

Results of Proximal Ulna Fractures Treated with a Multiplanar, Locked Intramedullary Nail: First Multicenter Experience



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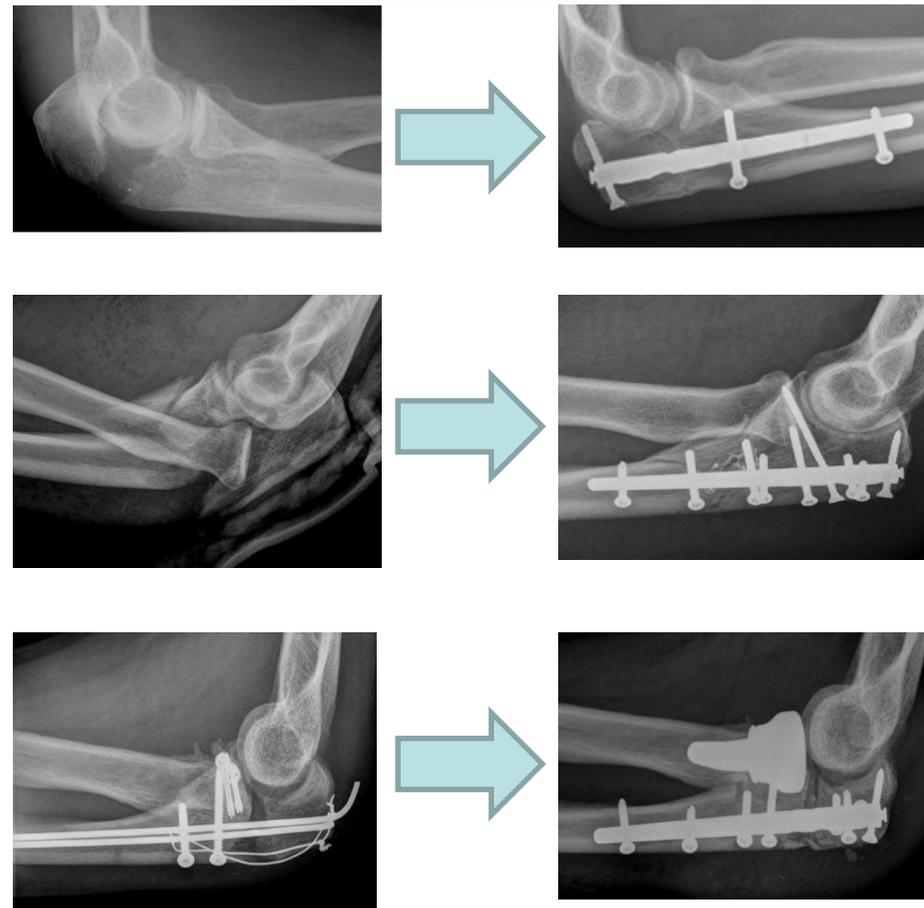
Objectives

The purpose of this study is to evaluate a new multiplanar, locked intramedullary implant indicated for both transverse and comminuted olecranon fractures. This is the first clinical report of this particular type of implant.

Methods

28 consecutive patients with displaced olecranon fractures underwent open reduction and internal fixation using a multiplanar, locked intramedullary implant (*OlecraNail, Mylad Orthopedic Solutions*) and were followed for a minimum of 12 months (range: 12-18 months). Of the 28 fractures, 18 were transverse or oblique (AO/OTA 21-B1.1), 10 were comminuted (AO/OTA 21-B1.2; B1.3), 4 of which also involved the coronoid, and 7 were nonunions. Average patient age was 45 years (range: 25 to 65 years). Patient clinical outcome measures were monitored at approximately six weeks, twelve weeks, and one year following the surgery. Included in this evaluation was range of motion, visual analog pain score, and strength. Patients were immobilized for 3-5 days postoperatively, after which motion was allowed. Strengthening was initiated at 6 weeks. Radiographs were taken at each follow up visit until union. Complications and subjective complaints were noted.

Methods (con't)



Results

At 4 weeks, patients demonstrated average extension of 20° (range: 0° to 40°) and flexion of 115° (range: 100° to 130°) with full supination and pronation compared to the contralateral side. Patient pain scores averaged 5 out of 10, with a range of 2 to 8. One patient developed an ulna neuropathy 6 weeks after surgery that eventually required ulnar nerve transposition. At 8 weeks, all patients were within 10° of full extension-flexion and were able to extend 82% of weight compared to the contralateral side. All fractures progressed to radiographic union by 8 weeks. At 12 months, patient pain scores averaged 2 out of 10, with a range of 0 to 4, motion remained the same, and all patients had resumed normal work, athletic, and leisure activities. Average extension strength was 94% of weight compared to the contralateral side. There were no incidences of nonunion, infection, triceps extension problems, or hardware failure or irritation. No patients were lost to follow up.

Conclusions

This new multiplanar, locked intramedullary implant appears to be a safe and effective method to treat transverse and comminuted proximal ulna fractures and nonunions. It allows for early motion for both stable and unstable fracture patterns without loss of fixation. Good outcomes in terms of motion, strength, and union may be expected within 8 weeks after surgery and continued for at least one year.