

Bone Healing and Implant Survival Following Extended Cemented Fixation in Revision THA: A Radiographic Analysis of 172 Cases

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INTRODUCTION: Femoral implant selection and fixation technique are critical in revision total hip arthroplasty (THA), especially in elderly or osteoporotic patients. While uncemented stems are widely used, the role of long cemented stems remains underexplored in the setting of periprosthetic fractures or extended trochanteric osteotomies (ETO). This study aimed to assess bone healing, femoral stem survival, and postoperative bone stock changes following cemented femoral revision, stratified by indication and use of an ETO.

METHODS: A single-center retrospective study included 172 patients who underwent cemented femoral revision THA between 2009 and 2022. Patients were divided into three groups: periprosthetic fractures (n=111), aseptic loosening with ETO (n=23), and aseptic loosening without ETO (n=38, control). Mean age was 74 years; 56% were male. Radiographic assessment included cementation quality (Barrack classification), bone healing rate, and femoral bone stock (Secondary Bone Stock score, SBS). Femoral stem survival was calculated using Kaplan–Meier analysis. Mean follow-up was 5 years (2 – 13).

RESULTS: Barrack A/B cementation was observed in 43% of fracture cases versus 60% in other groups ($p=0.05$). Bone healing was achieved in 91% of both fracture and ETO cases. Mean postoperative femoral bone stock using SBS was maintained with no significant difference between groups ($p=0.32$). No re-revisions for aseptic femoral loosening occurred in ETO or control groups, but 4 cases of loosening in the fracture group. Overall femoral stem survival was 97%, with no significant differences among groups ($p=0.89$). Radiographic parameters were not predictive of re-revision.

DISCUSSION AND CONCLUSION: Extended cemented fixation in femoral revision THA provides high bone healing rates and excellent mid-term implant survival, including in cases of periprosthetic fractures and those requiring ETO. These findings support the use of long cemented stems as a reliable option in femoral revision, particularly in patients with poor bone quality.