

Are Prophylactic Femoral Cables Associated with Lower Revision Rates following Distal Femoral Replacement for Non-Oncologic Indications?

Nathanael D Heckmann¹, Kevin Liu, Natalie M Kistler², Omair Ali Qureshi, Brian Chung, Donald B Longjohn, Alexander Christ, Daniel Atherton Oakes

¹Orthopaedic Surgery, Keck School of Medicine of USC, ²Keck School of Medicine of USC

INTRODUCTION: Distal femoral replacement (DFR) is a viable option when extensive distal femoral bone loss is encountered during revision total knee arthroplasty (TKA). This study assessed modes of implant failure and survivorship of contemporary DFRs used for non-oncologic indications.

METHODS: A single-institution retrospective observational study was conducted between June 1, 2012 and March 31, 2023 for patients undergoing DFR for non-neoplastic indications. Demographic, operative, and clinical data were collected. Implant survivorship was determined via Kaplan-Meier analysis.

RESULTS:

In total, 63 DFRs in 55 patients were included with a mean age of 68.3±12.6 years, BMI of 30.9±7.6 kg/m², follow up of 10.9±191.6 months, and median of 3 prior surgeries (range, 0-14). Indications for DFR included periprosthetic fracture (38.1%), periprosthetic joint infection (33.3%), aseptic loosening (15.9%), flexion-extension mismatch (7.9%), osteolysis (3.2%), and recurrent instability (1.6%). In total, 13 DFRs required revision for infection (9.5%), aseptic loosening (6.3%), and periprosthetic fracture (4.8%). The five-year survivorship with all-cause reoperation, all-cause revision, and revision for aseptic loosening as endpoints was 39.3% (95%-CI: 20.6-57.5%), 55.7% (95%-CI: 33.8-72.9%), and 83.2% (95%-CI: 58.8-93.9%), respectively. Patients who received prophylactic cerclage cables had lower rates of revision surgery compared to those who did not (0.0% vs. 26.5%, p=0.055).

DISCUSSION AND CONCLUSION:

Our institution demonstrated reasonable survivorship of DFR constructs at mid-term follow up, underscoring the challenges associated with this salvage procedure. Prophylactic cerclage cables may be effective at mitigating the risk of femoral-sided revision.