

## **Contemporary Outcomes of Distal Femoral Replacements in Rerevision Total Knee Arthroplasty: High Rate of Early Septic and Aseptic Failure**

Ajay Premkumar, Troy Bornes, David Andrew Kolin<sup>1</sup>, Sonia Kaur Chandi, Simarjeet Puri, Elizabeth Gausden, Peter Keyes Sculco, Brian Chalmers<sup>2</sup>

<sup>1</sup>Hospital For Special Surgery, <sup>2</sup>Hospital for Special Surgery

### **INTRODUCTION:**

Initial fixed-bearing distal femoral replacement (DFR) designs had high rates of aseptic loosening. There is a paucity of data on contemporary rotating-hinge DFRs. The purpose of this study was to determine implant survivorship and functional outcomes contemporary rotating-hinge DFRs.

**METHODS:** We retrospectively identified a cohort of 77 TKAs with DFRs implanted from 2014- 2018 for nononcologic indications. Index DFR indications included 40 (52%) for native (n=5) or periprosthetic (n=35) femoral fracture, 17 (22%) for aseptic loosening/osteolysis, 12 (16%) for staged treatment of periprosthetic joint infection (PJI), and 8 (10%) for other indications. Mean follow up was 2 years (range, 2-7 years). We used Kaplan-Meier analysis to estimate survivorship free from any rerevision and rerevision for aseptic loosening.

**RESULTS:** Overall DFR revision rate was 21/77 (27%) at an average of 11 months (range, 0-46 months) postoperatively. Revision indications included PJI (9, 12%), 5 were recurrent PJIs and 4 were new onset PJIs, and 1 eventually required amputation; aseptic loosening (4, 5%); wound dehiscence (2, 3%); hinge dissociation (2, 3%); and other indications (4, 4%). All 4 rerevisions for aseptic loosening had cemented femoral stems in a previously instrumented femoral canal without adjunctive cone fixation. At 2 and 5 years, estimated survivorship free from all-cause rerevision was 66% and 55% and survivorship free from rerevision for aseptic loosening was 95% and 86%. Mean Knee Osteoarthritis Outcome Score Joint Replacement increased from 41 preoperatively to 67 at 2-year follow up.

**DISCUSSION AND CONCLUSION:** In this series, rotating hinge DFRs showed poor 2-year survivorship free of any rerevision (66%) secondary to postoperative wound problems and PJI. Initially, survivorship free of rerevision for aseptic loosening was acceptable (95% at 2 years), but declined to 86% at 5 years. A concerning 9 patients (12%) required revision for recurrent or new onset of PJI. While improved, clinical outcomes remained poor, emphasizing the salvage nature of this procedure.