

Case Study:

Use of the INnate™ Intramedullary Threaded Nail for
Displaced Fractures of the 3rd and 4th Metacarpal Shafts



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Pre-op



Case Presentation

Patient was a 24-year-old right hand dominant male who presented to clinic 6 days after getting his dominant hand smashed in a car door, sustaining closed, displaced fractures of both his 3rd and 4th metacarpal shafts. Patient is a carpenter and wanted to be able to return to work quickly. He needed stable fixation to restore the alignment and length of the metacarpals, allowing early range of motion.

Pre-op Plan

Dr. Styron discussed three approaches with the patient: 1) closed reduction with intramedullary nails, 2) open reduction with plates and screws, and 3) closed reduction with percutaneous pinning. As the patient wanted to minimize downtime and return to work quickly, Dr. Styron chose intramedullary fixation with INnate. This approach would also decrease the necessary operative time.

Operative Findings and Approach

Dr. Styron made a small, curvilinear incision around the first metacarpal head. The extensor tendon was retracted and the joint capsule incised to expose the metacarpal head. The guidewire was placed in the dorsal 1/3 of the metacarpal head. While performing a reduction maneuver on the metacarpal shaft, the guidewire was passed in a retrograde fashion across the fracture. The cannulated drill was used once proper pin placement was confirmed with the depth gauge under fluoroscopy. An INnate intramedullary nail was then inserted, the wound copiously irrigated, and then closed in layers. This was then repeated for the second finger through a separate small incision, in an identical fashion. 4.5mm diameter INnate intramedullary nails with lengths of 55mm were used in both metacarpals. Total surgery time was 25 minutes.

Post-op



Follow-up

At patient's very first post-op visit, 11 days after surgery, his stitches were removed and he already had full active digital ROM. Patient was also able to make a composite fist with minimal discomfort. He was placed in a removable brace by the occupational therapist, to be worn when doing any heavy activities; otherwise, patient was instructed to stay out of his brace for active motion.

Discussion

INnate does an excellent job in providing stability to the fracture with minimal disruption of the soft tissues. This allows for early ROM, decreasing tendon adhesions and stiffness, and accelerating the patient's return to function. Placement of INnate is simple and straight-forward, thereby reducing operative time. The purpose-built design allows for immediate mobilization, minimizing patient downtime and accelerating return to work or daily activities when compared to other implants and surgical approaches.