

Acute Varus Deformity Is Associated With Screw Cut-Out After Intertrochanteric Fracture

Jihyo Hwang MD; Lori R Chambers MD; August Funk MD; Cyril Mauffrey MD; Kenneth J Koval MD; George John Haidukewych MD; Joshua Langford MD; Joshua A Parry MD
Denver Health Medical Center, Denver, CO, United States

Purpose: Risk factors for lag screw cut-out after intramedullary nail fixation of intertrochanteric femur fractures have been reported to be a tip-apex distance greater than 25 mm and poor reductions. The purpose of this study was to evaluate if initial displacement, particularly an acute varus deformity, was a risk factor for cut-out.

Methods: A retrospective review of intertrochanteric femur fractures undergoing single lag-screw intramedullary nail fixation at 2 Level-I trauma centers identified 334 patients with a minimum of 3 months of radiographic follow-up. Median patient age was 75 years (interquartile range [IQR] 63, 84) and 70% were female. Average follow-up time was 13 months (IQR 6, 30). Unstable fracture patterns (OTA/AO 31-A2.2, 2.3, 3) were present in 49% of patients. Acute varus deformity, defined as the femur head being below the most proximal level of the intact femur (Fig. 1) was present in 40%. Patients with acute varus deformity were more likely to have unstable fracture patterns (63% vs 37%) and to be female (77% vs 23%).

Results: Cut-out occurred in 9 patients (3%). Patients who experienced cut-out, versus those who did not, were similar in age (76 vs 73 years), female gender (78% vs 69%) median tip-apex distance (21 vs 18 mm), unstable fracture patterns (44% vs 56%), and number of good/acceptable reductions (89% vs 98%). Eight of the 9 cut-outs occurred in patients with acute varus deformity. The cut-out rate among patients with and without acute varus deformity was 6% and 0.5% (proportional difference 5%, 95% confidence interval 1% to 10%), respectively.

Conclusion: Intertrochanteric fractures presenting with acute varus deformity were more likely to experience cut-out. This deformity represents a potential non-modifiable risk factor for cut-out that warrants further attention.