

Case Study:

Use of the INnate™ Intramedullary Threaded Nail for an Oblique Fracture to the 4th Metacarpal

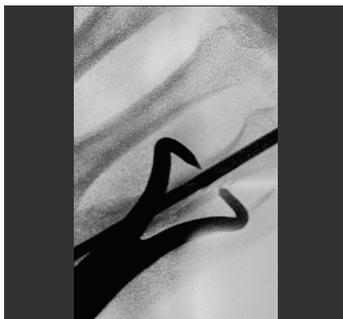
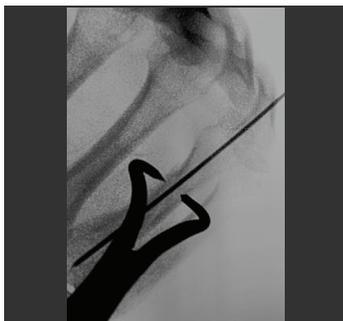


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Pre-op



Intra-op



Case Presentation

The patient was a 25-year-old male race car driver who presented to clinic with a midshaft, oblique fracture to the 4th metacarpal on his dominant right hand, suffered from an accident during the course of one of his races. His situation was further complicated by a Grade II sprain of his contralateral thumb ulnar collateral ligament (UCL). This was treated with a thumb spica gauntlet cast. A minimally invasive approach resulting in early mobilization was needed to allow him to have functional use of one of his hands.

Pre-op Plan

Operative considerations for the right hand included K-wire fixation or open reduction internal fixation (ORIF) with a plate and screws. There was, however, a concern with the lack of rigidity and/or soft tissue disruption and this was compounded with the need for immediate mobilization. The need for rigid immobilization was imperative given his inability to adequately use his left hand. Based on these considerations, surgery was performed with a percutaneous, intramedullary approach using the INnate threaded nail. The nail was long and wide enough in length and diameter, respectively, to fill the canal, providing stable fixation for early range of motion.

Operative Findings and Approach

Once percutaneous anatomic reduction was achieved, a small stab incision on the dorsal third of the metacarpal head was made and the provided guidewire was inserted across the fracture site using mini C-arm visualization. The INnate depth gauge then confirmed that a 3.6mm x 50mm threaded nail was needed for the 4th metacarpal. The cannulated drill was utilized to drill over the guidewire. Dr. Redler lastly placed the cannulated INnate nail over the guidewire, threading the implant until its trailing end was countersunk beneath the articular cartilage and canal fill was achieved at the isthmus. Total surgery time was approximately 15 minutes.

Post-op



Follow-up

Immediately after surgery, the patient experienced minimal pain and full active range of motion. At 2-weeks post-op the patient was able to go about his activities of daily living without difficulty.

Discussion

The INnate threaded nail allowed surgery to be performed with a minimally invasive approach with an appropriately sized implant to achieve stable fixation. Unlike K-wires or plates and screws, the diameter and robust length offering of INnate achieves canal fill and rotational stability without complications such as pin tract infection or stiffness due to soft tissue dissection. This surgical choice resulted in immediate early range of motion, which enabled the patient to return to work and his daily activities more quickly than other implants and surgical approaches. This allowed the patient a faster return to work and his daily activities. The immediate stable fixation of the INnate threaded nail proved to be an outstanding minimally invasive surgical choice for this patient.