

## Case Study:

Use of the INnate™ Intramedullary Threaded Nail for an Oblique Fracture of the 5<sup>th</sup> Metacarpal Neck

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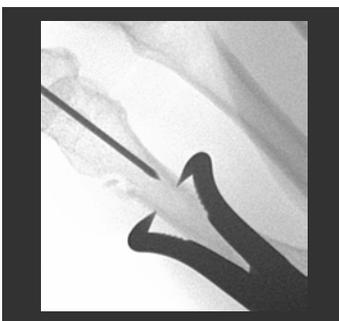
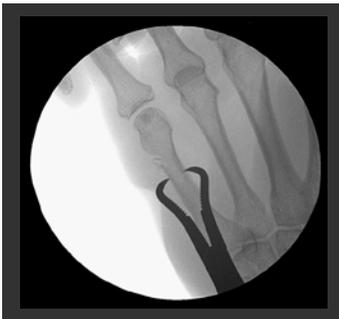
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Pre-op



Intra-op



## Case Presentation

Patient was a 35-year-old female who presented to clinic with an oblique fracture of the 5<sup>th</sup> metacarpal neck suffered from a fall. There was some clinical malrotation of the small finger. She is a horse trainer and needed to return to work quickly, so she elected surgical management. Stable fixation was necessary to restore the alignment and length of the metacarpal and allow early range of motion.

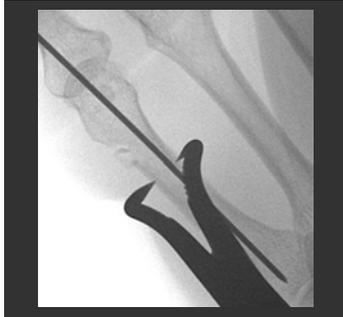
## Pre-op Plan

As the patient needed to return to work and daily activities quickly, Dr. Yao chose intramedullary fixation with INnate because the nails were long and wide enough in length and diameter to fill the canal, providing the necessary stable fixation that would restore rotation, alignment, and length of the metacarpal. This minimally invasive approach decreases the necessary operative time, allows for early range of motion, and minimizes recovery time. Alternative methods and implants would not have allowed immediate mobility, thereby making it difficult for a quick recovery.

## Operative Findings and Approach

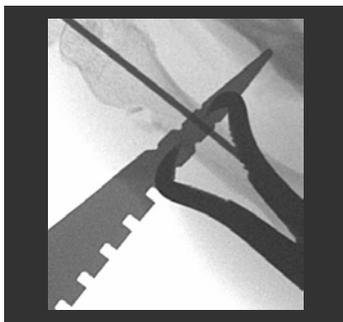
Dr. Yao used a percutaneous approach with INnate to stabilize the metacarpal fracture. He first performed longitudinal traction on the small finger to restore normal rotation, length and alignment and then used a percutaneously-applied pointed reduction clamp to maintain the reduction. Using the INnate depth gauge, he determined that a 3.6mm x 40mm nail was needed. He made a 2mm incision over the 5<sup>th</sup> metacarpophalangeal joint aligned with the dorsal third of the metacarpal head of the small finger and inserted the provided K-wire through the extensor mechanism, through the dorsal 1/3 of the metacarpal head, and then across the fracture site under fluoroscopic guidance.

Intra-op



He then used the cannulated drill to drill over the guidewire (directly through the extensor tendon) and threaded the cannulated INnate nail until the head was countersunk beneath the articular cartilage to achieve distal purchase in the subchondral bone.

Proximal purchase was achieved at the isthmic level within the intramedullary canal with a total surgery time of 25 minutes.



## Follow-up

The patient was splinted for 4 days and then started light physical therapy for range of motion. At post-op day #7, the patient had minimal pain, full active extension and the ability to actively flex the small finger to within 1 cm of the distal palmar crease. At final follow-up the patient had completely recovered.



## Discussion

Dr. Yao has been pleased with the INnate nail. It is his first choice for treating many different patterns of metacarpal fractures, including straight-forward cases such as this oblique neck fracture. INnate allowed Dr. Yao to address the fracture efficiently while maintaining height and relying upon the intermetacarpal ligaments to provide rotational stability. INnate has various lengths and diameters that allow proper canal-fill and affords excellent fixation and rotational stability. The implant does not require additional resources, and follow-ups are typically easy and straight-forward because few patients require lengthy formal therapy, as mobilization is immediate. This allows patients to minimize their downtime and return to work and daily activities faster than other implants and surgical approaches.

Post-op

