Hand Injuries & Conditions

Tendon injuries

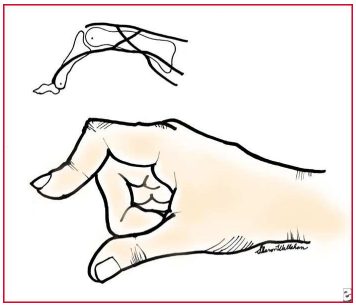
- Incomplete division may give apparently normal function but ↑risk of delayed rupture.
- Require prophylactic ABx

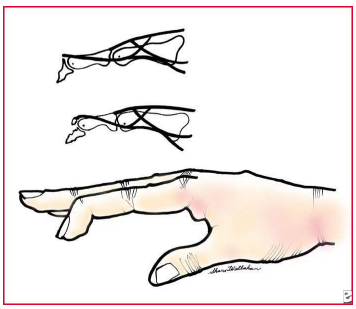
Flexor tendon

- Sheaths pass through carpal tunnel. Communicate with each other so spread infection.
- Rel. avascular and resist infection poorly. Damage may be irreversible
- FDP flexes DIPJ after passing through FDS & inserting base of DP. Test by holding PIPJs in extension and flexing DIPJ against resistance.
- FDS flexes PIPJ & inserts base of MP. Test by flexing one finger at PIPJ against resistance, while remaining fingers are held fully extended (to inactivate FDP)
- Penetrating injury anywhere along course or FDP or FDS.
    - Mx: Surgical r/v for OT wash out & repair if >25% division.
- Blunt injury to FDP by hyperextension of DIPJ.
    - Mx: XR to r/o avulsion #. Splint with finger & wrist flexion. Surgical r/v ± OT

Extensor tendon

- Common extensors & index/little fingers have additional tendons. Little communication between sheaths.
- Up to 80% division may still be treated after Surgical r/v by splinting for 6-8w.
- Central slip insert into base of MP extending PIPJ & MCPJ. Lateral slips insert into base of DP extending DIPJ, PIPJ, MCPJ.
- Central slip rupture assoc with PIPJ dislocations. May still be able to fully extend finger by action of lateral slips or may have boutonnière deformity.
    - Mx: reduce & splint in extension. Plastic's hand clinic.
- Mallet finger from hyperflexion of DIPJ → distal extensor mechanism ruptured or avulsion # of DP. XR to see if avulsion #. Mx:
    - If penetrating injury – direct open repair
    - If # frag>2mm or >25% jt surface involved then K-wires
    - If only chip # and loss of active extension<15 then no Rx
    - Otherwise mallet splint in **<u>continuous</u>** full (not hyper) extension for 6w





Tendon infections

- Usually S. aureus, may be Gram neg orgs (esp DM).
- Often minor penetrating wounds (e.g. gardening, thorns)
- Extension into palmar space possible, may have tenderness distant to wound as infection spreads through sheaths.
- Mx: Elevate, resting splint, **cephalothin** 2g IV q6h ± I&D.

Digital nerve injury

OT repair considered if thumb, distal index finger, ulnar border of hand/little finger, or on dominant hand. If distal to DIPJ then may be too small to repair and collateral nerves may return sensation.

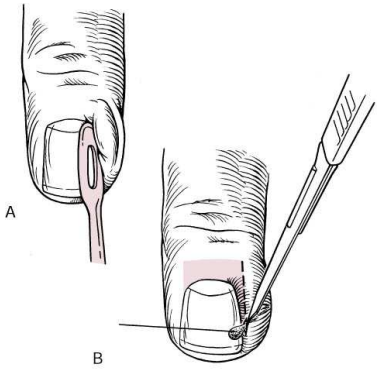
High pressure injection injury

- Grease guns & esp. airless spray guns.
- Blast injury + noxious material + secondary ischaemic injury from ↑tension. All → necrosis.
- Distal fingertip injuries & fuel/paint injuries highest risk of necrosis & amputation.
- Hand may look normal save for small entry wound.
- XR: Gas or FB in tissues.
- Mx: Avoid ring blocks as ↑tension. OT exploration.

Digital amputation

- Mx:
  - Cool amputated part to 4°C in ice/water slurry after wrapping in saline gauze & plastic bag.
  - Treat other injuries if present.
  - Tetanus + ABx.
  - Plastics consult.
- Viable for ~12hrs if cooled, reimplant ideally within 6hrs.
- Fingertip skin loss >1cm^2 will need grafting.
- If through DIPJ – terminalisation of finger usually.
- CI to reimplantation:
  - Severely crushed/mangled amputated part
  - >6hrs before cooling, >12hrs after cooling.
  - Other severe injuries
  - >50yrs old or chronic disease
  - Avulsion injury
  - Single middle, ring or little finger amputated.

Paronychia



- Infection between cuticle/lateral nailfold & nail plate.
- Usually post penetrating injury or cuticle damage.
- Strep & staph common. ABx: **flucloxacillin**.
- If collection visible: I&D after ring block. Either (A) scalpel blade 2-3mm under cuticle & lift or (B) directly incise area of greatest fluctulance to express pus & irrigate

Felon

- Infection of distal finger pulp. Localised very painful.
- Incise & drain if abscess (from lateral aspect usually).
- Anti-staph ABx. E.g. **flucloxacillin**

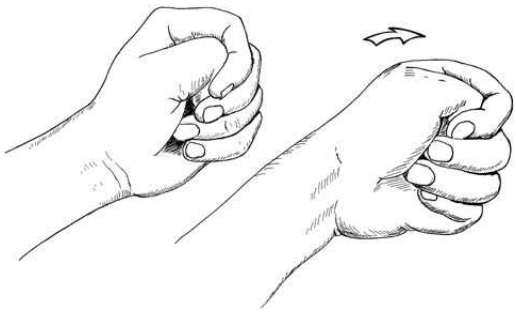
Nail bed injuries

For lacerations ± dislocations: remove nail, repair lac with 6/0 abs, make hole in old nail for drainage, replace nail & suture in place as splint for 2-3wk. ABx not of proven use.

Subungual haematoma: Very painful. Controversial Mx. Options:

- Trephine nail only. (digital nerve block & heated paper clip). ABx if distal #.
- Remove nail & repair lac if haematoma>25-50% of nail body area.

DeQuervain's tenosynovitis



Overuse or idiopathic tenosynovitis extensor pollicis brevis and abductor pollicis tendons of the thumb in the groove of the radial styloid.
Finkelstein/ Eichoff test: Thumb held by examiner (or by patient in closed fist) and ulnar deviation of hand reproduces pain along EPB & AbP tendons
Mx: Thumb spica/splint in neutral for 3 wk (with daily unsplinted exercises). NSAIDs, ± steroid injection.

Carpal Tunnel Syndrome

Peripheral mononeuropathy from entrapment of median nerve in swollen carpal tunnel, which is covered by the tense transverse carpal ligament.
RF: Overuse, trauma, pregnancy/CCF fluid retention
Features: Paraesthesias that extend into the index and long fingers and the radial aspect of the ring finger and along the palmar aspect of the thumb. May be worse at night, driving or if wrist extended for a prolonged period of time.
Phalen´s sign: 50% Sensitive & 75% specific. Flexing the wrist maximally for ≥1min → tingling and numbness along the median nerve distribution.
Tinel´s sign: Less sensitive/specific. Tapping the volar aspect of wrist over median nerve → paraesthesiae into index and middle fingers.
Inv: Electrodiagnostic techniques may be required to confirm the diagnosis
Mx: Volar splint in neutral position, NSAIDs, ± steroid injection (temporary), surgical release.

Dupuytren´s Contracture

Fibroplastic changes of the subcutaneous tissue of the palm and volar aspect of the fingers.
RF: Genetic predisposition. Northern European men. Liver disease.
Features: nodule in the palm, usually at distal palmar crease of ring or small finger, held in the classic flexion contracture.
Mx: Refer to hand surgeon for excision of the fibrotic bands.