Case Study

The Use of Closed Reduction Intramedullary Fixation for an Oblique Fifth Metacarpal Neck Fracture

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Dr. McKeon is a board certified, fellowship trained orthopedic surgeon who specializes in hand and wrist surgery. Dr. McKeon received the Subspecialty Certificate in Orthopedic Surgery of the Hand after earning her medical degree from Washington University School of Medicine in St. Louis where she also completed her residency. She was fellowship trained in hand surgery at Vanderbilt University. She treats carpal tunnel syndrome, trigger finger, arthritis, finger/hand/wrist fractures just to name a few.

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Case Presentation

A 56-year-old, right-hand dominant male patient presented to clinic the day after injuring his left hand. X-rays showed an oblique, displaced fracture of the left fifth metacarpal neck. Nonoperative and operative treatment options were discussed with the patient. Given the amount of shortening and radial translation present at the fracture site, reduction and operative fixation were recommended.

Pre-op Plan

Intramedullary (IM) fixation, without exposed K-wires, allows for earlier return of motion and decreased risk of infection. Fixation with a rigid intramedullary nail allows for fewer restrictions in the immediate postoperative period. Dr. McKeon had successfully used the INnate™ nail for midshaft metacarpal fractures, and wanted to extend those benefits to this patient as well. Having never used the INnate nail for this fracture pattern, she had other fixation options available as backup.

Operative Findings and Approach

Dr. McKeon made two 2 mm incisions to allow placement of a percutaneous bone reduction clamp to achieve and maintain fracture reduction. The guide wire was placed percutaneously from the metacarpal head into the metacarpal shaft. Once the guide wire was in good position, she made a 2 mm incision around the wire. She then used the cannulated drill to drill over the guide wire and threaded the cannulated INnate nail until the head was just beneath the articular cartilage, to achieve distal purchase just below subchondral bone. Proximal purchase was achieved at the isthmic level within the IM canal. The reduction clamp was removed, and she verified that the fracture was stable. A soft dressing was placed, and the patient was allowed to return to activities as tolerated.

Preoperative

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Postoperative

Follow-up

On the eighth day post-op, the patient had minimal pain. He had full, active extension of the small finger. He could actively flex the small finger to within 1 cm of the distal palmar crease. By four weeks post-op the patient had returned to full activity, including push-ups. He never required formal therapy.

Discussion

Dr. McKeon has been pleased with the INnate nail. It is her first choice for treating many different patterns of metacarpal fractures, including distal oblique. It is minimally invasive, does not compress the fracture, and does not require casting, allowing immediate mobilization and rapid recovery.

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