Common Hand Problems: Things You’ll See All Day

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Disclosure

“I have no actual or potential conflict of interest in relation to this program/presentation.”
Carpal Tunnel Syndrome
Median Nerve Compression

- Carpal tunnel
  Anatomy
  - Carpal bones
  - Transverse carpal ligament

- Contents
  - Finger flexor tendons
  - Median nerve
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Carpal Tunnel Syndrome

Symptoms

- Numbness in palmar thumb, index, long and ½ of ring finger
- Awake at night with numbness
- Tingling with driving, typing, reading
Carpal Tunnel Syndrome

Signs

- Thenar (base of thumb) atrophy
  - Late finding – hope to avoid this!
- Decreased sensation in median distribution
Carpal Tunnel Syndrome

Signs

• Carpal compression test
  – Tingling with pressure on carpal tunnel

• Tinel’s sign at carpal tunnel
  – Shock into fingers with tapping on carpal tunnel

• Phalen’s sign
  – Tingling in fingers with wrist flexed
Carpal Tunnel Syndrome
Diagnostic Criteria

• Graham et al J Hand 2006
  – Statistically significant probability of being associated with consensus diagnosis by MD panel
  1. Numbness and tingling in median nerve distribution
  2. Nocturnal numbness
  3. Weakness and/or atrophy of the thenar musculature
  4. Tinel sign
  5. Phalen’s test
  6. Loss of 2 point discrimination
Carpal Tunnel Syndrome
Diagnostic Criteria (??)

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  6. Loss of 2 point discrimination
Carpal Tunnel Syndrome

- Prolonged nerve conduction velocity
Carpal Tunnel Syndrome

Etiology

- Idiopathic
- Pregnancy
- Diabetes
- Hypothyroid
- Deformity of carpal canal
  - Mass
  - DJD
  - Prior fracture
Carpal Tunnel Syndrome
Treatment

• Volar wrist splint
  – Increases space in tunnel
  – Wear at night

• Level II studies
  – More effective than nothing at 3 months
    • Graham, J Hand 2009
  – Short term relief
    • Cochrane 2012
Carpal Tunnel Syndrome

Treatment

- Oral steroids
  - Improvement at 8 weeks
  - Not worth the risks

- NSAIDS
  - No evidence

- Vitamin B
  - No good study
Carpal Tunnel Syndrome Treatment

- Cochrane 2012 – limited and very low quality studies
  - Work/activity modification
  - Exercises
  - Yoga
  - Ultrasound
  - Magnets
  - Acupuncture
  - Laser/cold laser
  - Weight reduction
  - Smoking cessation
  - Cognitive behavioral therapy
Carpal Tunnel Syndrome Treatment

- Steroid injection
- Level II evidence
  - Improvement at 1 mo vs placebo
  - Improvement to 6 months vs splint
  - 1/3 with continued improvement at 1 year
    - (Berger, 2012)
Carpal Tunnel Syndrome
Treatment

• Surgical Indications
  – Failure of non-operative treatment
  – Positive Nerve Conduction test (false negative rate 5-30%)

• Transection of ligament
  – Increases space in tunnel
Carpal Tunnel Syndrome Treatment

- Surgical results
  - Better than non-op at 6 and 12 months
  - (Shi, J Orthop Surg Res, 2012)
Carpal Tunnel Syndrome
What to do before you refer

• Wear wrist lacer at night
  – May relieve some sx while work-up underway

• Order neurodiagnostics?
  – If symptoms are clear
  – Most surgeons don’t treat without
  – Saves a visit if done before hand
  – If vague symptoms, we can figure it out.
Cubital Tunnel Syndrome
Ulnar Nerve Compression

- Cubital tunnel anatomy
  - “funny bone”
  - Nerve travels in groove behind medial elbow
Cubital Tunnel Syndrome

Symptoms

- Tingling in small and ulnar ½ of ring finger
- Awake at night with numbness
- Tingling with elbow bent
Cubital Tunnel Syndrome

Signs

- Decreased sensation in ulnar distribution
- Tinel’s sign in cubital tunnel
- Hypothenar (base of small finger) and interosseous (between metacarpals) atrophy
Cubital Tunnel Syndrome

Treatment

• Elbow extension at night
  – Soft elbow pad backwards
  – Towel around arm
  – Splint – less well tolerated

• NSAIDS

Flip around so padding is in cubital fossa
Cubital Tunnel Syndrome

Treatment

- Injection not used – too much danger to nerve
- Surgery
  - Release tunnel
  - Transpose nerve anteriorly
Cubital Tunnel Syndrome
Surgical Treatment

- Insufficient evidence for best treatment
- Decompression vs transposition ??
- Endoscopic decompression – new procedure, limited good results
Cubital Tunnel Syndrome
What to do before you refer

• Intermittent symptoms, no weakness or atrophy
  – Few months expectant management
  – Night elbow pad
  – Activity modifications
• Refer if continued symptoms

• Constant symptoms, + weakness or atrophy
  – Neurodiagnostic studies
  – Referral
Thumb CMC arthritis

- Carpometacarpal joint
  - Very common
    - 40% women
    - 25% men
  - Young age (40s +)
Thumb CMC arthritis

- Carpometacarpal joint
  - X-ray osteoarthritis
  - Sclerosis
  - Spurs
  - Space narrowing
  - Cysts

** Stage 1 disease = normal x-ray**
Thumb CMC arthritis

- Pain with pinch
  - Opening jars
  - Turning keys
  - 10x pressure on CMC joint
Thumb CMC arthritis

- **Treatment**
  - Symptom relief
  - Splint
  - Immobilize MCP, CMC
  - IP and wrist free
  - Wear as needed

- **OT order**
  - Short opponens splint
  - Small joint preservation exercises
Thumb CMC arthritis

- Steroid Injection
- May provide limited symptomatic relief
Thumb CMC arthritis

- Surgery
- Many different yet similar options
- Excise trapezium
  +/− interposition of tendon
  +/− resuspension of MC
Thumb CMC arthritis

• Post-op
  – Cast x 1 month
  – Splint x 2 months
• Results very good
Thumb CMC arthritis
What can you do before you refer?

- Clinical diagnosis
- NSAIDS
- OT splint and exercises
- X-ray
  - Normal does not preclude
Trigger Finger Anatomy

- Flexor tendons run through a sheath with pulleys
- Tendon gets stuck trying to go through A1 pulley
Trigger Finger
Symptoms

- Finger stuck in flexed position, need to use other hand to straighten
- Pain in palm over metacarpal head
- Palpable nodule on tendon
Trigger Finger Treatment

- Splint less effective
  - Wear continuously x 6 weeks
  - Approximately 25%
Trigger Finger Treatment

- Steroid injection
  - Review of level I and II studies
  - 57% effective (Fleish, JAAOS 2007)
Trigger Finger Treatment

- Surgery
  - Release A1 pulley
  - 1-2 cm incision
  - Local +/- sedation
  - No immobilization
Trigger Finger
What to do before you refer

- Nothing – just send them over!
de Quervain Tenosynovitis
Anatomy

- 1\textsuperscript{st} extensor compartment
  - Contains APL and EPB
  - Radial border of anatomic snuffbox
- Held to radius through tunnel
de Quervain Tenosynovitis
Anatomy

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de Quervain Tenosynovitis
Symptoms and Signs

• Pain in radial forearm with thumb ROM
• Tenderness over tendons
• Pain with Finkelstein’s maneuver
  – Thumb grasped and ulnar deviation
de Quervain Tenosynovitis

Treatment

• Majority is self-limited
• Splint
  – Forearm based thumb spica, IP free
  – 20%-88% improvement
  – Better for symptom improvement than disease modification

(Ilyas J Hand 2009)
de Quervain Tenosynovitis

Treatment

• NSAIDS
  – No good studies when used alone

• Steroid Injection
  – Low level evidence 62%-93% effective
  – Cochrane 2009 – better than splint
de Quervain Tenosynovitis

Treatment

Surgery

- Release 1\textsuperscript{st} dorsal compartment
- Uncommonly necessary
  - if sx persist $>3$-6 mos
- Release 1\textsuperscript{st} dorsal compartment
- Local $+/-$ sedation
- 1-2 cm incision
- $+/-$ post-op splint
de Quervain Tenosynovitis
What to do before you refer

- Forearm based thumb spica splint, IP free
- Activity modifications
  - Avoid cutting, texting, pinching, scissors
Ganglion Cysts

Anatomy

- Outpouching of joint capsule with one-way valve
- Filled with synovial fluid
- Most commonly
  - dorsal scapho-lunate joint
  - Palmar radiocarpal joint
Ganglion Cysts
Symptoms and Signs

- Volar retinacular cyst
- Firm, well circumscribed, fixed
  - Feels like a BB
- May be painful with grasping
Ganglion Cysts

Treatment

• Aspiration
  – Usually recurs
  – 65-90%
    • Rollins 2013
  – Rarely for palmar ganglions – radial artery
  – Rarely for retinacular cysts – NV bundle
Ganglion Cysts
Treatment

• Surgical excision
  – Still high recurrence rate
  – “rule of thumb” 10%
  – Recent 10 year f/u 42%
    • Lidder 2009

• Expectant management
  – 58% resolve over 5 years
    • Dias 2007
Ganglion Cysts
What to do before you refer

• Clinical diagnosis
  **mass in any other area should be referred

• Education
  – no long term deleterious effect of no treatment
Mucous Cyst

Anatomy

- Ganglion cyst from the DIP joint
- Due to arthritis
- Looks like a blister
Mucous Cyst
Symptoms and Signs

- Asymmetric mass on dorsal finger
- May ulcerate skin
- Firm, fixed
- Pain, decreased ROM due to DJD
- X-ray shows DJD
Mucous Cyst Treatment

- Cyst excision indications
  - Local symptoms from cyst
  - Recurrent ulceration
    - Prevent osteomyelitis
- If arthritis symptomatic
  - NSAIDS
  - Steroid injection
  - DIP fusion
Mucous Cyst
What to do before you refer

• Clinical diagnosis
• Education
• Refer if cyst related symptoms with activities or ulcerating
Mallet Finger
Anatomy

• Avulsion or fracture of terminal slip of extensor tendon
Mallet Finger

Signs and Symptoms

- Extension lag at DIP joint
- Usually history of trauma
- Tenderness over dorsal DIP joint
Mallet Finger
Signs and Symptoms

- X-ray to look for avulsion fracture
- Surgical indication if subluxated
Mallet Finger Treatment

- Extension splint x 6-8 weeks
- No removal without supporting finger
- Can begin up to 6 months post-injury
Mallet Finger
What to do before you refer

- X-ray
  - Evaluate for subluxation
- DIP extension splint
  - PIP free
  - 24/7 use
Proximal Phalangeal Joint Injury

Anatomy

- Collateral ligaments
  - Stabilize joint in radial/ulnar direction
- Often trivial injury
- Long lasting symptoms
Proximal Phalangeal Joint Injury
Signs and Symptoms

- Tenderness and swelling at PIP
- Decreased ROM
- Pain with radial or ulnar deviation
- Instability (uncommon)
  - Test in flexion and extension
Proximal Phalangeal Joint Injury

Signs and Symptoms

- Radiographs
  - True lateral
  - Evaluate alignment of joint
  - Look for fracture
Proximal Phalangeal Joint Injury Treatment – Stable Injuries

• Buddy tape x 3 weeks and begin ROM
• Hand therapy indicated if motion not progressing rapidly
Proximal Phalangeal Joint Injury
Treatment – Stable Injuries

- Most important – no immobilization greater than 3 weeks
- Stiffness and swelling last months
- Collateral ligaments heal with scar
  - Permanent increase in PIP size after 1 year
Proximal Phalangeal Joint Injury Treatment – Unstable Injuries

- Very difficult!
- Unlikely to regain full ROM
- Immobilize and prompt referral
Proximal Phalangeal Joint Injury
What to do before you refer

• X-ray unstable
  – Refer!

• X-ray stable
  – Buddy tape
  – Hand therapy

• Both – education
  – Long course of sx
  – Painful to regain motion
Thank you!!