

Case Study:

Use of the InFrame™ Intramedullary Threaded Micro Nail for a Midshaft Transverse Fracture to the 1st Proximal Phalanx



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Pre-op



Case Presentation

Patient was a 19-year-old male manual laborer who suffered a midshaft transverse fracture to his 1st proximal phalanx from a crush injury while on the job. A minimally invasive approach with stable fixation was desired to achieve immediate to early range of motion (ROM), avoiding complications such as stiffness.

Pre-op Plan

Dr. Warganich normally considers K-wire fixation to address proximal phalanx fractures but wanted to avoid pin site infections and stiffness caused by extramedullary hardware and immobilization, respectively. He decided to proceed with InFrame because the cannulated, fully threaded micro nail has a 2.0mm diameter design that allows the use of more than one implant in the narrow intramedullary (IM canal) to create a construct that achieves rotational and bending stability. InFrame also includes an innovative dual diameter guidewire that facilitates precise and efficient placement by removing the need for reaming and allowing the implant to be inserted over the trailing end of the guidewire with ease.

Operative Findings and Approach

Once anatomic reduction was achieved, Dr. Warganich inserted the dual diameter guidewire across the fracture site from the radial proximal cortex to the distal cortex under fluoroscopy to stabilize the fracture and accurately align the desired final implant position. Next, he used the depth gauge to determine that a 28mm micro nail was needed for the 1st proximal phalanx. The larger diameter of the guidewire was used to push the guidewire distally until the smaller diameter was across the fracture. He then inserted the cannulated InFrame micro nail until bi-cortical purchase was achieved at both the distal and proximal ends. After Dr. Warganich verified the final position of the first implant under fluoroscope, he used the same methodology to place the second InFrame

Post-op



micro nail but in a different plane from the first implant. He inserted the second dual diameter guidewire from the ulnar proximal cortex to the distal cortex under fluoroscopy and used another 28mm micro nail to achieve stable fixation without any rotational deformities. Total surgery time to create the “V” construct was approximately 15 minutes with no need for a tourniquet.

Follow-up

At 2-weeks post-op, the patient demonstrated nearly full ROM with no complications or pain. Radiographs confirmed radiographic union and anatomic restoration. At 4-weeks post-op, the patient experienced full active ROM and returned to unrestricted activity.



Discussion

Dr. Warganich has been pleased with InFrame as the implant and surgical technique allow him to achieve his operative goals of stable fixation, early mobilization, and reduced time in the operating room. The 2.0mm diameter design and robust length offering of InFrame allowed him to create an optimal “V” construct to fit the narrow IM canal and achieve rotational stability in only 15 minutes. His patient was satisfied with the results and was able to return to work faster than other implants and surgical approaches.