

Interactive Hand Clinics Number 2: A Persistently Painful Hand

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Abstract

INSTRUCTIONS

The authors present a series of self assessment cases in hand surgery that demonstrate the many pathologies presenting to our tertiary referral hand unit. This case discusses the diagnosis and reconstructive strategy for a complex gunshot injury to the upper arm. Read the case report and accompanying questions and answer them in order. The solutions to the questions follow at the end.

CASE REPORT

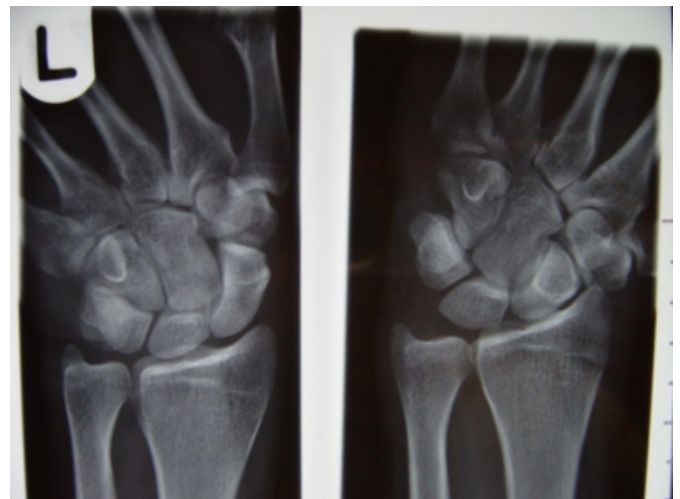
A 38 year old RAF navigator presented to A&E after an alleged assault, where he fell heavily onto both hands. He complained of left wrist pain. Plain radiographs were taken but no initial diagnosis was made (Figure 1).

The ulna sided left wrist pain persisted and at 12 months he was referred to a Hand surgeon for a specialist opinion. He complained of pain on the ulna aspect of his wrist and contact sensitivity with associated parasthesia in the ring and little fingers. Examination revealed full ROM at the wrist, a tender hypothenar eminence with no objective motor ulna nerve signs.

Investigations included repeat plain radiographs, instability series (AP, lateral, clenched fist, radial and ulna deviation views) and nerve conduction studies. He was provided with a wrist splint which alleviated some of his neurological symptoms.

Figure 1

Figure 1



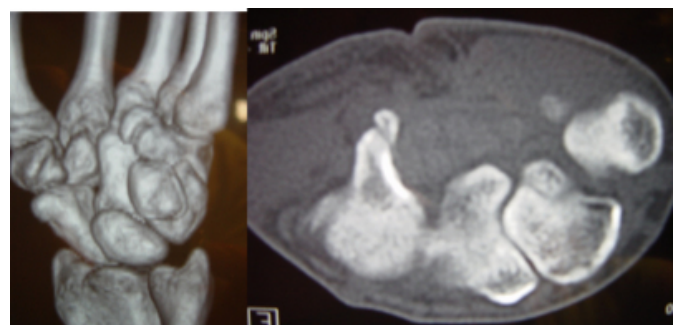
Q1 What are the features seen in fig 1, plain PA radiograph?

Q2 What is the possible diagnosis and what is the best investigation at this point?

Further investigations included tangential views of the ulnar carpus, CT scan and MRI of the wrist.

Figure 2

Figure 2a and 2b



Q3 What abnormality is seen on the imaging in Figure 2?

Q4 How would you manage this condition?

A PERSISTENTLY PAINFUL HAND

ANSWERS:

Q1 WHAT ARE THE FEATURES SEEN IN FIG 1, PLAIN PA RADIOGRAPH?

PA radiograph is normal. The instability series excluded ligamentous damage, and EMG studies ruled out median or ulna nerve pathology.

Q2 WHAT IS THE POSSIBLE DIAGNOSIS AND WHAT IS THE BEST INVESTIGATION AT THIS POINT?

Differential Diagnosis:

- Aneurysm of ulnar artery
- Thrombosis of ulnar artery
- Ulnar nerve compression in Guyon's canal
- Non-union or fibrous union of carpal bone fracture
- Tenosynovitis of FCU
- Ganglion causing ulnar compression
- Schwannoma of ulnar nerve
- C8 radiculopathy

At this point a CT would provide the best imaging of his wrist.

Q3 WHAT ABNORMALITY CAN BE SEEN ON THE IMAGING?

CT of the wrist: Figure 2 shows an un-united fracture through the tip of the hook of the hamate.

Q4: HOW WOULD YOU MANAGE THIS CONDITION?

Fractures of the hook of hamate are rare and frequently missed on plain radiographs with subsequent long lasting pain and disability.^{1,2} The ensuing disability and neurological symptoms experienced by the patient are often vague and difficult to interpret and pin down.³

They are common in athletes most often resulting from a heavy golf or tennis swing, but may follow a fall or a direct blow to the palm, commonly resulting in local pain and tenderness. Traditionally routine PA and carpal tunnel plain radiographic views were the standard for imaging however these views have been shown to miss approx 50% of fractures in the acute setting. CT is now seen as the gold standard investigation for identifying such injuries.^{2,4,5}

On the whole conservative treatment including rest, physical therapy, and injections of steroids into the wrist and hand are not beneficial.¹

Theoretically non displaced acute fractures can heal with immobilization in a colle's type plaster for 6 weeks,⁶ however the origins of flexor digiti minimi brevis and opponens digiti minimi may cause a failure of a hamate fracture to heal. (approximately 46% heal with POP immobilisation only).¹ Acute displaced fractures can be treated with open reduction and internal fixation but this offers little advantage over excision. Fibrous or non-unions may result from avascular changes in the hook which generally resolve with hamate fragment excision, shown to have excellent results.⁷

The patient in question underwent surgical excision of the hamate fragment and made an uneventful recovery with full resolution of his pain and parasthesia, with return to work 2 months post-operatively.

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