

Protect the Neck? Rate of Hip Fractures in Unprotected Femoral Necks Following Fixation of Femoral Shaft and Distal Femur Fractures

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Purpose: There has been a rise in the number of low-energy femoral shaft and distal femur fractures. Patients presenting with these injuries are at risk for future fragility fractures. There has been increased discussion in protecting the femoral neck during surgical fixation of more distal fractures; however, it remains unclear if the theoretical benefit of preventing future hip fractures outweighs the additional surgical time and blood loss. The purpose of this study was to evaluate the rate of subsequent hip fractures and the rate of prophylactic femoral neck fixation in patients who underwent fixation of femoral shaft and distal femur fractures.

Methods: Patients over 40 years of age who underwent fixation of a femoral shaft or extra-articular distal femur fracture between 2006 and 2021 were retrospectively identified. Patients were excluded if they had a prior hip fracture or less than 12 months of follow-up. Patients were grouped by presence of prophylactic neck fixation. The primary outcome was the rate of subsequent hip fractures in unprotected femoral necks. Secondary outcomes included operative time and transfusion rates.

Results: 314 patients (324 fractures) met inclusion criteria. The mean age was 66 years and 69% were female. 19 unprotected patients (6%) sustained 20 subsequent hip fractures, with 85% occurring in the ipsilateral hip. All underwent operative fixation. Of these patients, 16 were female with an average age of 72 years. The mean time from index procedure to hip fracture was 3.4 years (range, 0.5-12.5). 32 patients (10%) had prophylactic neck fixation, most commonly with a screw through the proximal hole of a distal femoral locking plate. There were no subsequent hip fractures or peri-implant fractures in patients with prophylactic neck fixation. Protected patients did have a higher rate of transfusion (53% vs 34%, $P = 0.035$) and longer mean operative times (200 vs 165 minutes, $P = 0.035$).

Conclusion: This study found a 6% rate of subsequent hip fracture after fixation of more distal femur fractures. Prophylactic protection of the femoral neck offers a solution to preventing subsequent fracture but with longer operative times and higher rates of transfusion.

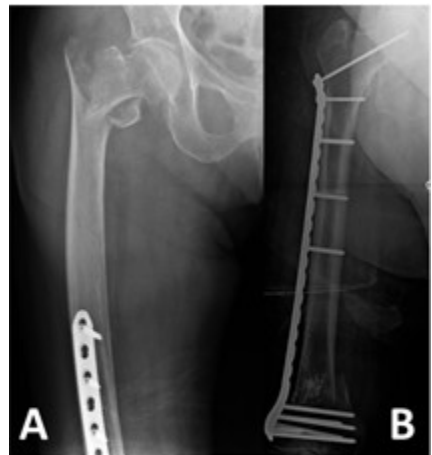


Figure 1: Panel A demonstrates an intertrochanteric femur fracture ipsilateral to a previous distal femur fracture with plate fixation. Panel B shows an example of prophylactic protection of the femoral neck at the time of distal femoral fixation.