

## Case Study:

Use of the InFrame™ Intramedullary Threaded Micro Nail  
for an Oblique Fracture to the 5<sup>th</sup> Proximal Phalanx

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Yorell Manon-Matos, MD

Center for Neurosciences Orthopaedics & Spine (CNOS, PC)  
Dakota Dunes, SD

Pre-op



## Case Presentation

Patient was a 17-year-old female who suffered an extra-articular oblique fracture to her 5<sup>th</sup> proximal phalanx while playing volleyball. A minimally invasive approach, resulting in early mobilization, immediate range of motion (ROM), and minimal stiffness was desired.

## Pre-op Plan

Dr. Manon-Matos normally considers dorsal plate fixation complemented with lag screws to address oblique fracture patterns but wanted to minimize any soft tissue disruption to achieve early mobilization. He also considered K-wires due to the percutaneous approach but wanted to avoid extramedullary hardware and complications such as stiffness and infections. Dr. Manon-Matos decided to proceed with InFrame because the cannulated, fully threaded micro nail allowed for an intramedullary (IM) approach that achieved rigid fixation and early mobilization. The innovative dual diameter guidewire facilitated precise and efficient placement by removing the need for reaming and allowing InFrame to be inserted over the trailing end of the guidewire with ease. Biomechanical testing has demonstrated the superior rigidity with InFrame compared to K-wires and plates and screws, allowing earlier active ROM and reduced recovery time.

## Operative Findings and Approach

Once anatomic reduction was achieved, Dr. Manon-Matos inserted the dual diameter guidewire across the fracture site from the ulnar proximal cortex to the radial distal cortex under fluoroscope to stabilize the fracture and accurately align the desired final implant position. Next, he used the depth gauge to determine that a 20mm micro nail was needed for the 5<sup>th</sup> 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 threaded the cannulated InFrame micro nail until bi-cortical purchase was achieved at both the distal and proximal ends.

### Same Day Post-op



Due to the narrow IM canal, Dr. Manon-Matos was not able to utilize a secondary micro nail but was satisfied with the rigid construct stability of only one InFrame implant. Total surgery time was approximately 25 minutes.

### Follow-up

At 1 week post-op, the patient demonstrated early range of motion with no complications and was expected to achieve full ROM without any restrictions in another 1 to 2 weeks.

### Discussion

InFrame allowed Dr. Manon-Matos to achieve his operative goal of stable fixation, early mobilization, and minimal to no soft tissue damage. The straightforward and reproducible placement of the InFrame micro nail allowed surgery to be completed in 25 minutes. The 2.0mm diameter design allowed Dr. Manon-Matos to create a singular InFrame construct that was perpendicular to the fracture pattern, achieving canal-fill and rotational stability. The unique delivery mechanism for InFrame is also important because it simplifies a more precise and efficient implant placement. His patient experienced anatomic and functional restoration of her proximal phalanx, thereby returning to her daily activities faster than other implants and surgical approaches.