Retaining a Well-Fixed Cone During Revision Total Knee Arthroplasty: Surgical Technique and Outcome

Xiao Tony Chen[1], Michael Seward[1], David G Lewallen[1], Michael J Taunton[1], Matthew Philip Abdel[1], Nicholas Bedard[1]
[1]Mayo Clinic

INTRODUCTION:
Metaphyseal cones with cemented stems are frequently used in revision total knee arthroplasties (TKA). However, during subsequent aseptic rerevisions, removing a well-fixed cone can be difficult. One innovative option is to retain the well-fixed cone and cement a new revision component with stem through the retained cone, yet minimal data exist. As such, we report the implant survivorship, rerevision rates, radiographic outcomes, and postoperative complications of this technique in a series of patients.
METHODS:
Between 2005 and 2019, we identified 8 patients with 9 well-fixed metaphyseal cones (5 femoral and 4 tibial) who underwent revision of the femoral or tibial component with a stem extender through a well-fixed and maintained cone through our institutional total joint registry. Mean age at rerevision TKA was 63 years and 50% of patients were female. Patients had a mean of 4 prior knee arthroplasty procedures. Indications for rerevision TKA were aseptic loosening (n=3), instability (n=3), extensor mechanism disruption (n=2), and prosthesis fracture (n=1). Mean follow up was 3 years.
RESULTS: At final follow up, no retained cones with a new femoral or tibial component with stems were revised. Two knees required revisions for other reasons: 1 for a failed hinge mechanism and 1 for infection. There was 1 additional reoperation for tibial stem cortical perforation. Radiographically, there was no evidence of aseptic loosening at most recent follow up. One patient had postoperative anemia, deep vein thrombosis, and atrial fibrillation within 90-days of their rerevision TKA; no other patients experienced early postoperative complications.
DISCUSSION AND CONCLUSION: When rerevising a TKA within a well-fixed metaphyseal cone, these early data suggest the cone can be safely retained to minimize morbidity associated with cone removal. While long-term follow up is needed, retaining a well-fixed metaphyseal cone provides an excellent option in difficult rerevision TKAs.