

Common Disorders of the Hand and Wrist

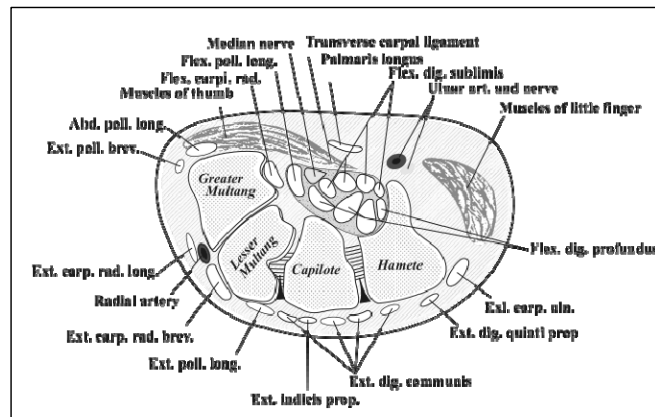
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NERVE COMPRESSION DISORDERS

Carpal Tunnel Syndrome

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

Carpal Tunnel Syndrome



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Median Nerve Distribution



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Carpal Tunnel Syndrome

- **Diagnosis**
 - **Tinel's**
 - **Durkin's**
 - **Phalen's**
 - **EMG**

Carpal Tunnel Syndrome

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

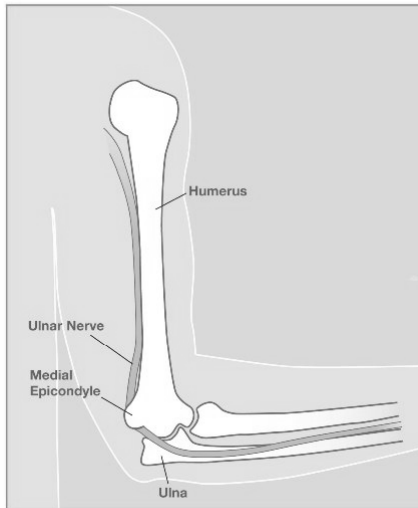


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Cubital Tunnel Syndrome

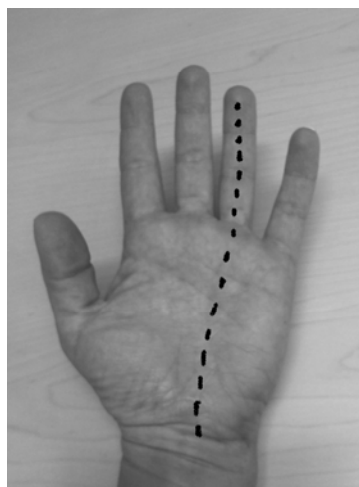
- Compression of the ulnar nerve
- Typically presents at the elbow
- Diagnosis:
 - Tinel's
 - Elbow Flexion test
 - EMG
- Treatment:
 - "Splinting" (volleyball kneepad, etc)
 - Surgical release

Cubital Tunnel Syndrome



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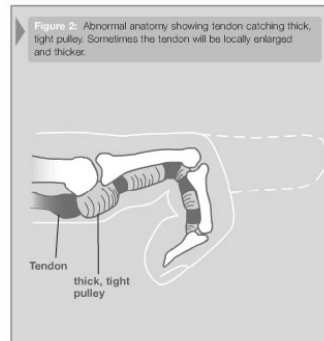
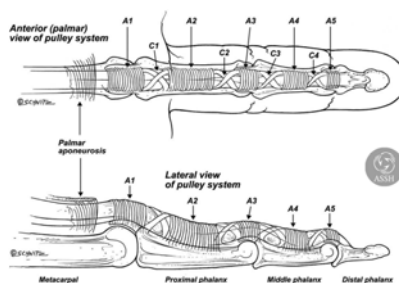
Sensory distribution of the hand



TENDON DISORDERS

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

Trigger Finger

- **Risk Factors:**
 - Women
 - Diabetes
 - Hypothyroidism
 - Gout
 - Renal disease

Trigger Finger Treatment

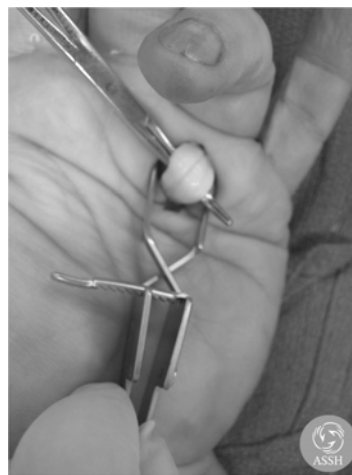
- Corticosteroid injection
 - 50-90% success rate



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Trigger Finger Treatment

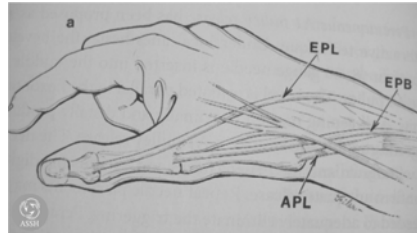
- Surgery
 - Release of A1 pulley



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DeQuervain's Tenosynovitis

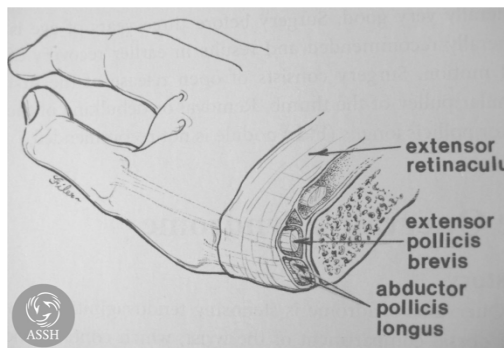
- **Stenosing tenosynovitis of the 1st dorsal compartment**
 - Abductor pollicis longus (APL)
 - Extensor pollicis brevis (EPB)



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De Quervain's Tenosynovitis

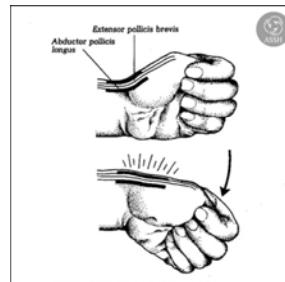
- **Pathophysiology:**
 - 1st dorsal compartment subdivided into 2 compartments
 - EPB is in its own compartment
 - Up to 34% of the population



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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

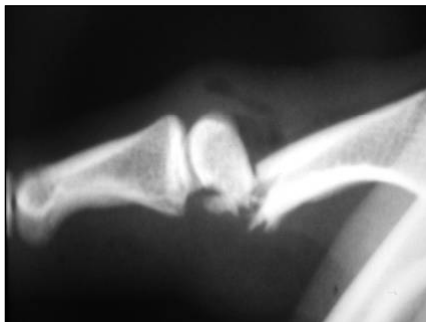


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FRACTURES

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)

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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 ($>1\text{mm}$)
- 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



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)
 - 2nd – 4th decades of life
 - Rapid or gradual development of mass
 - Arises from a joint capsule or tendon sheath
- **Etiology:**
 - Trauma
 - Mucoïd 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

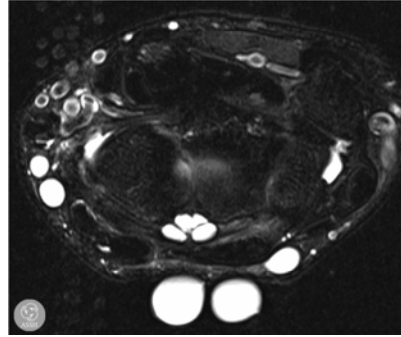


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Ganglion Cyst Treatment

- Observation
 - Splinting
 - Aspiration +/- steroid injection
 - Surgical excision



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Dupuytren's Disease

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



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Risk Factors

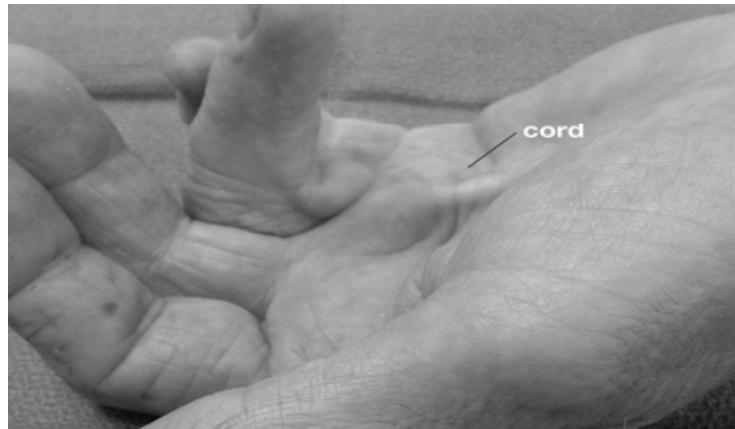
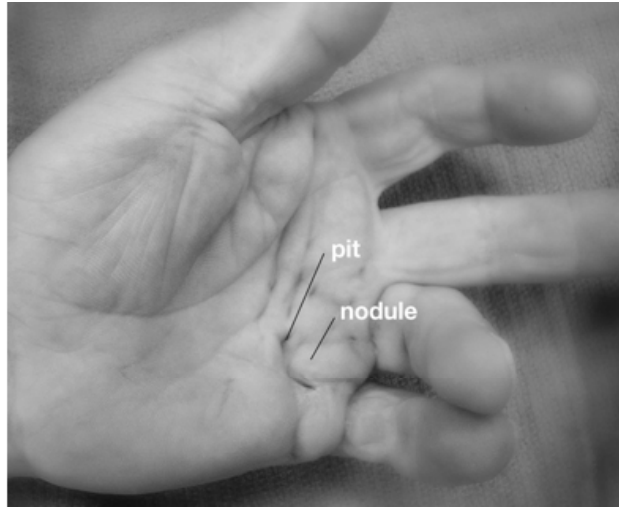
- Alcoholism
- Diabetes
- Epilepsy
- Smoking
- Chronic pulmonary disease
- HIV

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 $> 30^\circ$
 - Any PIPJ contracture
 - Table top test

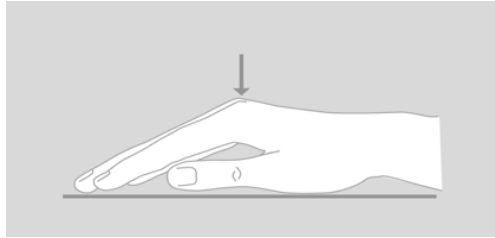


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