

Case Study

Use of the InFrame™ IM Threaded Micro Nail for Percutaneous Proximal Phalanx Fracture



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Case Presentation

26 year old male presenting with a little finger proximal phalanx fracture from a ground level fall while playing sports. He was placed into a splinter in the E.R and told to follow up with a hand surgeon. He presented post injury day 5 with an oblique little finger angulated, unstable proximal phalanx fracture.

Treatment

With an angulated unstable proximal phalanx fracture, options included the possibility of a closed reduction and immobilization vs operative fixation. Due to the instability pattern of the fracture, operative fixation was chosen. Consideration was for K-wires, vs. plating vs. InFrame fixation. The initial first choice was to use an intramedullary technique using InFrame to avoid scars from incisions, to speed up operative time, and to avoid tissue interaction with the device as occurs with K-wires and plates.

The procedure was performed on post-injury day six. Intra-operative fluoro helped define and understand the fracture pattern as short oblique with very little comminution. No other fractures were identified.

The fracture reduced easily in a closed fashion so two InFrame devices were placed in a percutaneous fashion. The first was placed extra-articular on the flare of the phalanx base across the oblique fracture. The guidewire placement is shown. Due to the oblique nature of the fracture, the easiest placement of the second guidewire and device was from the same phalanx base. A second guide wire was placed after the first InFrame had been seated then the second guide wire and InFrame was then placed in a slightly different plane as the first InFrame. The approach from the other side base of the phalanx would have been possible but I felt that it would be more difficult. Notice that the InFrame devices travel the length of the intramedullary canal of the phalanx and either seat against cortex or slightly penetrate cortical bone. The devices measured 36 mm and 34 mm. Two devices were used to control rotation.

Postoperative Care/Follow-up

Post-operative care include immediate unrestricted aggressive active motion in the recovery room. Minimalistic bandages are usually placed and, in this case, include only Band-Aids. Buddy taping is also sometimes used. In this case the patient had near normal motion in the recovery room. He was released to full activities except sports or activities that might create great forces especially torsional forces. His final result was anatomic fracture healing with normal digital range of motion, an excellent result for proximal phalanx fixation.

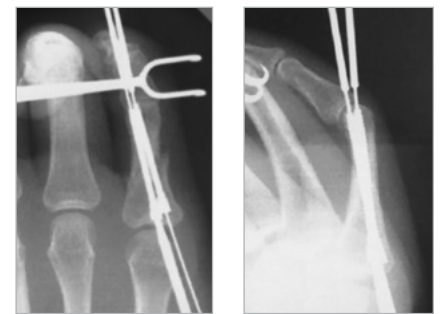
Discussion

The InFrame cannulated micro nail helps the reduction of the fracture. Once the construct was completed, it was found to be quite rigid and stable. The intramedullary approach to fracture reduction allows for immediate flexion and extension. The benefit of the nail being titanium is that it creates a very stable and rigid construct to maintain the fracture reduced. The second nail allows for there to be additional rotational stability at the fracture site.

Preoperative



Intraoperative



Postoperative

