

Tension Plating with Cephalomedullary Nailing for Proximal Femur Nonunions

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Purpose: Fractures of the proximal femur are prone to nonunion. Traditional treatment has been compression of the nonunion with a blade plate to restore alignment and create stability. Medullary nailing has several potential benefits but may not create sufficient valgus or compression for healing. We describe a technique using small or mini-fragment plating to compress the fracture and restore alignment, followed by cephalomedullary nailing.

Methods: 12 patients with proximal femoral nonunions treated were treated with tension plating using a small or mini-fragment plate and articulated tensioning device followed by cephalomedullary nailing. We reviewed their records to document the technique and clinical course. The technique was as follows: a plate (typically a 3.5-mm locking compression plate) was contoured to the anatomy of the proximal femur but overcontoured distally. The plate was fixed to the proximal femur with several screws out of the anticipated nail path. The articulated tensioning device was deployed until alignment was satisfactory under fluoroscopy, and the plate was secured. The cephalomedullary nail was then inserted, statically locked, and additional plate screws were placed around the nail.

Results: The patient sample (N = 12) included AO/OTA 31A1 (n = 3), 31A2 (n = 4), and 31A3 (n = 5) fracture patterns. All patients achieved union at an average of 17.6 weeks (range, 6.0 to 36.4 weeks). The average change in neck shaft angle assessed immediately postoperatively and at 8 weeks postoperatively was 2.3° (range, 0 to 11°). There were no infections or reoperations.

Conclusion: Tension plating with cephalomedullary nailing is a promising option for proximal femoral nonunions. Key aspects of this surgical technique are (1) proper plate contour and (2) anticipation of the nail path during plate and screw placement. This technique provides high levels of fracture compression, restores coronal alignment, and ultimately receives the benefits of a cephalomedullary nail as well.