Tendinitis of the Hand and Wrist

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Tendon

- **Fibroblasts**
  - Produce collagen
  - Parallel rows

- **Healthy tendon**
  - Long fibers
  - Smooth
  - Dense
- Opathy

- Gray, amorphous
- Disorganized collagen
- Capillary proliferation
  - angiofibroblasts
- Fibrillarcartilaginous metaplasia
- Mucoid change
- Absent inflammatory cells
- Degenerative
Anatomy Review

Six Dorsal Tendon Compartment

- APL and EPB Tendons
- EPL Tendon
- Extensor Retinaculum

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Tendonitis and Tenosynovitis

- De Quervain’s stenosing tenosynovitis
- Trigger fingers and trigger thumb
- Intersection Syndrome
- Flexor carpi radialis tendinopathy
- Extensor carpi radialis tendinopathy
De Quervain’s Tenosynovitis

- Fritz de Quervain (Swiss) 1895
- “Washer women’s sprain”
  - Women 30-50 yrs
- New mothers
  - golfers, skiers, briefcase carriers
- Pain with pinching, grasping
- Dorsoradial wrist
Anatomy/Histology

- First dorsal compartment: EPB, APL
- Variants
  - APL with multiple slips
  - EPB in separate compartment
- Myxoid degeneration, little
Physical Exam

- Finkelstein’s test
- Cyst at base of thumb
- Swelling, crepitus
- Catching, snapping
- Decreased pinch strength
- Numbness dorsal thumb
Non surgical treatments

- Anti inflammatory meds
  - NSAIDS (?)
- Wrist and thumb spica splint
  - Thumb a little flexed/abducted
- Injection
- Activity modification
- Oral steroids? No difference

Surgical management

- First dorsal compartment release
- Preserve retinaculum - prevent tendon subluxation
- Protect radial sensory nerve
- Tendon subluxation, complex regional pain
Trigger Fingers and Thumb

- Women (75%)
- Ages 52-62
- Most common ring MCP
- Thumb in children
- Stenosing tenosynovitis
- Thickened, inflamed A1 pulley
- Cycle: triggering, inflammation, swelling
- Can become locked
Trigger Fingers and Thumb

- Associated conditions:
  - RA: true tenosynovitis, may see at FDS decussation
    - don’t release A1 pulley - can cause bowstringing/subluxation
    - tenosynovectomy
  - DM: worse outcomes
  - Amyloidoses
  - CTS
  - Mucopolysaccharidoses

- A3 symptoms
  - Bowlers
Mucinous degradation of tendon collagen
Fibrocartilaginous metaplasia

NORMAL PULLEY

TRIGGER FINGER PULLEY

Sbernardori et al, J Hand Surg 2007
Classification: Green’s

- I  Pain and tenderness at A1 pulley
- II  Catching of digit
- III  Locking of the digit, passively correctable
- IV  Fixed, locked digit
Corticosteroid Injections

- Effective in 57% of patients (meta-analysis of 4 RCTs)
- Can be both therapeutic and diagnostic
- Up to 75-92% resolution in some studies

Surgical Indications

- Multiple trigger digits
- Fixed digit
- Failed conservative management
Percutaneous vs. Open

- **Open**
  - <10% recurrence
  - Remove diseased tenosynovium

- **Percutaneous**
  - 18 gauge needle
  - Higher risk of neurovascular injury, incomplete release
  - Faster return to work

Intersection Syndrome

- 1st and 2nd extensor compartments
  - APL/EPB
  - ECRL/ECRB
- Bursitis, crepitus with flexion/extension
- Overuse syndrome
- Weightlifters,
Intersection Syndrome - Treatment

- NSAIDs, rest, splints
- Injection
- Surgical release: second extensor compartment 4-5 cm proximal to wrist joint, debridement of inflamed bursae,

Flexor carpi radialis tendinitis is most frequently related to:

A. DeQuervains tenosynovitis
B. Scapholunate advanced collapse
C. Scaphoid fracture
D. Scaphotrapezial arthrosis
E. Carpal tunnel syndrome
Flexor Carpi Radialis Tendinopathy

- Women > Men, 50s
- Overuse, idiopathic, basal arthritis, trapezium degeneration, post-traumatic
- FCR occupies 90% of the tendon sheath space
Physical Exam

- Pain in volar wrist crease over scaphoid tubercle
- Swelling, tenderness to palpation
- Pain with resisted wrist flexion and radial deviation
- Inject steroid into FCR sheath - therapeutic and diagnostic
- Caution if FCR frayed/damaged
- Associated median n irritation
Surgery

- Try rest, splint immobilization, injection
- If unsuccessful, release and debride FCR
- Dangers: palmar cutaneous branch of the median nerve, lateral antebrachial cutaneous nerve, superficial radial sensory nerve
- Complete release, debridement, and excise osteophytes or ridges
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Extensor Carpi Ulnaris Tendinitis

- 6th extensor compartment
- Annular ligament tight fibro-osseous sheath over groove in ulna
- May see synovial cysts in pts with RA
- Common in athletes
- Conservative
Flexor Carpi Ulnaris Tendinitis

- Chronic repetitive trauma
- May be bilateral
- Pain with resisted wrist flexion and ulnar deviation
- Calcific tendinitis: painful, see on x-ray (mid supination view)
  - See most at insertion of FCU onto pisiform
Lateral & Medial Epicondylitis
LATERAL EPICONDYLE

ANCONEUS

ECU

EDQ

ECRB

EDC
Tendinitis=Inflammation of the tendon (rare)
Tendinopathy=Any pathological process of the tendon
Tendinosis=Degeneration of the tendon (common)
Pathophysiology

- Disorganized collagen
- Mucoid degeneration
- Neovascularization
- Tenocyte metaplasia
- NO INFLAMMATORY CELLS
Histopathology

Figure 1: Courtesy of S. F. Bonar, MD
Mechanical Overload

- Microtearing (single episode)
- Degeneration (lack of stimulation = catabolism)
- Partial Tendon Failure
Epicondylitis

Lateral (tennis) / Medial (golf) - 20:1

- Age 30 - 50
- Onset following forceful, repetitive motion (?)
- Often NOT tennis or golf
- Ache in region of lateral / medial epicondyle - may be poorly localized
Physical Exam-Lateral

- Pain centered at lateral epicondyle
- *3rd finger test
- *wrist ext/sup
- *grip strength

Pain distal to lateral epicondyle c/w radial tunnel syndrome
Physical Exam-Medial

- Pain centered at medial epicondyle
- *wrist flex/pro
Lateral Epicondylitis

Treatment - Initial

- Activity Modification
- Counterforce Brace / Strap
- Wrist Extension Splint
- Heat / Massage / Therapy
- NSAIDs?
Lateral Epicondylitis
Treatment - Injection

Steroid vs. Autologous Blood
Lateral Epicondylitis
Treatment - Surgery

*resistant 1%
*fail 6-12m trial

*multiple procedures:
- detachment
- reattachment
- cut ecrb
- open vs arthroscopic
*4-8month recovery
Extracorporeal shock wave therapy (ESWT) for lateral elbow pain:

A. Dramatically improve symptoms for a long period of time
B. Dramatically improve symptoms for a short period of time
C. Moderately improve symptoms for a long period of time
D. Moderately improve symptoms for a short period of time
E. Provide little or no benefit
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Medial Epicondylitis

Treatment

- Same as lateral epicondylitis
- Beware of neurovascular bundle if considering injection
Epicondylitis:

- Lateral > Medial, “middle age”
- Repetitive motion
- Tendinopathy, NOT an inflammatory process
- Conservative treatment
- ECCENTRIC training (mechanotransduction)
THANK YOU