

## 95° Angled Blade Plate Fixation of High-Energy Unstable Proximal Femur Fractures Results in High Rates of Union and Minimal Complications

*Marschall B. Berkes, MD; Patrick Christopher Schottel, MD; Matthew Weldon, MD; Denise H. Hansen, PA-C; Timothy S. Achor, MD  
UT Houston, Houston, TX, United States*

**Purpose:** High-energy proximal femur fractures are difficult injuries to treat and certain fracture patterns are less amenable to treatment with an intramedullary device. Recent studies have shown complication rates as high as 40% when unstable proximal femur fractures are treated with a proximal femoral locking plate. The 95° angled blade plate may offer superior results to those seen with locking plate constructs when proximal femoral fracture patterns dictate avoidance of intramedullary devices. The objective of our study is to report clinical outcomes of a consecutive cohort of patients treated in this manner.

**Methods:** Consecutive patients who sustained high-energy, unstable proximal femur fractures and underwent open reduction and internal fixation with a 95° angled blade plate were retrospectively studied. Minimum follow-up to union was required for inclusion. Patient demographics, injury, and operative details including the use of an articulated tensioning device and fracture pattern were recorded. Postoperative complications were noted. Radiographs were reviewed for evidence of bony union as well as nonunion, malunion, and need for secondary surgeries.

**Results:** 45 patients were initially identified and 31 had sufficient follow-up for analysis. The mean age of our study cohort was 43 years (range, 22-86) and 81% (25/31) were male. The most commonly treated proximal femur fracture pattern was AO/OTA 31A3.3. Two fractures were open. The articulated tensioner was used in 100% of cases. Average clinical follow-up was 16.7 months (range, 2.5-40). 29 of 31 patients (94%) achieved osseous union with the index procedure. One patient underwent nonunion repair and 2 patients had the blade plate removed as it was symptomatic. No other secondary procedures were performed and no instances of implant failure were seen. No patients had evidence of a superficial or deep infection.

**Conclusion:** This series of high-energy proximal femur fractures treated with a 95° angled blade plate and articulated tensioning device had a high rate of radiographic and clinical union with minimal postoperative complications. While intramedullary nailing of these fractures remains a preferred technique, the angled blade plate with articulated tensioning device is an excellent option to restore anatomic alignment and obtain bony union in certain fracture patterns.