

## High Success Rate in the Treatment of Proximal Femoral Shaft Fractures With Retrograde Intramedullary Nailing

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**Purpose:** Intramedullary nailing stands as the preferred treatment for femoral shaft fractures, exhibiting no discernible outcome differences between antegrade and retrograde nails. Historically, proximal fractures (defined as proximal to the isthmus) have been addressed through antegrade nailing. The use of retrograde nailing for these fractures remains controversial. However, at our institution, retrograde nailing has emerged as the standard of care for nearly all femoral shaft fractures due to the simplicity in patient positioning (including polytraumatized patients), technical ease for adequate control of the proximal fragment, length and rotation assessment, and satisfactory outcomes. This study scrutinizes outcomes in patients subjected to retrograde nailing for “very proximal” femoral shaft fractures (up to 10 cm distal from the lesser trochanter).

**Methods:** A prospective cohort study was conducted at a single center between 2017 and 2023. Included were patients with proximal femoral shaft fractures (PFSFs) managed using retrograde intramedullary nails, with at least 6 months of follow-up. PFSF, in this study, was defined as fracture within 10 cm distal to the lesser trochanter, excluding pathological fractures, reverse obliquity fractures, and those involving the lesser trochanter.

**Results:** Out of 353 patients, 45 met the inclusion criteria; 22 (49%) were polytraumatized. Closed reduction was achieved in all patients. 42 (93.3%) healed without further intervention within a mean of 27 weeks.

Nonunion occurred in 3 cases (6.7%), managed by exchanging retrograde nailing or plate augmentation. No varus failures were reported. Nonunion risk was higher in polytraumatized patients (3 of 22, 13.6%) and those with delayed weightbearing (2 of 23, 8.7%).

**Conclusion:** Retrograde nailing is an effective alternative for treating PFSF, including fractures located within 10 cm from the lesser trochanter. This method was associated with a low risk of complications such as nonunion and varus failure. Data analysis reveals comparable outcomes with fractures in other femoral shaft segments, with increased complications in polytraumatized patients and those with delayed weightbearing. Additional use of blocking (poller) screws in the proximal segment may enhance resistance to varus deformity in some cases.