Nail Plate Fixation Technique to Optimize Indirect Reduction and Fixation of Proximal Tibia Fractures

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Purpose: Treatment of proximal quarter and fifth tibia fractures can be very difficult. Intramedullary nailing is associated with predictable apex anterior angular and translational deformities as well as coronal plane displacement. This can be combated with blocking screws, but they can be difficult to place precisely and perhaps not feasible in cases of metaphyseal comminution. Achieving and maintaining a reduction is relatively easy with plate fixation, particularly with precontoured anatomic plates; however, plate fixation may be suboptimal, particularly in unreliable patients. The goal was to describe our technique involving minimally invasive plating of proximal tibia fractures to achieve an indirection reduction followed by intramedullary nailing.

Methods: We provide the step-by-step surgical technique for fixation of proximal tibia fractures with a nail plate construct (Fig. 1). All patients who underwent this technique for fixation of a proximal tibia fracture at our institution between July 1, 2017 and October 1, 2019 were reviewed to evaluate clinical and radiographic outcomes.

Results: Six patients (7 tibias) with a mean age of 51.6 years were identified. Mean follow-up was 148 days. At time of final follow-up, we observed union of all fractures without loss of reduction or alignment, and there were no instances of implant failure or complications.

Conclusion: This technique for fixation of proximal tibia fractures can reliably achieve and maintain alignment and provide optimal fixation in these challenging fractures with good outcomes.