Common Disorders of the Hand and Wrist

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NERVE COMPRESSION DISORDERS
Carpal Tunnel Syndrome

- Compression of the median nerve
- Causes numbness, tingling and pain
- Often night pain/numbness
Carpal Tunnel Syndrome

- Diagnosis
  - Tinel’s
  - Durkin’s
  - Phalen’s
  - EMG
Carpal Tunnel Syndrome

- Treatment
  - Splints
  - Corticosteroid injection
  - Endoscopic or open carpal tunnel release

Cubital Tunnel Syndrome

- Compression of the ulnar nerve
- Typically presents at the elbow
- Diagnosis:
  - Tinel’s
  - Elbow Flexion test
  - EMG
- Treatment:
  - “Splinting” (volleyball kneepad, etc)
  - Surgical release
Cubital Tunnel Syndrome

Sensory distribution of the hand
Trigger Finger

- Stenosing Tenosynovitis” of finger flexor tendons
- Discrepancy in size between the tendon and the flexor tendon sheath

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# Trigger Finger

## Physical Exam:
- Pain at level of A1 pulley
- Triggering as finger is brought from flexion into extension
- Locking
- Most common in thumb

## Risk Factors:
- Women
- Diabetes
- Hypothyroidism
- Gout
- Renal disease
Trigger Finger Treatment

- Corticosteroid injection
  - 50-90% success rate

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Trigger Finger Treatment

- Surgery
  - Release of A1 pulley

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DeQuervain’s Tenosynovitis

- Stenosing tenosynovitis of the 1st dorsal compartment
  - Abductor pollicis longus (APL)
  - Extensor pollicis brevis (EPB)

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De Quervain’s Tenosynovitis

- **Pathophysiology:**
  - 1st dorsal compartment subdivided into 2 compartments
    - EPB is in its own compartment
    - Up to 34% of the population

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**De Quervain’s Tenosynovitis**

- **Physical Exam**
  - Radial sided wrist pain worsened by thumb motion or ulnar deviation
  - Swelling
  - Finkelstein’s test

- **Treatment:**
  - Splinting
  - Injection
  - Surgery (First Dorsal Compartment Release)

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**De Quervain’s Tenosynovitis Treatment**

- Thumb spica splint
- Corticosteroid injection
- Surgery - release of first dorsal compartment and subcompartment

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FRACTURES

Phalanx Fractures

- May be seen at proximal, middle or distal phalanx
- May have an associated joint dislocation
- Surgery versus splinting
### Metacarpal Fracture (Boxer’s)

- Commonly caused by punching an object
- Surgery for multifragmented, severely displaced, multiple metacarpal, short oblique or spiral with soft-tissue injury²
- “Fight bite” wound needs to be extended and irrigated with appropriate antibiotics.

### Scaphoid Fracture
Scaphoid Fracture

- Often missed on x-ray
- Most commonly fractured carpal bone
- Tenderness in the anatomic snuffbox
- May require CT or MRI to evaluate
- Can go on to non-union
- Treatment is often surgery
- Generally caused by a fall on an outstretched hand (FOOSH)
### Scaphoid Fracture

- **X-ray**: PA, oblique, lateral views plus a PA view in ulnar deviation

- **Nondisplaced fractures may not be visible on initial xray**
  - Thumb spica splint
  - Repeat X-rays in 10-14 days

### Risks Factors for Scaphoid Nonunion

- Displaced fracture (>1mm)
- Proximal pole fracture
- Delayed diagnosis (>28 days)
- Smoking
## Treatment

- **Nondisplaced fracture:**
  - Long arm thumb spica cast X 6 wks followed by short arm thumb spica cast X 6 wks
  - Percutaneous screw fixation

- **Displaced fracture – open reduction, internal fixation with compression screw**

## Distal Radius Fractures

- **Mechanism:** Fall on outstretched hand
- **Requires proper treatment**
Imaging

- Standard
  - AP
  - Lateral
  - Oblique

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Suggestions for PCP

- Splint for comfort
- Quick referral for displaced fractures
- Do not immobilize too long
- Beware of apparently benign fracture patterns.
## Treatment

- **Primary decision** – non-operative vs. operative treatment

- **Must be individualized**
  - Physiologic age
  - Individual needs
  - Medical co-morbidities
JOINT DISORDERS

Osteoarthritis

- Finger (PIP/DIP)
- Thumb CMC
- Wrist (Radio-carpal)
  - SLAC wrist
Thumb Carpometacarpal Arthrosis

- Conservative treatment
  - NSAID
  - Splinting
  - Activity Modification
  - Injection

- Surgical treatment
IP Joint Arthritis

- Conservative
  - Splinting
  - Injections

- Operative
  - PIP joint arthroplasty
  - Joint fusion

SLAC Wrist (Scapho-Lunate Advanced Collapse)
Wrist arthritis

- Conservative treatment
  - Splinting
  - Injections

- Operative treatment
  - Proximal row carpectomy
  - Joint fusion
  - Wrist arthroplasty

Ganglion Cyst

- General
  - Most common hand tumor
  - Female : Male (3:1)
  - 2\textsuperscript{nd} – 4\textsuperscript{th} decades of life
  - Rapid or gradual development of mass
  - Arises from a joint capsule or tendon sheath

- Etiology:
  - Trauma
  - Mucoid degeneration
  - Synovial herniation

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# Ganglion Cyst

## Diagnosis
- Clinical examination
  - Mildly tender or non-tender
  - Vary in size
  - Patients may complain of pain / aching, stiffness, weakness or concerns for aesthetics
  - Mass may transilluminate
  - Concomitant carpal instability may contribute to wrist symptoms
  - Vascular evaluation (Allen’s test/ thrill) for volar ganglions due to the potential for radial artery aneurysm

## Ganglion Cyst Locations
- Dorsal wrist
  - Scapholunate interval, most common
- Volar wrist
  - Radioscaphoid and scaphotrapezial joints, most common
- Other sites:
  - Thumb carpometacarpal joint
  - Flexor carpi radialis tendon sheath
  - Distal palm / proximal digit
  - Distal interphalangeal joint
  - Carpal Canal, Guyon’s canal
  - Almost any joint hand and wrist
Ganglion Cyst Diagnosis

- Imaging studies
  - Radiographic assessment is usually normal
  - MRI is useful to identify occult ganglion cysts, as a source of local symptoms

Ganglion Cyst Treatment

- Observation
  - Splinting
  - Aspiration +/- steroid injection
  - Surgical excision
Dupuytren’s Disease

- Normal palmar and digital fascia transform to form abnormal palmar and digital cords which lead to nodule formation and contracture

Risk Factors

- Alcoholism
- Diabetes
- Epilepsy
- Smoking
- Chronic pulmonary disease
- HIV
Anatomy

- Involves the palmar and digital fascia
  - Tethers the skin to the underlying bony structures
  - Limits sliding of skin
  - Prevents skin avulsion

Presentation

- Painless nodule
- Skin changes
  - Pitting
  - Dimpling
- Cords
- Contractures
- Often bilateral
- Ring and small finger most common
Treatment

- What doesn’t work:
  - Stretching
  - Manipulation
  - Steroid injections
  - Splinting/casting

Treatment

- What does work:
  - Surgery
  - Collagenase
  - Radiation

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Surgical Indications

- All are relative indications:
  - MCPJ contracture > 30°
  - Any PIPJ contracture
  - Table top test

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