



WRIST/HAND PATHOLOGY

Kristin Kelley, DPT, OCS, FAAOMPT

Orthopaedic Manual Physical Therapy Series
Charlottesville 2017-2018



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Trauma/Fractures

- Hook of Hamate Fractures
- Triangular Fibrocartilage Complex (TFCC)
- Distal Radius Fractures
- Boxer's Fracture
- Scaphoid Fracture
- Mallet Finger
- Jersey Finger



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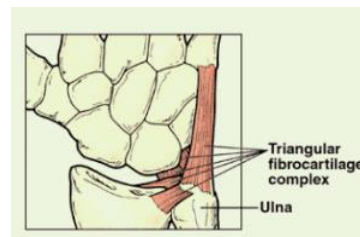
Hook of Hamate Fracture

- **History**
 - Common in bat, racket, stick sports
 - Direct trauma to palm
 - Bad golf swing
 - Ulnar wrist pain
- **Physical Exam**
 - Pain with gripping
 - (+) TTP Hook of Hamate
 - Pain with resisted 4th/5th DIP Flexion with Wrist Flexion and UD
- **Differential Diagnosis**
 - Wrist Sprain
 - TFCC Tear
 - Ulnar Neuritis
 - Ganglion Cyst
- **Treatment**
 - Conservative – cast x 12 weeks
 - Surgical – Excision > ORIF



TFCC Injury

- **History**
 - FOOSH, Ulnar Distraction, Repetitive axial Loading
 - Ulnar-sided wrist pain
 - Click/crepitus with forearm rotation, gripping, ulnar dev.
- **Physical Exam**
 - (+) TTP TFCC
 - Press Test (Sn = 100%)
 - TFCC Grind Test
 - “Click” with Flex/Ext in UD
- **Differential Diagnosis**
 - ECU tendon subluxation
 - Lunotriquetral pathology
- **Treatment**
 - Brace 4-6 weeks



TFCC Tests

- Press Test



- Grind Test

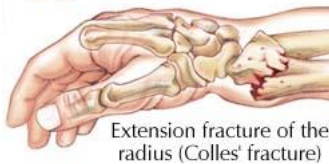
– <https://www.youtube.com/watch?v=I6LedAdjnN0>



Distal Radius Fracture

- Colles' Fracture
 - Dorsal Displacement
 - Extra-Articular
- Smith's Fracture
 - Volar Displacement
 - Extra-Articular
- Barton's Fracture
 - Volar or Dorsal Displacement
 - Intra-Articular

Flexion fracture of the radius (Smith's fracture)

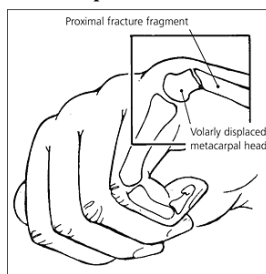


Extension fracture of the radius (Colles' fracture)



Boxer's Fracture

- History
 - Pain to fx site, dorsal swelling, deformity
 - Mechanism: direct impact to MC shaft/head
- Physical Exam
 - Rotational malalignment in flexion
 - Decreased MC height
 - Loss of MCP/PIP Extension
- Differential Diagnosis
 - Contusion
 - MCP Dislocation
- Treatment
 - Splinting
 - Non-operative >90% prognosis



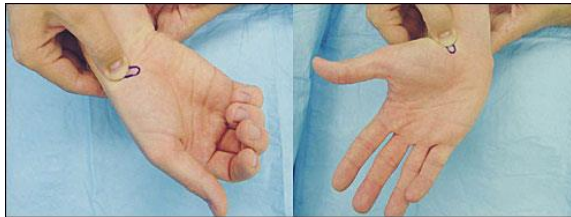
Scaphoid Fracture/Instability

- History
 - Most frequently fx carpal bone bc scaphoid links prox and distal rows
 - Fx upon falling in ext/supination (backward onto hand)
- Physical Exam
 - (+) axial compression of thumb vs scaphoid
 - (+) Scaphoid shift/Watson test
- Differential Diagnosis
 - Thumb CMC Arthritis
 - DeQuervain's Tenosynovitis
 - Radial Styloid Fracture
 - Intersection Syndrome
 - Superficial Radial Sensory Nerve
- Treatment
 - **Decreased blood supply so waiting to treat could lead to necrosis
 - If x-ray (-), immobilize x 2 weeks then re-xray or bone scan



Scaphoid Fracture/Instability

- Diagnosis
 - Axial Load of Thumb
 - Scaphoid Shift/Watson's Test
- Dorsal directed pressure on scaphoid as wrist moves from UD to RD. (+) if relocating clunk as scaphoid flexes and strikes radius



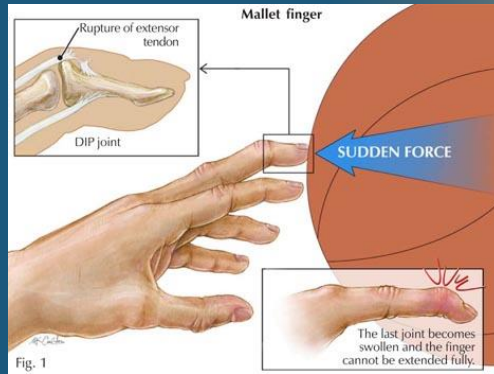
Other FOOSH Injuries at Wrist

- Supination + RD = Scaphoid
- Supination + UD = Lunotriquetral
- Pronation with central wrist pain = Carpal Instability (Scapholunate or Lunotriquetral)
- Pronation + UD = TFCC Tear



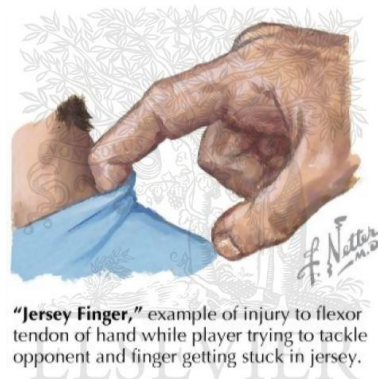
Mallet Finger

- **History**
 - Avulsion of distal slip of extensor tendon
 - Rapid forced flexion of distal phalanx
- **Physical Exam**
 - Dec. DIP Ext AROM
 - PROM DIP Ext WNL
 - (+) TTP Dorsal Dip
- **Treatment**
 - Splint full ext 6-8 weeks



Jersey Finger

- **History**
 - Commonly missed
 - Pain in finger/palm
 - 4th finger most common
 - Mechanism: forced finger extension against active flexion
- **Physical Exam**
 - Loss of DIP AROM
 - Fingertip cannot touch palm with fist
- **Differential Diagnosis**
 - PIP/DIP Fracture/Dislocation



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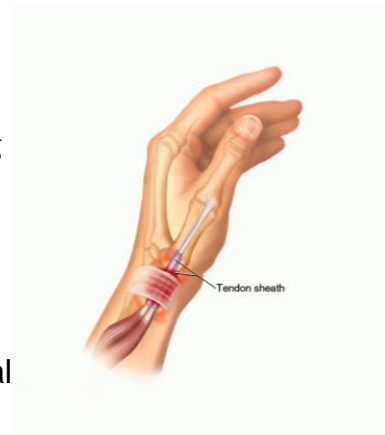


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DeQuervain's Tenosynovitis

- History
 - Most common overuse injury of hand
 - Common activities of forceful grip + UD (tennis serve)
 - Pain dorsal/radial wrist along 1st dorsal compartment w/ROM
- Physical Exam
 - (+) Finkelstein's Test
 - Painful RSC Thumb Extension
 - TTP APL/EPB tendons, radial styloid, swelling, thickening



DeQuervain's Tenosynovitis

- Finkelstein's Test
 - Flex the thumb into the palm and close the fingers around the thumb
 - Ulnar deviate the wrist
 - Positive test results in pain at the 1st dorsal compartment
 - Sn 100%, Sp 100%



DeQuervain's Tenosynovitis

- Differential Diagnosis
 - Thumb CMC Arthritis
 - Scaphoid Fracture
 - Radial Styloid Fracture
 - Intersection Syndrome
 - Compartment II over I
 - Superficial Radial Sensory Nerve
- Treatment
 - Thumb spica splint worn 2 weeks and at night 6-8 weeks



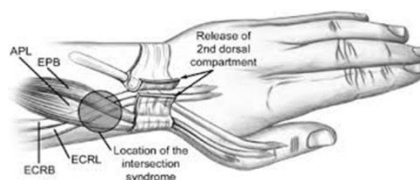
Intersection Syndrome

- History
 - Pain/swelling at radial wrist where 1st/2nd dorsal compartments meet due to inflammation of wrist extensors vs. APL and EPB
 - Mechanism: repetitive grip w/thumb abd activity (rowing, racket use, pulling rake vs. ground, holding ski poles)
- Physical Exam
 - TTP radial wrist at site of 1st/2nd dorsal compartments
 - Crepitus with thumb and wrist ROM



Intersection Syndrome

- **Differential Diagnosis**
 - Thumb CMC Arthritis
 - Scaphoid Fracture
 - Radial Styloid Fracture
 - De Quervain's Syndrome
 - Superficial Radial Sensory Nerve Injury
- **Treatment**
 - PT for education of activity modification, treatments for reducing inflammation
 - NSAIDS
 - Thumb Spica
 - Surgical Release

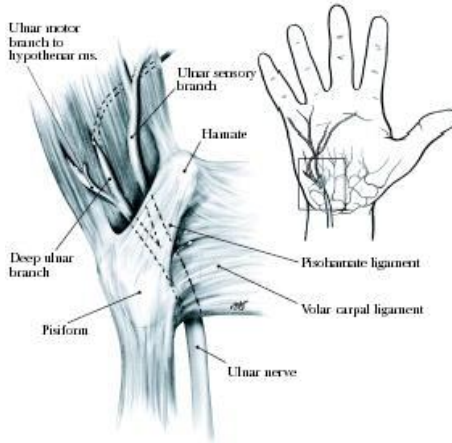


Lateral Wrist Pain



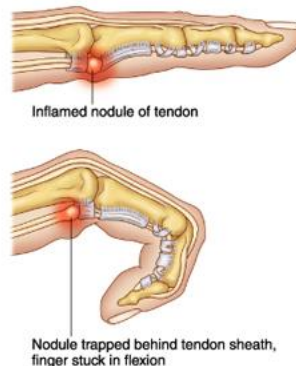
Guyon's Canal Entrapment

- Compression of Ulnar nerve in canal formed between Pisiform and Hamate
 - Ulnar Nerve
 - Ulnar Artery
- Often involves Deep motor branch > sensory branch
- (+) Froment's Sign



Trigger Finger

- History
 - Finger pain/locking
 - Clicking at pam upon finger flex/ext
- Objective
 - TTP at flexor tendon
 - Palpable nodule at tendon sheath w/AROM flex/ext



Common Deformities and Injuries

- Keinbock's Disease
 - AVN of Lunate
 - Associated with Negative Ulnar Variance



Common Deformities and Injuries

- Swan-Neck Deformity
 - DIP Flexion and PIP Extension
 - Typically Requires Surgical Intervention
 - Lateral band slips dorsally



Common Deformities and Injuries

- Boutonniere Deformity
 - DIP Hyperextension and PIP Flexion
 - Responds well to splinting and exercise
 - Lateral band slips volarly



Common Deformities and Injuries

- Dupuytren's Contracture
 - Fibrous tissue in palmar/digital fascia of hand
 - Flexion contracture of digits, often 4th and 5th
 - Treatment – usually surgery

