THE NORTHERN HOSPITAL

METACARPAL DISLOCATION

Joe Louis (right) has Max Schmeling on the ropes, 1938

Joe Louis was born in Alabama, the son of a cotton picker, on May 13, 1914. His family moved to Detroit in 1924 were he first became involved in boxing. Having grown up in poverty and amidst racial discrimination and intolerance he acquired the instinct and anger of a true "street-fighter". Ten years after his arrival in Detroit, he won Michigan's "Golden Gloves" title. Following this he turned professional and from then on had a meteoric rise up through the ranks of the heavyweight divisions.

In 1935, he captured the attention of the boxing world by defeating two former World heavy weight champions, Primo Carnera and Max Baer. He fought Carnera before a Yankee Stadium crowd of 62,000. Ernest Hemingway described the fight against Baer as "the most disgusting public spectacle outside of a public hanging" that he had ever seen. In 1937 he became the World heavy weight champion by defeating James J Braddock in Chicago. He had come back to win after being floored by Braddock in the fourth round. He said after the fight, however, that he would not feel like a world champion until he had beaten one man, Max Schmeling who had beaten him in New York the previous year.

Louis is remembered most for his 1938 rematch with Schmeling. The boxing public admired Louis for risking his crown against a man who, just two years earlier, had knocked him out. Because Schmeling was German the media unfairly and inaccurately portrayed him as a Nazi and with Louis portrayed as a symbol of the "free world" the bout took on far more meaning than a mere boxing match. It was played out at Yankee Stadium and Louis scored a sensational first round knockout.

He retired in 1949, still the undefeated world heavyweight champion. Succumbing to financial difficulties, he was forced out of retirement and back into the ring in 1950. By then however he was well past his prime and suffered defeats at the hands of Ezzard Charles in 1950 and Rocky Marciano in 1951. He had earned - for the times - a staggering $5 million during his boxing career but at just 37, years of age did not have a single cent to show for it. He died in 1981.

METACARPAL DISLOCATION

Introduction

Metacarpal base dislocation can occur with associated fracture or without associated fracture.

Metacarpal dislocation in isolation is a relatively uncommon injury.

Other associated fractures should be looked for.

Pathology

Mechanism

Pure metacarpal dislocation is seen when the base of the bone displaces away from the carpal bones.

The base of the metacarpal is usually displaced dorsally.

Most commonly the fourth and fifth metacarpals are involved.

The usual mechanism of injury is a punch. More commonly this results in fracture rather than pure dislocation.

Complications

Inadequate reduction can lead to significant secondary osteoarthritis with impairment of hand function.

Occult associated fractures of the metacarpals and/ or carpal bones.

Clinical assessment

Clinical features include:

1. Localized pain

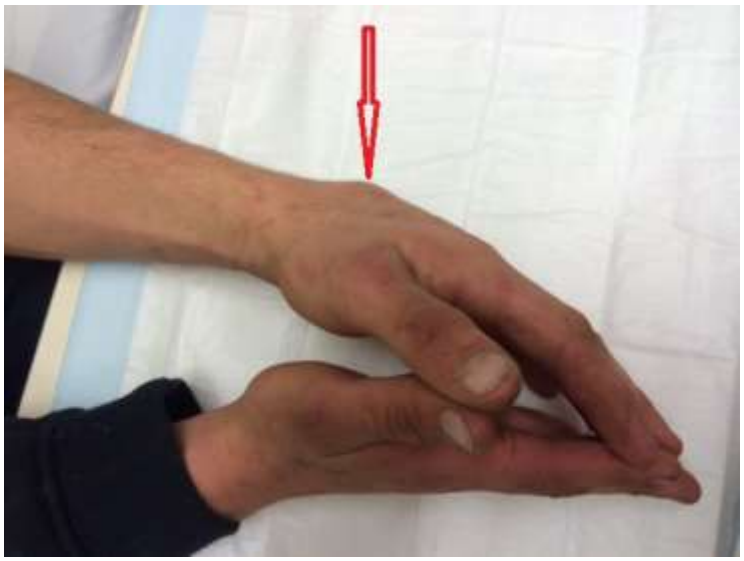
2. Swelling

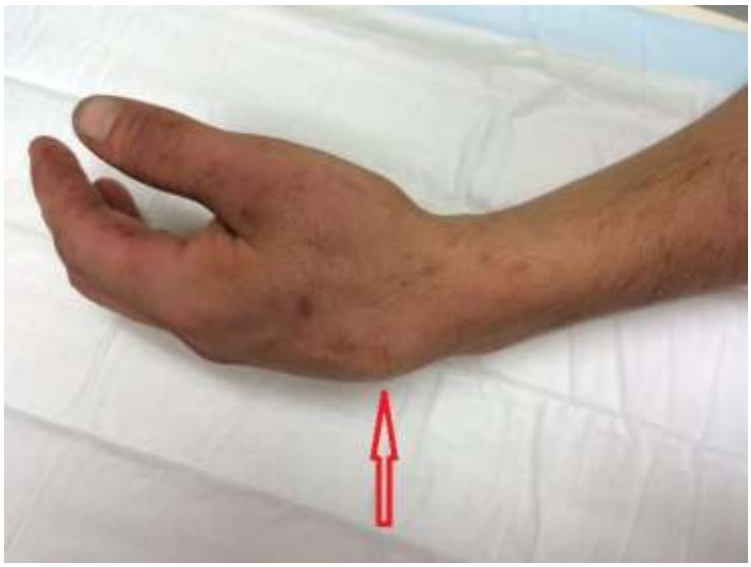
3. Bruising

4. Deformity:

    - This is usually obvious.

      The displaced bases of the involved metacarpals are readily seen on the dorsum of the hand, most commonly on the medial aspect due to involvement of the fourth and/ or fifth metacarpals.





Classical deformity of a dorsally dislocated base of a metacarpal; in this case the less common situation of the second metacarpal, (Clinical Photograph courtesy Dianne Woods).

Investigations

Plain radiography

The diagnosis is readily made on A-P and lateral radiographs of the hand.

A careful inspection should be made for any associated fractures of the metacarpals or carpal bones.

CT scan

This is not routinely required, but may be done when occult associated fractures are suspected.

MRI scan

MRI is the most sensitive and specific imaging modality for the detection of suspected associated occult fractures.

It is also useful for the detection of associated ligamentous injury when this is suspected.

Management

1. Analgesia as required:
    - Pain is usually significant and titrated opioids with often be necessary.
2. RICE:
    - Should be provided as initial first aid.
3. Reduction:

    This can be usually be readily done in the ED under sedation.

    Sedation options include:

    - Nitrous oxide
    - Morphine and midazolam
    - Ketamine
    - Propofol

    Reduction is then achieved by a combination of traction on the hand and forward pressure with the thumbs over the dorsally displaced metacarpal bases.

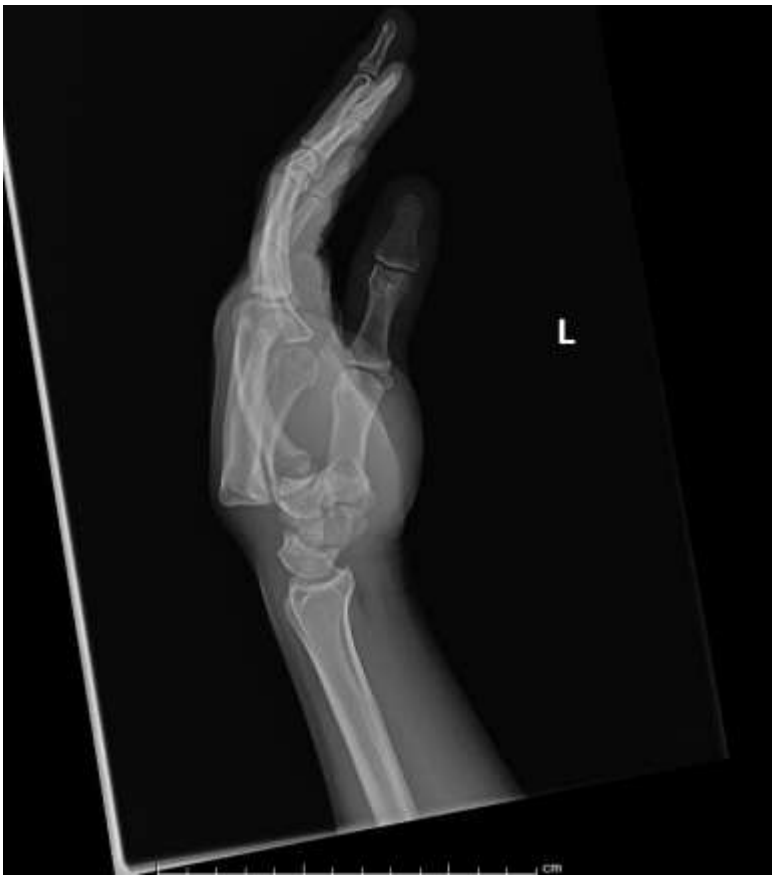
    A post reduction film should be taken.

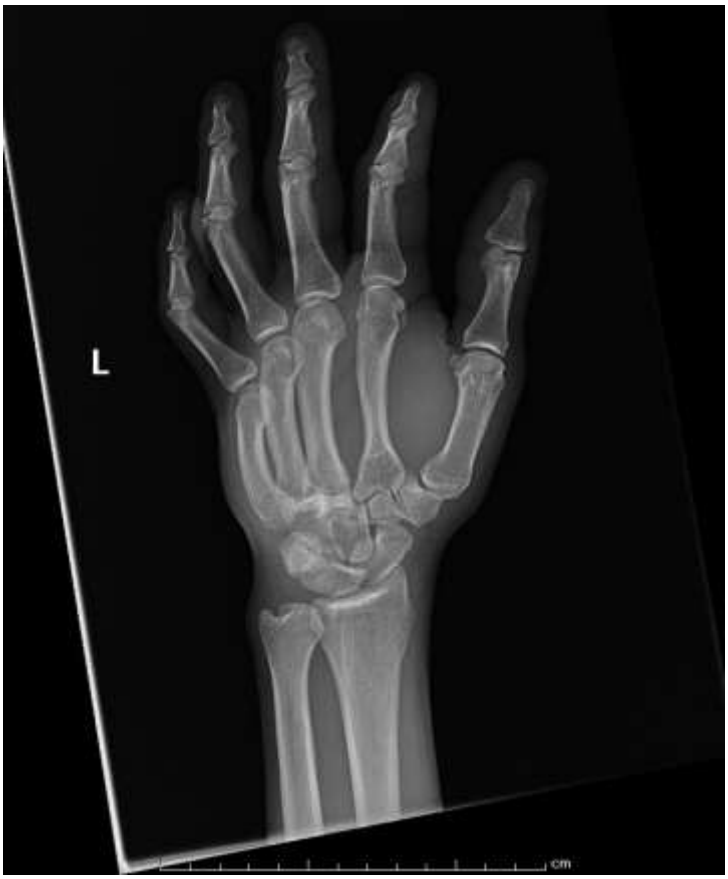
    The hand should then be immobilized in a backslab and the arm placed in a sling.
4. ORIF:
    - Fracture-dislocations will usually require ORIF.
    - Open reduction may also be required when reduction cannot be achieved by closed methods.

Disposition

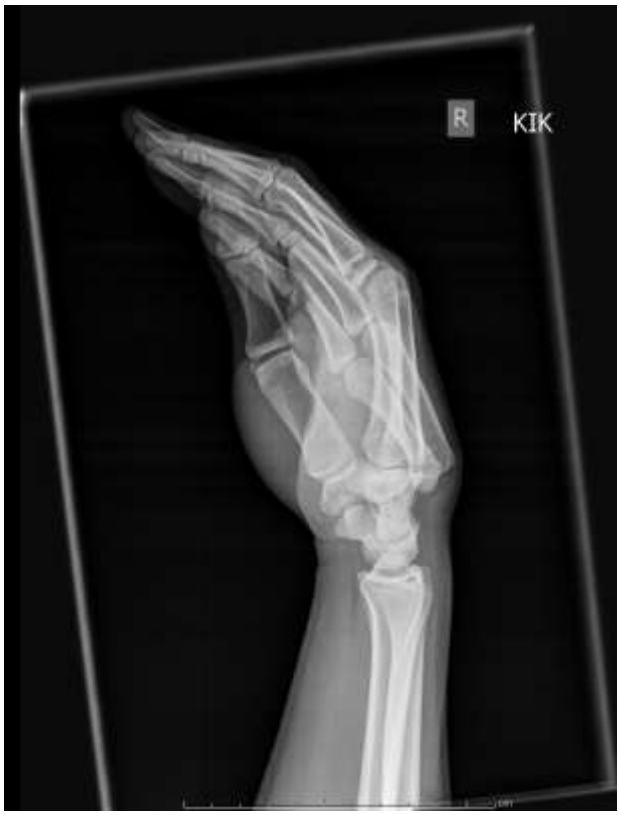
Patients should be reviewed by a hand surgeon.

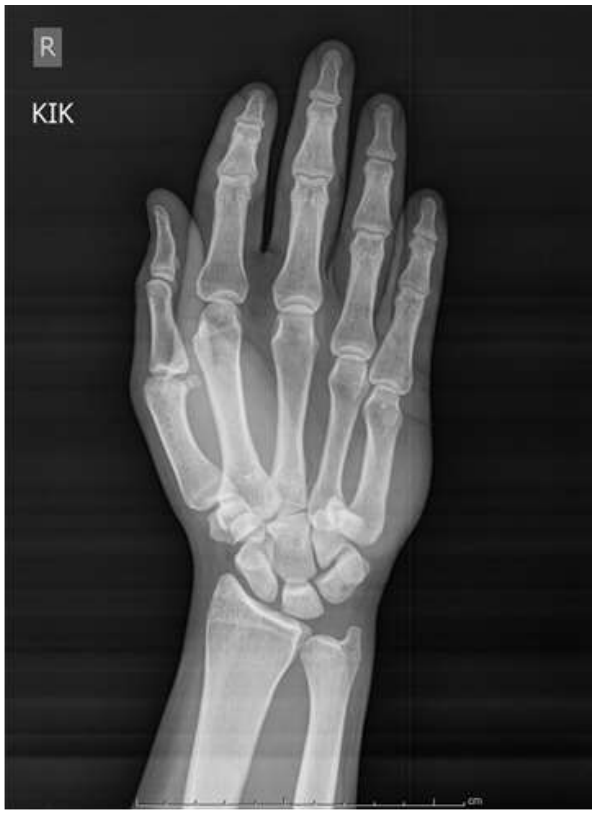
Appendix 1





Lateral and A-P radiographs for the patient shown above in the clinical photographs.





Lateral and A-P views of dorsal dislocations of the bases of the right Fourth and Fifth metacarpals in a 30 year old male, sustained by a punch injury. Note that the injury is readily missed on the A-P views! (Northern Hospital).

Dr J. Hayes
Reviewed October 2016