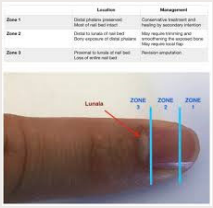
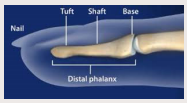
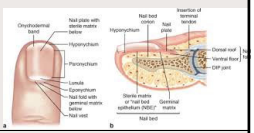
HANDS IN THE SAND

MELISSA PLATT, MD





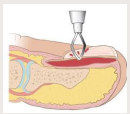


DISTAL FINGERTIP INJURIES

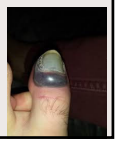
NAIL BED INJURIES

- Subungual Hematoma
  - *High correlation with distal phalanx fracture*

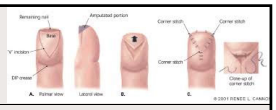
- Trephination
  - If significant pain/any % is really supported
  - Only in acute injuries (24-48 hours)



- Nail removal only recommended if there is associated nail avulsion or nail fold disruption



FINGER AMPUTATIONS



- **No exposed bone or nail bed involvement**
- Zone I injuries - treat conservatively with serial dressing changes alone
  - Cover wound with non-adherent dressing
  - Instruct patient to soak fingertip in antibacterial soap-added water for 10min QD and then reapply non-adherent dressing
  - Follow up with primary care provider in 2d
  - Most will have epithelialization in approximately 1 month[11]

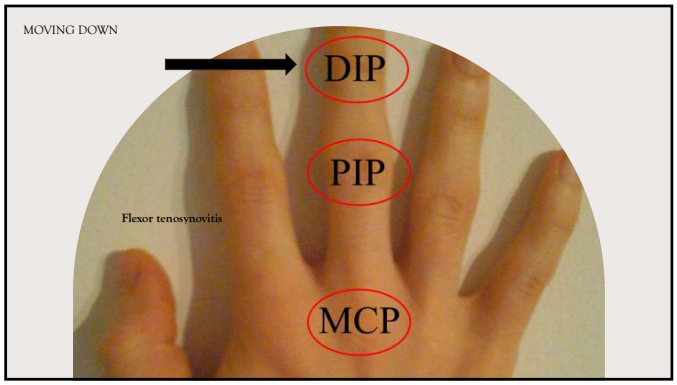
- **Exposed Bone**
- Zone II injuries
  - Consider hand surgery consult
- Zone III injuries
  - Consult hand surgery if available
  - May require distal phalanx amputation
  - Consider treating like Zone II

NAIL BED LACERATION

- Partial Avulsion
  - *Gently lift nail but do not remove*

- Complete avulsion
  - *Repair nailbed laceration*
  - *Replace nail into nailfold and suture into place*
  - *If no nail- non-adherent, petroleum containing gauze into nail fold (also can use aluminum wrapping of suture package)*
    - *Leave in place for 2-3 weeks*
  - *Wound should be re-evaluated in 3-5 days*

FINGERTIP INFECTIONS



FLEXOR TENOSYNOVITIS

Tenosynovitis is a broadly defined as inflammation of a tendon and its respective synovial sheath. This inflammation can derive from a great number of distinct processes, including idiopathic, infectious, and inflammatory causes.

pain, redness, and swelling of the affected digit over the period of hours to days.

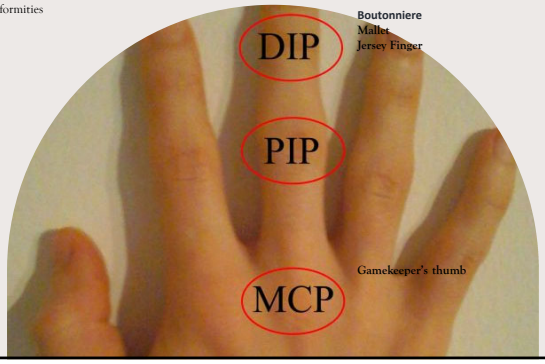
palmar-side puncture wound or laceration. Infection may also begin in the adjacent soft tissues and subsequently spread to the sheath and its contents.

Rare, gonococcal infection.

Physical examination of the affected digit may reveal some or all of Kanavel's four cardinal signs of flexor tendon sheath infection, [1, 2] which are as follows:

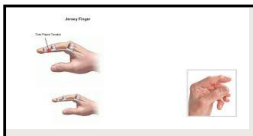
- Finger held in slight flexion
- Uniform swelling of the digit
- Tenderness along the flexor tendon sheath
- Pain with passive extension of the digit

Joint Deformities



Boutonniere
Mallet
Jersey Finger

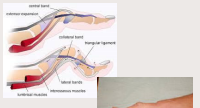
Gamekeeper's thumb



Jersey Finger- flexor tendon avulsed from distal phalanx

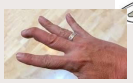
Collateral ligament rupture at proximal phalanx-radial deviation of MCP

Gamekeeper's thumb



Boutonniere Deformity

EXTENSOR INJURIES- ZONE III over the PIP joint



Mallet Finger

Flexor tendon splint

FINGER DISLOCATIONS

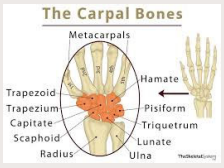
- Distal Interphalangeal dislocation (DIP).
  - 10-20 degrees of flexion for dorsal dislocation, joint in extension for volar dislocation
  - Splint should not extend onto the palm
  - Volar/Anterior-- Often may need open reduction because of volar plate involvement
- Proximal Interphalangeal Dislocation (PIP)
- Metacarpophalangeal dislocation (MCP)
- Traction alone may convert simple MCP dislocation may convert it to a complex dislocation [1][2]
- Dorsal dislocation
  - Flex the wrist to relax the flexor tendon
  - Hyperextend the joint
  - Apply pressure over dorsum of proximal phalanx in distal and volar direction
- Volar dislocation
  - Rare, will likely need open reduction
  - If attempting closed reduction, push finger into the MCP joint and then hyperflex joint
  - After hyperflexion, pull traction and extend finger, using thumbs to guide proximal finger into place

TO FINISH OFF THE DISLOCATIONS-- CARPOMETACARPAL

- Also known as CMC joint
- Uncommon due to strong ligaments and insertions of wrist flexors/extensors
- **Clinical Features**
- Cause is usually result of high-speed mechanisms
- Usually dislocates dorsally with associated fracture(s)

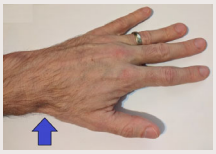
Reduction

- Traction and flexion with simultaneous longitudinal pressure on metacarpal base
- If unable to reduce or remains unstable, immobilize with both dorsal and volar splints for urgent hand surgeon referral[1]

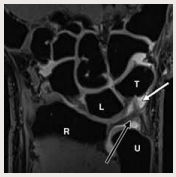


CARPAL INJURIES

SCAPHOID FRACTURE



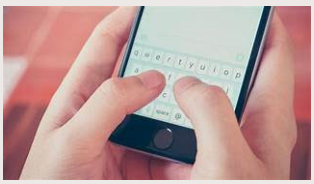
- **Workup**
- X-ray
  - Obtain both standard and scaphoid views
  - Up to 10-25% of initial radiographs fail to detect a fracture
- Refer to a hand surgeon may lead to osteonecrosis if not properly recognized/treated
- Repeat Wrist and scaphoid X-rays should be obtained 2-3 weeks after initial injury fracture if suspicion is high.
- Immobilization may be required for at least 6-12 wks.- thumb spica splint



LUNOTRIQUETRAL LIGAMENT INSTABILITY

- **Background**
- Ulnar equivalent of the scapholunate ligament injury
- May be confused with other causes of ulnar-sided wrist pain
- Results from FOOSH with impact on hypothenar eminence
- **Clinical Features**
- Localized tenderness on ulnar aspect of wrist just distal to ulna
- **Evaluation**
- X-ray (**note: imaging is often normal with this injury**)
  - PA - Widening of the triquetrolunate joint space
  - Lateral - volar intercalated segment instability is seen
- **Management**
- Ulnar gutter splint/short arm posterior mold
- Refer to orthopedic surgery

SPECIAL INJURIES



HIGH PRESSURE INJURIES

- Surgical emergency (Amputation rates are as high as 30%)
- Occurs with grease, paint, and fuel guns; usually injected into non-dominant hand
- Most important factor is type of injected material
  - Clean water and air lower risk
  - Paint produces large, early inflammatory response with high rate of amputation
  - Grease causes small inflammatory response with lower rate of amputation
- **Clinical Features**
- Most frequently in hand/fingers
- Benign appearance of small injection site in immediate post-injection period is misleading
  - With time digit becomes edematous, pale, and severely tender to palpation

- Emergent ortho/hand surgeon consult
  - Early surgical decompression and debridement
  - Increased rate of amputation if >10 hours to OR
- Tetanus
- Antibiotics
  - Targeted at broad spectrum coverage. Traditionally a 3rd generation cephalosporins
  - Digital blocks are contraindicated as wound already under high pressure

THANK YOU AND GOOD-BYE