

## **Medium Term Outcomes and Survival of Cement-linked Custom Megaprosthesis for Limb Salvage in Complex Revision Arthroplasty**

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### **INTRODUCTION:**

Interprosthetic femoral fractures between long stem implants, poor bone stock and loosening all represent considerable surgical challenges. We have previously described in 2012, a reconstructive 'cement-over' technique for treatment of these injuries, where a custom-made mega-prosthesis is cement-linked to the stem of a well-fixed existing implant. This may be preferable to total femoral replacement in a cohort of patients who often have significant co-morbidities. We report our experience with this surgical technique and review re-operation, complication and revision rates in the medium to long term.

### **METHODS:**

Retrospective case-note analysis of all patients who underwent a custom made 'cement over' prosthesis between 2002-2022 was performed. Demographic and intraoperative data were recorded. Post-operative follow-up and radiographs were reviewed. Survival analysis was performed with all-cause revision and death as primary end-points.

### **RESULTS:**

34 patients underwent 'cement-over' custom prostheses during the study period. There were 23 custom Distal Femur Replacements cemented onto intact hip femoral stems and 10 custom Proximal Femoral Replacements cemented onto intact stemmed knee replacements. There was 1 intercalary implant cemented between an intact hip and knee replacement. Average age at the time of surgery was 68 (Range 30 - 93). Median Charlson Co-morbidity Index was 3.2 (Range 0 - 8). 13 patients (39%) died during the follow up period at an average of 68.5 months postoperatively (Range 25 - 109). Limb salvage was 100%. 2 patients underwent revision surgery for implant failure. Indications included trauma for 19 patients, degenerative disease in 5 and failed long-stem arthroplasty in 9. Median follow up was 57.5 months.

### **DISCUSSION AND CONCLUSION:**

Composite subtotal femoral replacement using a custom-made 'cement-over' prosthesis is an acceptable salvage option in patients presenting with complex interprosthetic femoral fractures between long-stemmed implants. The complication rate reflects the salvage nature of surgery, but is comparable to total femoral replacement.