

Causes of Hand/Wrist Pain

Michael J Schreck, MD

Division of Hand/Upper Extremity Surgery

Assistant Professor of Orthopaedics

SUNY Upstate Medical University

Outline

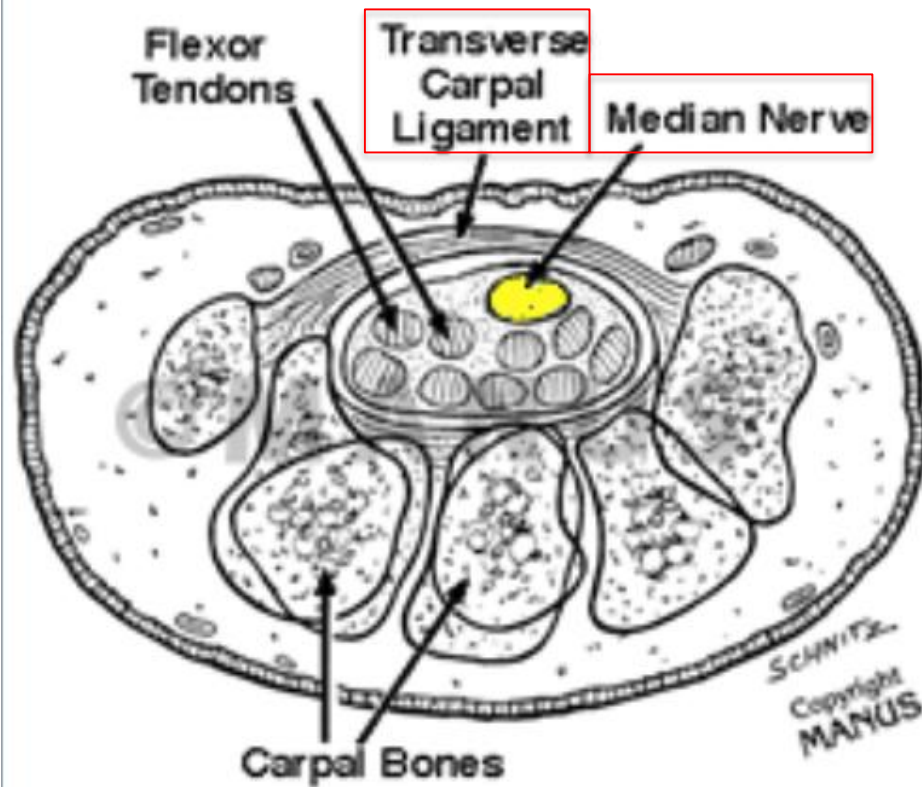
- Carpal Tunnel Syndrome
- Trigger Finger
- Tendinitis
- Arthritis
- Fractures

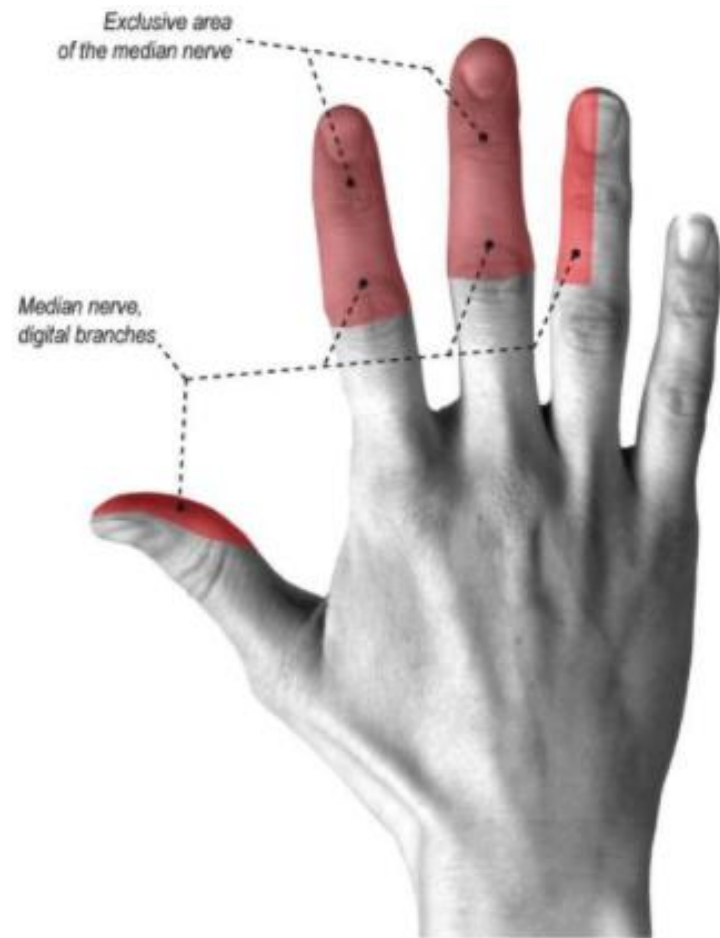
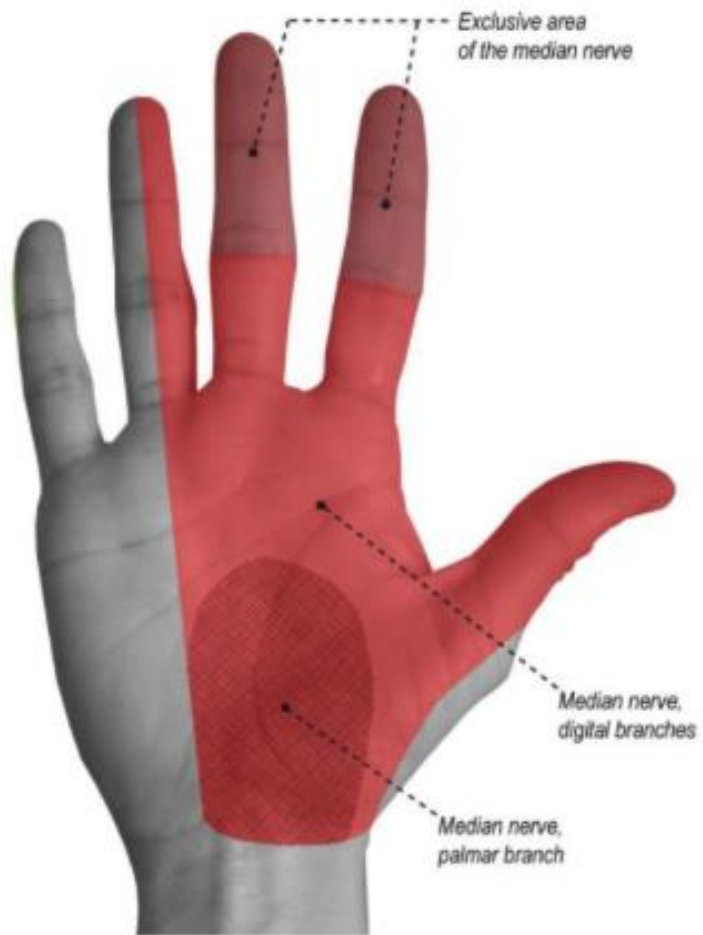
Carpal Tunnel Syndrome

- Known as a “compression neuropathy”
 - Nerve compression (median nerve) is what causes symptoms
- Most common compression neuropathy
- One million adults in the U.S. are diagnosed with carpal tunnel syndrome each year

What is it?

- Compression of the median nerve, typically by the **transverse carpal ligament**
- Nerve compression leads to symptoms of numbness/tingling, pain, weakness/clumsiness (advanced)
 - Symptoms are primarily in the thumb, index finger, long finger, and ½ of the ring finger





Why does it occur?

- The “why” is not entirely understood
- Predisposing factors include: diabetes, hypothyroidism, excessive alcohol use, obesity, tobacco use, female sex, pregnancy, rheumatoid arthritis, repetitive motion activities

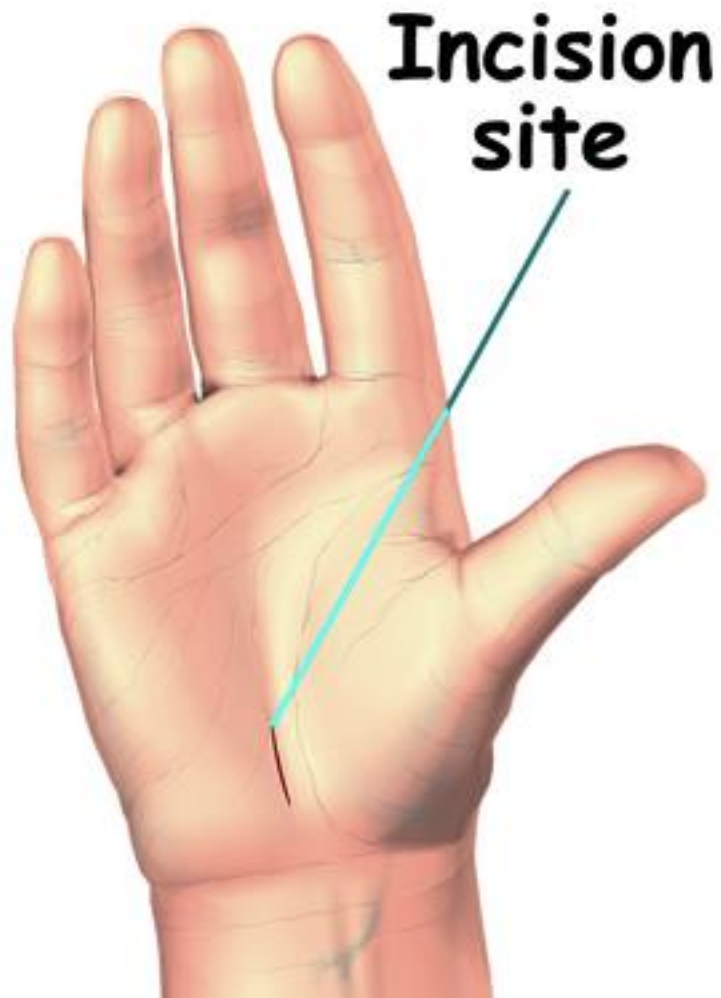
How is it diagnosed?

- Clinical examination: symptoms reproduced by maneuvers performed by examiner – tapping on the wrist, compressing the wrist, hyperflexion of the wrist
- Nerve studies: quantify the extent of damage to the nerve fibers

How is it treated?

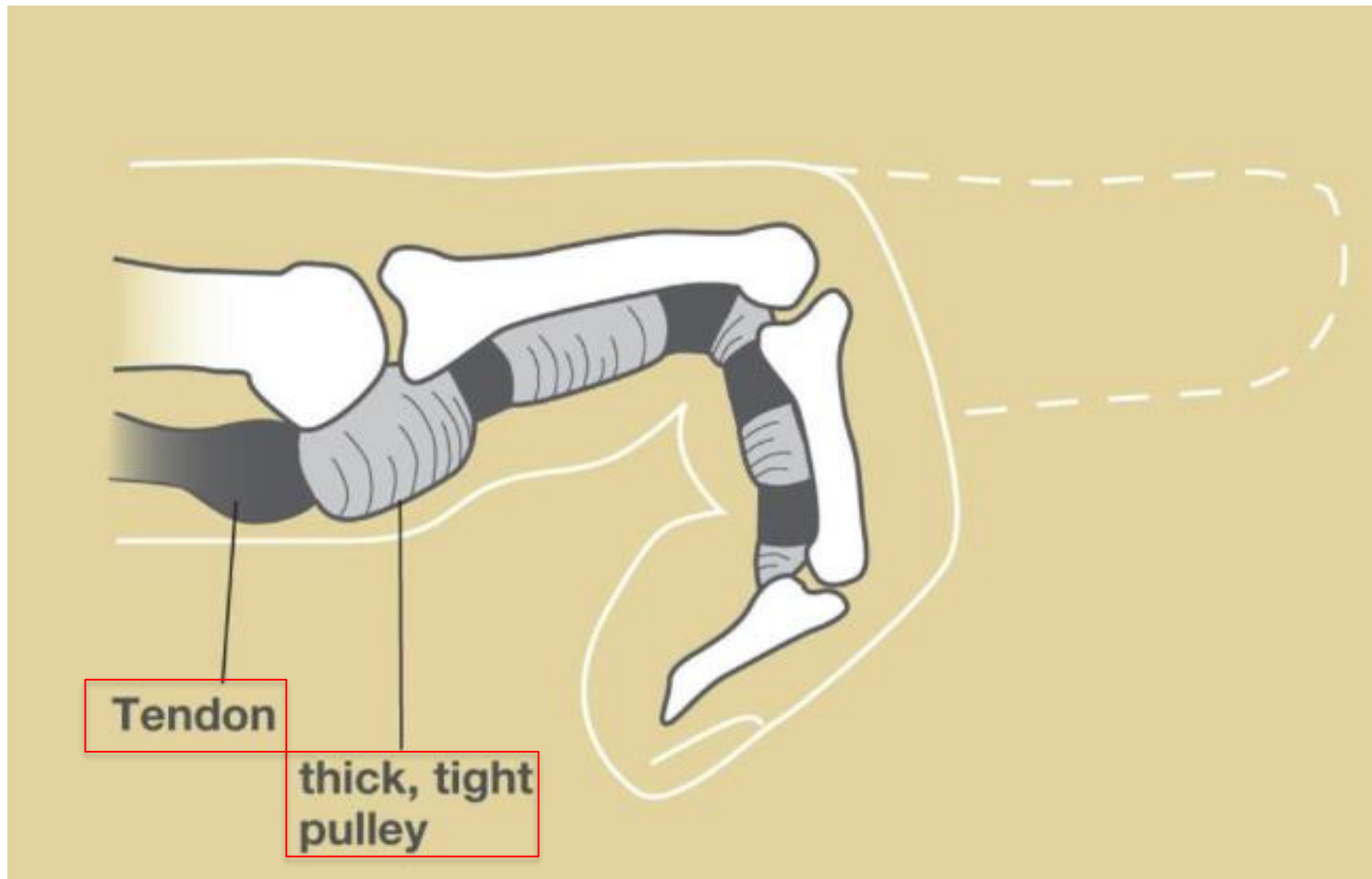
- Conservative measures: steroid injection, night splints (not definitive treatments)
- Surgery: Carpal tunnel release
 - Either through an incision in the palm (open) or an endoscopic technique

Open vs Endoscopic Techniques



Trigger Finger

- “Stenosing tenosynovitis” - tendon entrapment (**stenosis**)
- Mechanical impingement of the flexor tendons as they pass through a narrowed **pulley** (tunnel)



- Entrapment leads to symptoms of painful catching or popping
- In severe cases, the finger will “lock” in flexion and require manipulation of the finger into extension

Why does it occur?

- Inflammation has been cited; exact “cause” is disputed
- Predisposing factors include: female sex, age 55-60 years, diabetes, gout, kidney disease, rheumatoid arthritis

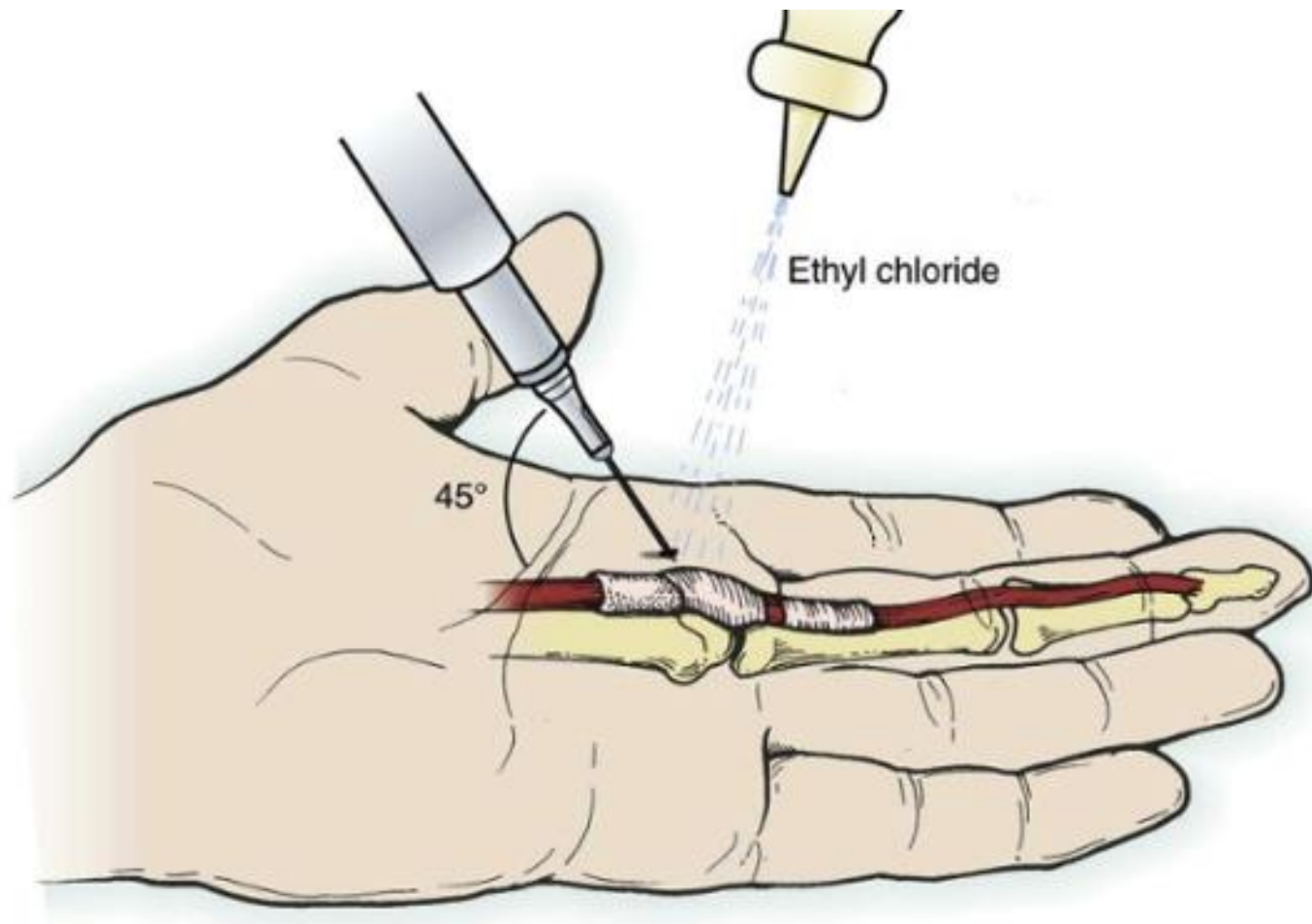
How is it diagnosed?

- Clinical examination demonstrating pain over the **A1 pulley region** and or catching/locking of the finger(s) with flexion/extension



How is it treated?

- Steroid injection (cortisone) into the A1 pulley
 - Literature suggests roughly 70% success rate with steroid injection
- Splinting
 - Can splint the MCP joint (first knuckle) in 15 degrees of flexion or splint the DIP joint (last knuckle) in complete extension



- Surgery: release of the A1 pulley

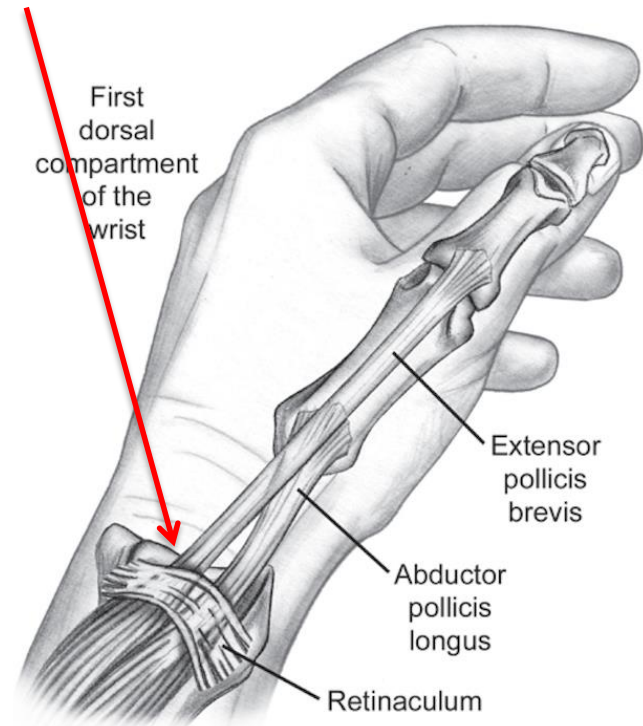


Tendinitis of the Wrist

- Continuum of **stenotic** conditions
 - Tendons become inflamed and **entrapped**

DeQuervain's Disease

- **Stenosing tenosynovitis of the first dorsal compartment – tendon entrapment**

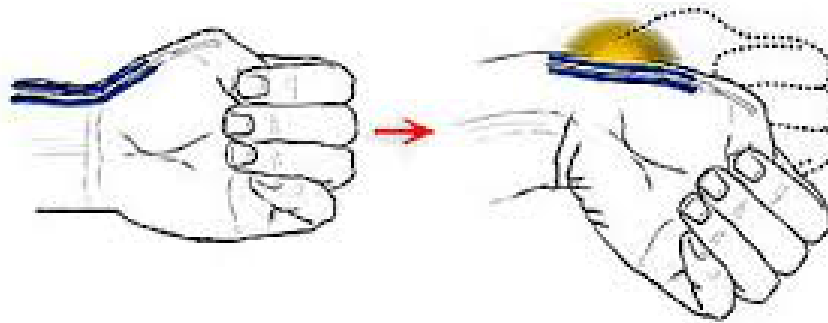


- More common in women
- Peaks in childbearing years and perimenopausal years
- Associated with pregnancy, diabetes
- Leads to pain on the thumb-side of the wrist

How is it diagnosed?

- Tenderness with touch over the **thumb-side of the wrist**, swelling

- Pain with



How is it treated?

- Conservative measures: anti-inflammatory medications, activity modification, thumb spica splint/brace, steroid injection (cortisone)

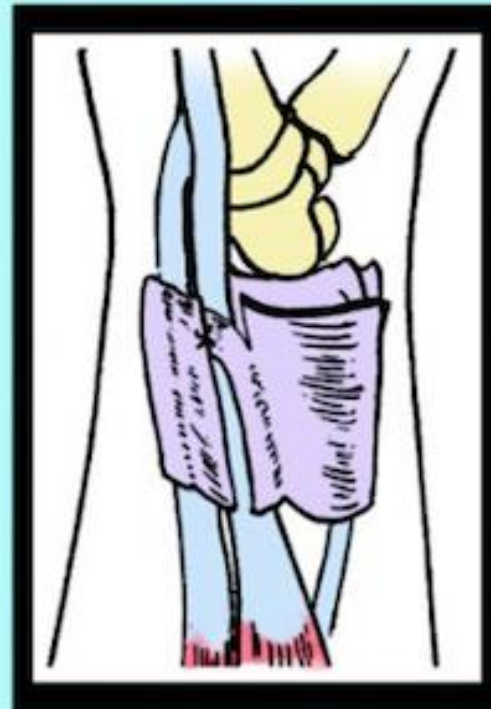


- Surgery: release of the inflamed tendons

**Incision
site**



©MMG 2004



Extensor Carpi Ulnaris (ECU) Tendinitis

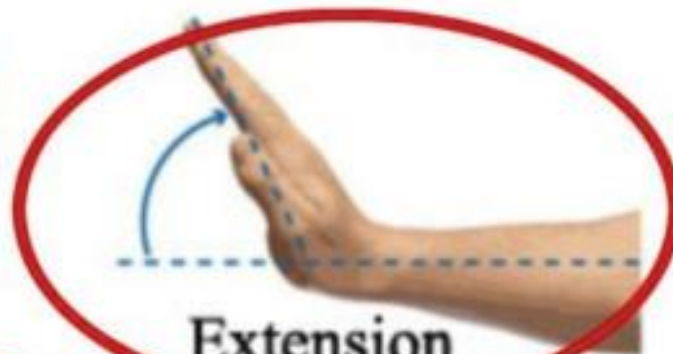
- “Wrist extensor” tendinitis
- One of the most common causes of **tendinopathy** (“diseased” tendon)
- Leads to pain on the **ulnar side** (small finger side) of the wrist



- Typically occurs after a twisting injury, which is followed within 24-48 hours by pain and swelling
- Night pain is common
- Pain is increased with all motions of the wrist
 - Resisted wrist extension (and ulnar deviation) particularly painful



Flexion



Extension



Radial Deviation



Ulnar Deviation



Pronation



Supination

How is it treated?

- Conservative measures: ice, extension splinting or casting, anti-inflammatory medications, steroid injections
- Surgery: incision of the tendon sheath to release the tendon

Flexor Carpi Radialis (FCR) Tendinitis

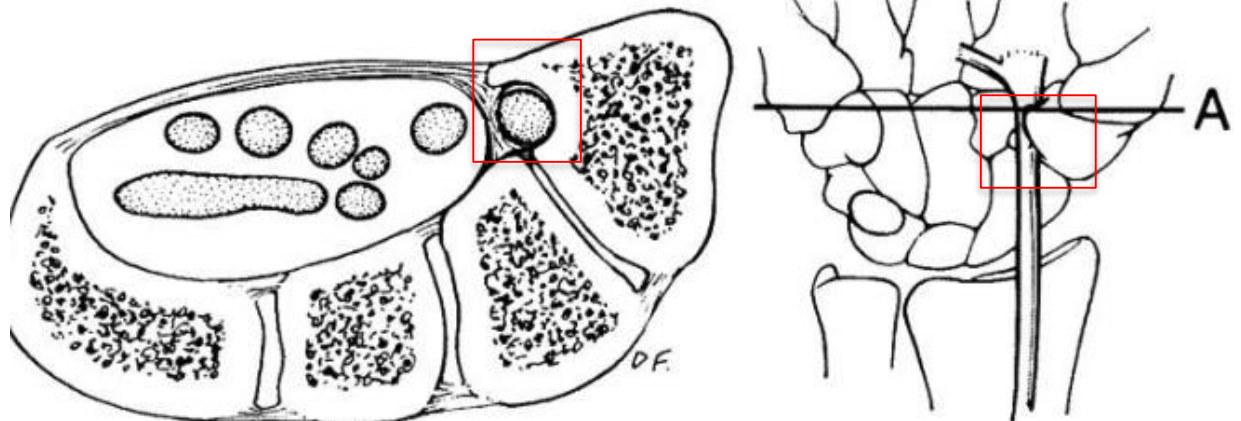
- “Wrist flexor” tendinitis
- Causes pain at the wrist crease
- Pain with resisted wrist flexion
- “Overuse” injury?



- Typically affects people in 5th to 6th decade
- More common in women

How is it treated?

- Conservative treatment (mainstay): splinting, ice, anti-inflammatory medications, cortisone injection
- Surgery: release of tendon sheath, removal of any prominent bone



Arthritis

- Degradation of joint **cartilage** (surface that lines the joints)

Thumb Base Arthritis

- **Basal joint** arthritis
- Extremely common
- Pain at the base of the **thumb metacarpal**



- Pain with pinch, turning keys, turning a door knob, opening jars
- More common in women

X-ray Appearance



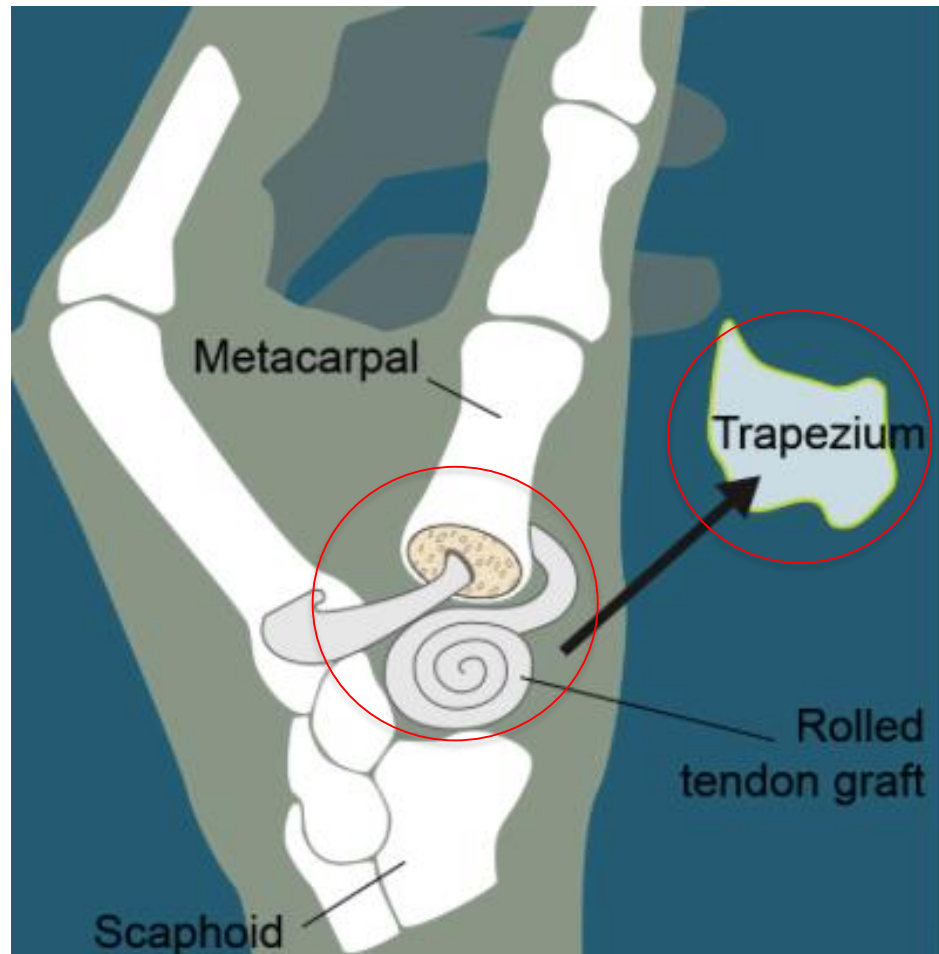
How is it treated?

- Conservative: splinting, anti-inflammatory medications, cortisone injections
- Surgery: either fusion (younger patients) vs removal of arthritic bone and filling of space with tendon

Fusion



Bone excision, tendon interposition (Basal Joint LRTI)



Finger Arthritis

- Diffuse pain and stiffness throughout the finger joints (knuckles)



- Gradual “wear and tear” over the years
- Inflammatory – rheumatoid arthritis, psoriatic arthritis

How is it treated?

- Conservative: splinting, anti-inflammatory medications, steroid injections, activity modification
- Surgery: joint fusion, joint replacement



Fractures = Broken Bones

- Metacarpal (knuckle)
- Scaphoid (hand bone close to the wrist)
- Distal radius (wrist fracture)

Boxer's Fracture

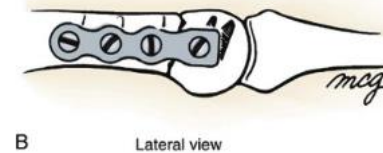
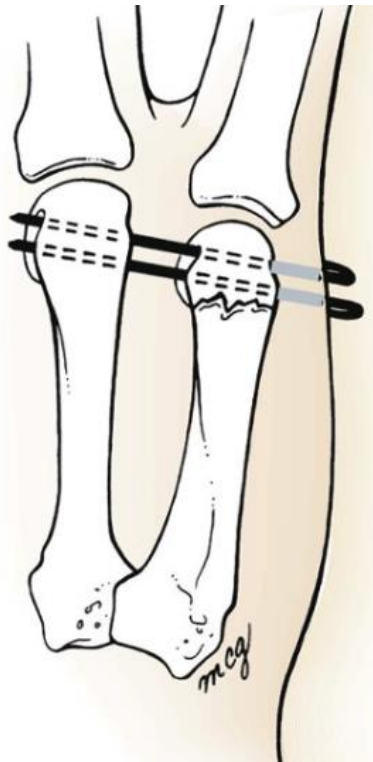
- Fracture of the small finger **metacarpal neck** (just below the knuckle)



- Typically treated with splinting or casting

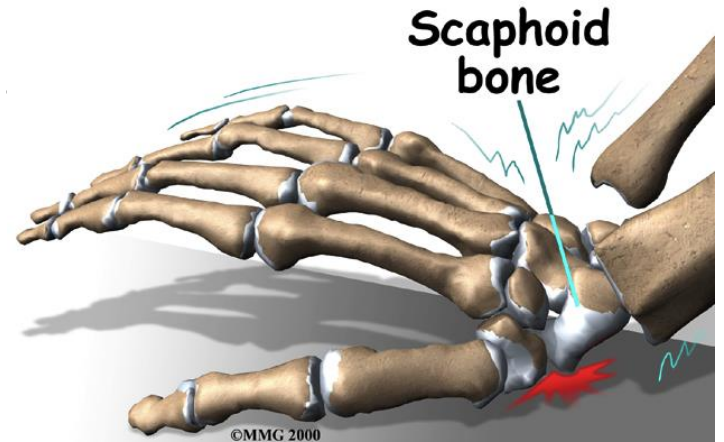


- If there is too much displacement/angulation, surgery is performed

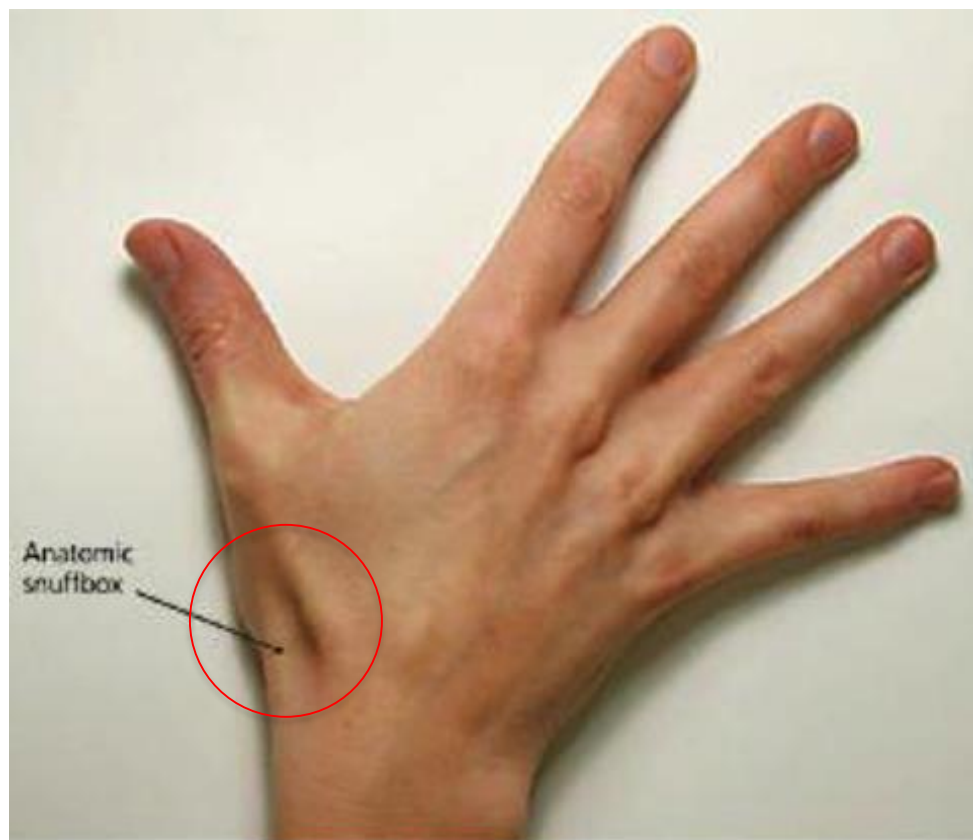


Scaphoid Fracture

- Typically caused by a fall on outstretched hand/wrist

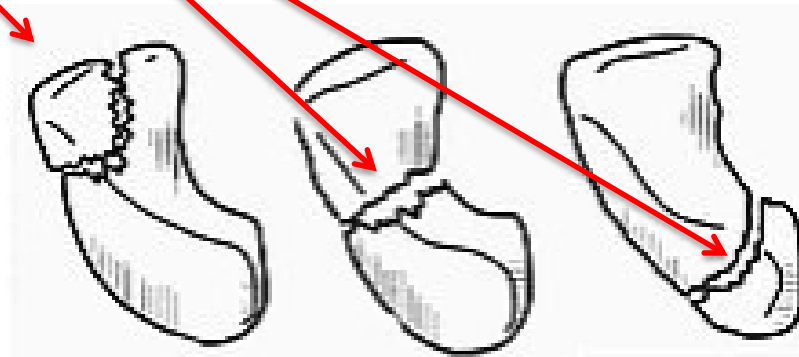


- Commonly mistaken for a “wrist sprain” – pain but “x-rays are negative”
 - Acute fractures can be very difficult to see on x-ray
- Pain is located in the **anatomic snuff box**



How is it treated?

- In younger patients, and patients with very **distal** (far down) fractures, casting may be employed
- For most fractures, surgical treatment is required





Distal Radius Fracture

- “Wrist fracture”
- One of the most common fractures of the musculoskeletal system
- Typically caused by a fall onto an outstretched hand/wrist

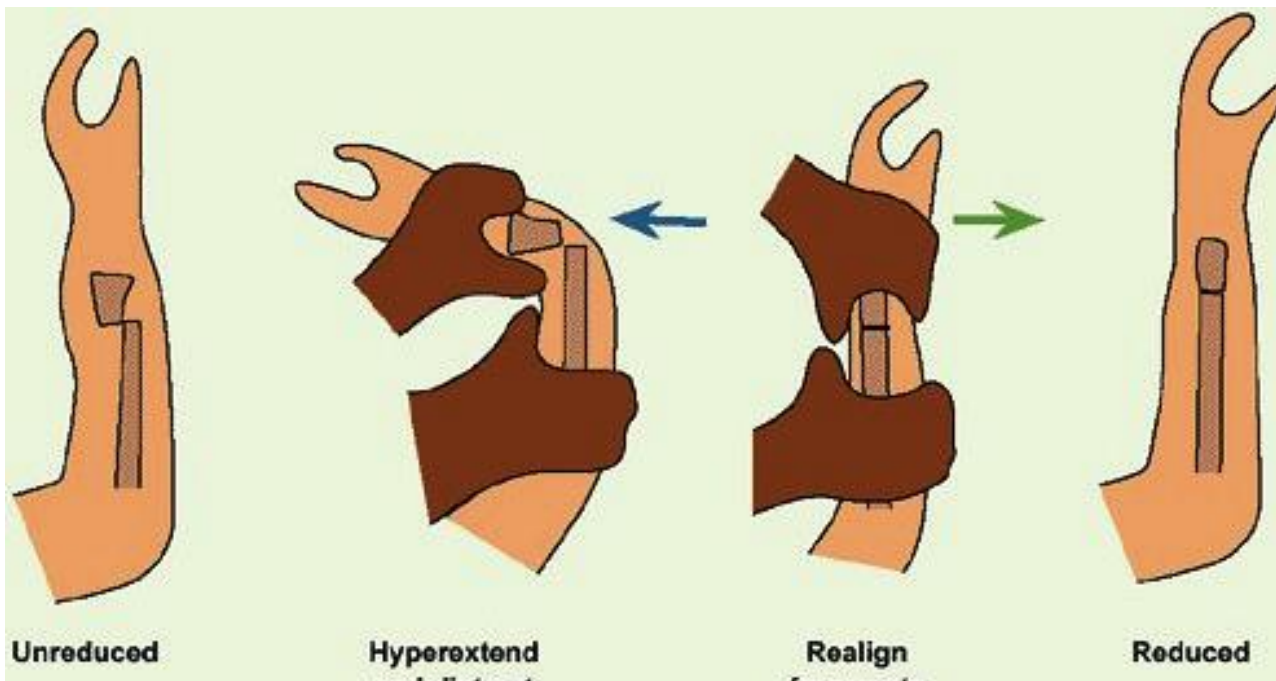


X-ray appearance



How is it treated?

- In younger patients, and in fractures without much **displacement** or **angulation**, manipulation and casting may be employed



- If manipulation fails or there is too much displacement/angulation, surgery is required



Questions?

Thank You