

Early outcomes of magnetic intramedullary compression nailing for humeral fractures

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Abstract

Purpose: The optimal treatment protocol for humeral shaft fractures at risk for nonunions is controversial. Here, we aim to describe magnetic intramedullary compression nailing as an option for these challenging scenarios and to evaluate its clinical and radiographic outcomes.

Methods: This retrospective case series was performed at an urban university-based level-1 trauma center. Patients aged 18-65 who underwent fixation of their at-risk humerus shaft fracture using the PRECICE nail were included in this investigation. These fractures are characterized by a persistent distraction gap, minimal callous formation, or malalignment greater than 20 degrees. The study data were collected through a retrospective chart review and review of the radiographic studies. Primary outcome measure was radiographic union. Secondary outcome measures included mechanical failure, nonunion, malunion, medical, and surgical complications. Functional outcome was determined by range of motion and restoration of rotator cuff strength.

Results: A total of six patients were included who underwent treatment of their humeral shaft fracture with a NuVasive PRECICE nail after failure of conservative management.

After nail placement along with our compression protocol, all patients achieved bony union and experienced favorable outcomes with return to their previous working status. Two complications included a superficial incisional infection treated with antibiotics and a backing out of proximal screw which did not cause discomfort. No other mechanical failures, surgical complications, or medical complications occurred.

Conclusions: Early results of controlled compression nailing for humeral shaft fracture demonstrated favorable clinical outcomes. This technique may be utilized for these challenging situations.

Keywords: Humeral shaft fractures; Nonunion; PRECICE nail.