

Technical Note: Hook plate fixation of FDP avulsion fractures

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Citation

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Abstract

FDP avulsion fractures are complex injuries that frequently present late and are difficult to treat. Many surgical approaches to fixation are described. The authors describe a novel technique for fracture fixation that is used in their hand unit.

BACKGROUND

Avulsion fractures of flexor digitorum profundus were classified by Leddy and Packer. The injury is frequently missed and presentation may therefore be delayed. The injury is difficult to treat and reconstructive options include screw fixation of the fracture, Mitek anchor reattachment and use of pull through sutures through the distal phalanx with a button on the nail plate.

AIMS

To assess the outcome of fracture fixation using a new hook plate devised in our unit.

METHODS

The avulsed tendon is explored using a traditional volar Brunner incision (Figure 1). The fracture site is cleared of debris and reduced. An off-cut 3-hole section of a 1.5mm AO / Synthes compact hand reconstruction plate is fashioned into a hook plate after cutting through the last hole and bending the two halves through 90 degrees into hooks (Figure 2a and b). The plate is contoured and then the hooks are used to grasp the flexor tendon just proximal to the fracture. The plate is fixed to the distal phalanx with a single bicortical 1.5 mm screw passed from distal to proximal to avoid the germinal matrix of the nail on the dorsum. Images are taken with the mini C-Arm (Figure 3a and b) and the wound is closed (Figure 4). Post-operative extension block splintage is performed for 3 weeks followed by 3 weeks in a mallet splint. Resisted power grip is avoided for 6 weeks.

Figure 1

Figure 1

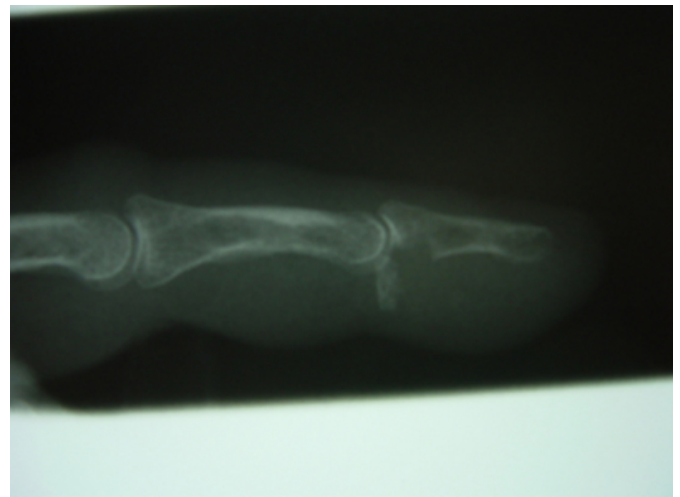


Figure 2

Figure 2a and b

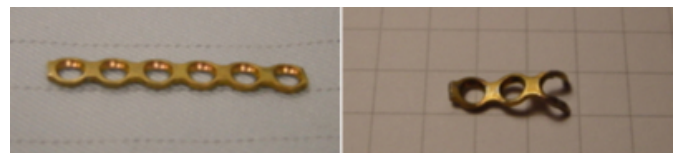


Figure 3

Figure 3a and b

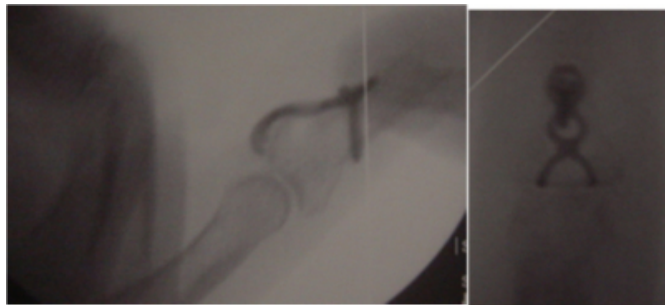


Figure 4

Figure 4



RESULTS

The fracture reduction is maintained and congruent union of the intra-articular fragment is achieved. Patient satisfaction is high and early mobilisation allows good return of distal interphalangeal joint movements. No nail growth disturbance is reported.

DISCUSSION

The flexor digitorum profundus avulsion fracture is difficult to treat. The Birmingham Hook Plate offers a better biomechanical fixation than a single screw or Mitek anchor. The infective complications of a pull-through suture are avoided.

CONCLUSION

The hook plate technique is a reliable method of fixation of these difficult avulsion fractures.

References

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