

Outcomes of 51e Femoral Neck Fractures in Young Adults Treated With a "Medial" Buttress Plate to Augment Traditional Fixation

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Purpose: Treatment failures including fixation failures, nonunions, and osteonecrosis are common after femoral neck fractures in young adults, often leading to poor outcomes and/or requiring complicated reconstructive surgeries. The purpose of this study was to assess whether using a medial buttress plate to augment traditional fixation improves clinical outcomes in young patients with femoral neck fractures.

Methods: We retrospectively studied 368 displaced femoral neck fractures in skeletally mature patients younger than 50 years of age at 26 Level-I North American trauma centers and identified "medial" buttress plates were used in 51 fractures (14.1%). We compared patient demographics, injury characteristics, and outcomes from the plated group (PG) with a cohort of patients lacking this augmentation to fixation, the no plate group (NPG). Outcomes data included fixation failure, nonunion, osteonecrosis, and/or need for secondary reconstructive surgeries.

Results: Fixation failure was seen in 27% of the PG and 48% of the NPG ($P < 0.01$). In the PG, one-third tubular plates did not fail (0/11), while minifragment plates failed 48% of cases (11/23); other plates failed in 22% of cases (4/17, $P < 0.01$). Of 20 plates placed directly medially, only 1 case failed (5%), while 6 of 19 plates (32%) placed anteromedially failed, and 8 of 12 (67%) anteriorly applied plates failed ($P < 0.005$).

Conclusion: The use of a well-placed, one-third tubular medial buttress plate to augment traditional femoral neck fixation is associated with improved clinical outcomes, including lower rates of failed fixation, nonunion, osteonecrosis, and need for secondary reconstructive surgery.