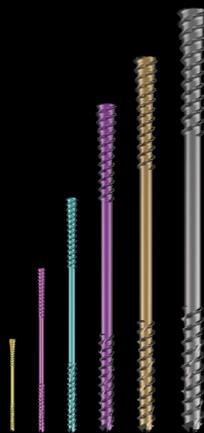


CASE STUDY



The use of NX Nail for fixation of a comminuted middle P2 phalanx fracture

The Surgeon

Dr. Greg Couzens FRACS(Orth)

Fellowship trained Orthopaedic Hand Surgeon Brisbane, Australia. Researcher at the Institute of Biomedical Health and Innovation at the Queensland University of Technology.

Introduction

A 20-year-old female professional Australian Football League (AFLW) player suffered an injury to the ring finger of her dominant right hand in a collision at training. She was seen by Dr. Couzens the next day and presented with pain, swelling and an angulated finger. Radiographs showed a comminuted fracture of the middle P2 phalanx. Dr. Couzens achieved definitive fixation with a 2.0mm x 22mm NX Nail through a percutaneous approach. The operative finger was buddied to the middle finger initially and the patient was seen by a hand therapist for provision of a training and playing splint. By six weeks she was cleared to return to contact ball work with no restrictions in the gym. In this instance, Dr. Couzens was able to treat a painful and debilitating injury for a young patient whose vocation requires the full use of her hand and fingers.

The Case



Patient Profile

A 20-year-old female professional Australian Football League (AFLW) player suffered an injury to the ring finger of her dominant right hand in a collision at training.



Clinical Findings

The day after sustaining the injury, the patient was seen by Dr. Couzens. Upon examination, she had pain, swelling and an angulated finger. Radiographs showed a comminuted fracture of the middle P2 phalanx of the right ring finger.



Pre-operative Assessment

To facilitate a rapid return to function, Dr. Couzens planned for definitive fixation with an NX Nail through a percutaneous approach. This minimally invasive approach would allow him to realign and stabilise the fracture with limited disruption to surrounding soft tissues. Hand therapy would also be required to mobilize the finger post-operatively so the patient could return to training in stages as she progressed through her recovery.



Surgical Treatment

Under intra-operative fluoroscopy, the fracture could be reduced with traction.



Figure 1



Figure 2

Once realigned, Dr. Couzens passed a 0.8mm k-wire across the fracture to temporarily hold it in place before using a cannulated drill to prepare for the implant.



Figure 4



Figure 5

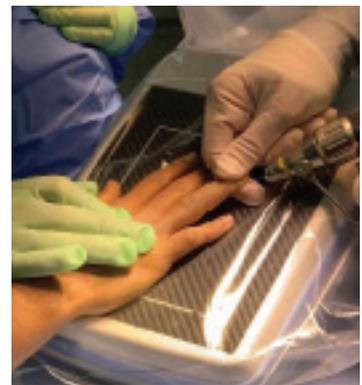


Figure 6

A 2.0mm diameter NX Nail which was 22mm in length was used to stabilize and fix the fracture. Implant placement was confirmed under fluoroscopy before the guidewire was removed and the small incision closed with a 5-0 suture. The operative finger was budded to the middle finger initially and she was seen by a hand therapist on the first post-operative day for provision of a training and playing splint.



Figure 7



Figure 8



Figure 9



Figure 10



Post-operative Treatment

Two weeks post-operatively, the incision site had fully healed and the patient was doing exceptionally well. She did not report any significant pain and her swelling had resolved. She was rapidly recovering her range of motion and was provided with a resting splint due to a tendency for mild swan neck deformity.



Figure 11



Figure 12

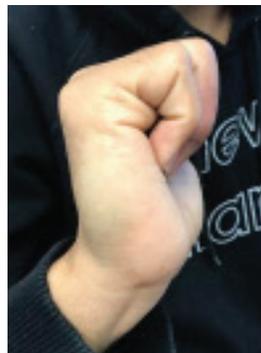


Figure 13

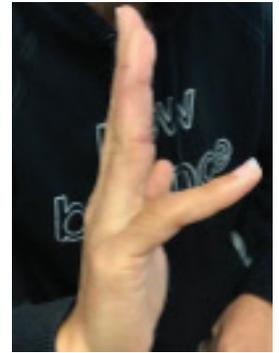


Figure 14



Conclusion

In this instance, Dr. Couzens was able to treat a painful and debilitating injury for a young patient whose vocation requires the full use of her hand and fingers. With the NX Nail, Dr. Couzens was able to achieve definitive fixation through a percutaneous approach which gave the patient the best chance of returning to the field as soon as possible.



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