Case Study

Use of the INnate™ Intramedullary Threaded Nail for a Midshaft Spiral Fracture of the Fifth Metacarpal During the COVID-19 Pandemic

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Dr. Rekant completed his undergraduate education Magna Cum Laude at Duke University and Medical School at the University of Medicine ad Dentistry of New Jersey – New Jersey Medical School. He completed his Orthopeadic Surgery Residency at New York University Medical Center and completed his specialty training with a Hand and Upper Extremity Surgical Fellowship with Philadelphia Hand to Shoulder Center and Thomas Jefferson University Hospital . He is currently an Associate Professor in the Department of Orthopedic Surgery at Thomas Jefferson University.

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Case Presentation

Patient was a 70-year-old female who presented to clinic with a midshaft spiral fracture to the right small metacarpal suffered from a fall while walking her dog. Patient had acute complaints of pain, swelling, and stiffness with gross clinical malrotation. She desired repair with internal fixation to allow for improved function, but also desired hygiene and the ability for hand washing, given circumstances of the COVID-19 pandemic.

Pre-op Plan

As the pandemic required Dr. Rekant to use the Jefferson Navy Yard Surgical Center as an alternative facility, he did not have his usual access to the INnate intramedullary nail. This would have been his preferred option as the nails are long and wide enough in length and diameter to fill the canal, providing the necessary stable fixation that would restore alignment and allow for early range of motion.

The alternative plan was for open incision with multiple 1.5 mm lag screws for fixation; however the lag screw tray was found to be contaminated with no replacement readily available. As the INnate nail and its instrument set are both sterile-packed products, Dr. Rekant decided to call his sales representative and ask him to bring the product to the Jefferson Navy Yard Surgical Center.

Operative Findings and Approach

Once the rep arrived with the INnate system, the case could start quickly and without issues. Dr. Rekant first performed longitudinal traction to restore alignment and then used a percutaneously applied, pointed reduction clamp to maintain the reduction, until he placed the guide wire. He used a percutaneous approach with INnate to stabilize the metacarpal fracture and, using the INnate depth gauge, determined that a 4.5 mm by 45 mm nail was needed for the metacarpal. He made a 2 mm incision on the dorsal third of the metacarpal head of the small finger and inserted the provided guide wire across the fracture site under fluoroscope. He then used the cannulated drill to drill over the guide wire and threaded the cannulated INnate nail until the head was 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 16 minutes.

Preoperative

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Postoperative

Follow-up

At patient's two-week post-op visit, she had minimal pain and demonstrated full active digital range of motion. As desired by the patient, she was able to regularly wash her hands without issues immediately after surgery. Dr. Rekant felt that the patient was doing very well and that post-op therapy was not necessary. Both the patient and surgeon were pleased with the results.

Discussion

Dr. Rekant has been pleased with the INnate nail. It is his first choice for treating metacarpal fractures due to the robust length and diameter offerings that allow proper canal-fill and afford excellent fixation and rotational stability. Patients experience immediate mobilization, accelerating their return to daily activities while minimizing their downtime and need for lengthy physical therapy relative to other implants and surgical approaches. Patients are free from complications caused by wires and soft tissue incisions. For the practice, it has a positive impact from a global cost perspective as the surgery is easy, quick, and efficient without the need for sterilization, as both the implant and instrument set are sterile-packed. INnate is a game changer for the patient, the surgeon, and the practice.

SPF70-38-A

Effective: 2025/04

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