Assessing Hand Injuries

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- Mallet finger
- Joint dislocations and sprains
  - Finger PIP joint
  - Thumb MCP joint
- Phalangeal fractures
  - Tuft
  - Pilon fractures
  - Other
- Metacarpal fractures
  - Head / neck
  - Shaft
  - base

- Assessment

Injury:

Mechanism:

Assessment:

Clinical assessment:

Imaging:

Mallet Injuries - Assessment

Injury:

Mid-substance tear (tendinous) or avulsion fracture (bony) of terminal extensor tendon at insertion in to distal phalanx

Mechanism:

Hyperflexion with contact in sports or during tasks such as pulling up socks or making a bed

Assessment:

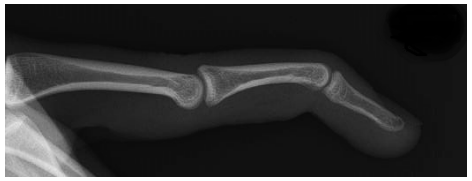
Clinical assessment:

Palpation: not always tender to palpation

ROM: DIP joint rests in flexion, unable to actively extend joint.

Assess for hypermobility / hyperextension at PIP joint

Imaging: X-ray (PA / lateral): confirms presence of avulsion fracture. If fragment > 30% articular surface +/- subluxation of remaining phalanx, surgical review required.



Mallet Injuries - Treatment

Standard treatment:

Dorsal extension splint (Stack splint, zimmer) applied over middle and distal phalanges to prevent DIP joint flexion

Precautions:

Hypermobility at the PIP joint is more likely to result in failed treatment of mallet injuries. This patients should also have the PIP joint splinted, in slight flexion.

Tendinous mallet injuries:

Continuous splinting for 8 weeks

Bony mallet injuries:

Continuous splinting for 6 weeks

Avoid DIP joint hyperextension as this can increase the gap between the bone fragments

PIP Joint Dislocations & Sprains - Assessment

Injury:

Interruption to the soft tissues (volar plate (VP) / ulna or radial collateral ligaments (UCL or RCL) / joint capsule) around the interphalangeal joints

Mechanism:

Hyperextension or rotary forces to PIP joint during sport or a fall

Assessment:

Clinical assessment:

Palpation: tender over VP / UCL / RCL

ROM: Pain end range PIPJ extension, often limited PIP and DIP joint flexion

Stability:

1. Assess passive hyperextension of PIPJ for VP integrity
2. Assess passive lateral motion of PIPJ for RCL and UCL integrity (in extension to test proper collateral ligament , in flexion to test accessory collateral ligament

Imaging: X-ray (PA and lateral)

Note: repeat x-rays should always be performed after attempting relocation of a dislocated joint

PIP Joint Dislocations & Sprains - Treatment

Standard treatment:

Buddy strapping or dorsal block splinting (to prevent hyperextension of PIP joint) over proximal and middle phalanges in comfortable extension for 2-4 weeks

- Dependent upon presence of instability, pain, movement loss
- Advice / techniques for minimisation of oedema should commence immediately
- Motion should be initiated as soon as possible ie. within days of injury

Precautions:

Unstable PIP joint injuries or those with subluxation of the middle phalanx should be referred to a hand specialist

Tuft Fractures - Assessment

Injury:

Fracture of the distal aspect of the distal phalanx of a digit

Mechanism:

These usually occur with a crush accident, such as fingers shut in a car door

Assessment:

Clinical assessment:

Observations: Usually swollen, may have associated nail bed injury or break in skin

Palpation: tender distal phalanx and nail bed

ROM: Painful DIP motion (due to swelling)

Imaging: X-ray (PA and lateral)

Tuft Fractures - Treatment

Standard treatment:

Treat with comfort in mind – support and splint to minimise pain.

Recovery can take between 2 – 8 weeks

Precautions:

Open injuries and those with nail bed involvement should be seen by a hand specialist

Encourage patients to use the finger for light activities as soon as pain allows

Closed Central Slip Rupture - Assessment

Injury:

Mid-substance / avulsion fracture of central slip from middle phalanx

Mechanism:

Hyperflexion injury of PIP joint during sport or a fall

Assessment:

Clinical assessment:

Observations: Rests in PIPJ flexion (+/- DIPJ hyperextension)

Palpation: Tender on palpation over dorsal PIPJ

ROM: Unable to actively extend PIPJ (full passive extension available)

Special tests: Elson's test (see ?? video)

Imaging: X-ray (PA / lateral)

Closed Central Slip Rupture - Treatment

Standard treatment:

Dorsal extension splinting (zimmer / thermoplastic) to prevent PIP joint flexion for 3-6 weeks

- Splint over proximal and middle phalanges

Precautions:

Open injuries should be referred to a hand specialist

Differential Diagnosis

1. Old central slip injuries will present with a Boutonniere deformity and passive extension may be difficult
2. PIP joint dislocations and sprains can mimic this injury if left untreated. Check for a deficit between active and passive extension.

Extra-Articular Fractures of the Phalanges - Assessment

Injury:

Mid-shaft fracture of proximal / middle / distal phalanx

Mechanism:

Fall / sport

Assessment:

Clinical assessment:

Observations: Swollen digit

Ensure no rotation of nail – always compare to other side

Palpation: Tender on palpation over fracture site

ROM: May be full or limited

Ensure no rotation during gross composite flexion

Imaging: X-ray (PA / lateral / oblique)

Note: repeat x-rays should always be performed after attempting relocation of a displaced fracture

Extra-Articular Fractures of the Phalanges - Treatment

Standard treatment:

Immobilise the joints above and below the fracture site, using the POSI principle (Position of Safe Immobilisation)

Precautions:

POSI splinting