees)

Progress assessed with two scoring measures
- The 2011 Knee Society Score (KSS)
- The Oxford Knee Score (OKS)
The 2011 Knee Society Score

Three subjective (patient-reported) components

- Patient Satisfaction (KSS-S), Patient Expectation (KSS-E), and Functional Knee Score (KSS-F)

One objective (surgeon-reported) component

- Objective Knee Score (KSS-O)

Scores collected pre-operatively, at six weeks, six months, and one year
The 2011 Knee Society Score

* denotes significance when comparing values between the two cohorts (p<0.05). ^ denotes significance when comparing change from preoperative to the specified time point between the two cohorts (p<0.05).
The Oxford Knee Score

* denotes significance when comparing values between the two cohorts (p<0.05). ^ denotes significance when comparing change from preoperative to the specified time point between the two cohorts (p<0.05).
Results

At 6 weeks, the MMV cohort had significantly higher KSS-F and KSS-O scores
  ◦ No significant difference in KSS-S, KSS-E, and OKS scores

At 6 months, the MMV cohort had significantly higher KSS-S, KSS-F, KSS-E, and KSS-O scores

At 1 year, the MMV cohort had significantly higher KSS-F and KSS-O scores
  ◦ No significant difference in KSS-S, KSS-E, and OKS scores
Discussion

KSS-F and KSS-O demonstrated significantly higher scores in the MMV cohort at all time points
- This includes one patient-reported component (KSS-F) and one surgeon-reported component (KSS-O)

Although OKS did not demonstrate any significant difference between groups, it is possible that using three patient-reported components with KSS allowed for more specificity with subjective assessment
Discussion

The significantly higher KSS-O scores in the MMV group supported the hypothesis

- Patients achieved better objective motion and function at 6 weeks, 6 months, and 1 year postoperatively

The results suggest that avoiding incision of the quadriceps tendon through a MMV approach allows for better objective and subjective recovery up to one year postoperatively
References

