

Decreased Patellar Fractures and Subluxation with Patellar Component Replacement with Stage 1 Spacer

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INTRODUCTION: Periprosthetic joint infection (PJI) is a devastating complication of total knee arthroplasty (TKA) and often treated with two-stage revision. We retrospectively assessed whether replacing the patellar component with articulating stage-one spacers was associated with improved outcomes compared to spacers without patellar component replacement.

METHODS:

A total of 139 patients from a single academic institution were identified who underwent an articulating metal-on-polyethylene stage-one revision TKA, had an intact extensor mechanism, and had at least 1-year follow up. In total, 91/139 underwent patellar component removal without replacement while 48/139 patients had an all-polyethylene patellar component placed at stage-one revision. Patellar fracture and reinfection at any point after spacer placement was recorded. Knee range of motion (ROM), patellar thickness, lateral tilt, and lateral displacement were measured at six-weeks status-post stage-one. Chi-squared, Fisher's exact test, and t-tests were utilized for statistical comparisons.

RESULTS: There were no significant demographic differences between groups. Patellar component replacement was associated with less patellar fractures (2.1% vs. 11.5%, $p=0.05$) and lateral patellar displacement (1.7mm vs. 16.0mm, $p<0.01$), and improved pre to postoperative knee ROM 6-weeks after stage-one ($+5.9^\circ$ vs. -11.4° , $p=0.03$). Overall infection recurrence was lower with patellar component replacement (8.3% vs. 22.0%, $p=0.04$) albeit with less follow up (18.8mo vs. 41.2mo, $p<0.001$). While the mean time between stage-one and stage-two was not different (5.2mo vs. 4.5mo, $p=0.50$), at 1-year follow up, significantly more patients in the patellar component replacement group were satisfied and refused stage-two revision (46% vs. 6.5%, $p<0.001$).

DISCUSSION AND CONCLUSION: Replacing the patellar component at stage-one is associated with a decreased rate of patellar fracture and subluxation, improved knee ROM, and potentially patient satisfaction as reflected by nearly half of our replaced patellar component patients electing to keep their spacer. While reinfection was lower in the replaced patellar component group, this finding could be due to shorter follow up.