FLEXOR CARPI RADIALIS TENDINITIS

Anterior Forearm Muscles (4)

Flexor carpi radialis
Introduction

- A condition characterized by inflammation of the FCR tendon sheath

Demographics
- incidence
  - uncommon
- risk factors
  - repetitive wrist flexion
    - golfers and racquet sports
    - manual labor

Pathoanatomy
- primary stenosing tenosynovitis within the fibroosseous tunnel (see Anatomy)
- secondary tendinitis associated with
  - scaphoid fracture
  - scaphoid cysts
  - distal radius fracture
  - scaphoid-trapezium-trapezoid joint arthritis
  - thumb CMC joint arthritis

Prognosis
- prognosis is poor if the following are present
  - history of overuse
  - worker's compensation
  - failure to respond to local injection
  - long duration of symptoms

Anatomy

- Flexor carpi radialis musculotendinous unit
  - FCR muscle
    - bipennate
  - FCR tendon
    - enveloped by sheath from musculotendinous origin to trapezium
      - no fibrous sheath distal to trapezium
    - enters fibroosseous tunnel at the proximal border of the trapezium
      - boundaries
        - radial = body of the trapezium
        - palmar = trapezial crest, transverse carpal ligament
        - ulnar = retinacular septum from transverse carpal ligament (separates FCR from carpal tunnel)
        - dorsal = reflection of retinacular septum on trapezium body
      - space
        - within the tunnel
          - the FCR tendon occupies 90% of space
          - is in direct contact with the roughened surface of the trapezium
          - more prone to constriction, tendinitis, attrition, rupture
        - proximal to the tunnel
          - the FCR tendon occupies 50-65% of space within FCR sheath proximal to the tunnel
          - less prone to constriction
          - but more prone to mechanical irritation from osteophytes
    - insertion
      - small slip (1-2mm) inserts into trapezial crest
      - 80% of remaining tendon inserts into 2nd metacarpal
      - 20% of remaining tendon inserts into 3rd metacarpal

Presentation

- Symptoms
• volar radial aspect of the wrist

• Physical exam
  • tenderness over volar radial forearm along FCR tendon at distal wrist flexion crease
  • provocative test
    ▪ resisted wrist flexion triggers pain
    ▪ resisted radial wrist deviation triggers pain

Imaging
• Radiographs
  • findings
    ▪ in primary tendinitis, radiographs are unremarkable
    ▪ in secondary tendinitis, the following may be present
      ▪ healed scaphoid fracture
      ▪ healed distal radius fracture
      ▪ exostosis or arthritis of scaphotrapezoid joint or thumb CMC

• MRI
  • views
    ▪ best seen on T2
  • findings
    ▪ increased signal around FCR sheath on T2 image
    ▪ may find associated conditions in secondary tendinitis
      ▪ ganglion
      ▪ scaphoid cyst

Studies
• Diagnostic injection
  ▪ injection of local anesthetic along FCR sheath relieves symptoms

Differentials
• Thumb CMC arthritis
• Scaphoid cyst
• Ganglion
• De Quervain's tenosynovitis

Treatment
• Nonoperative
  ▪ immobilization, NSAIDS, steroid injection
    ▪ indications
      ▪ first line of treatment
    ▪ technique
      ▪ direct steroid injection in proximity, but not into tendon
    ▪ outcomes
      ▪ usually effective for primary tendinitis
      ▪ unsuccessful in secondary tendinitis if other lesions are present (e.g. osteophytes)

• Operative
  ▪ surgical release of FCR tendon sheath
    ▪ indications
      ▪ rarely needed but can be effective in recalcitrant cases

Surgical Technique
- **Surgical release of FCR tendon sheath**
  - approach
    - volar longitudinal incision starting proximal to the wrist crease, extending over proximal thenar eminence
    - care taken to avoid
      - palmar cutaneous branch of median nerve
      - lateral antebrachial cutaneous nerve
      - superficial sensory radial nerve
  - technique
    - elevate and reflect thenar muscles radially
    - expose FCR sheath
    - open FCR sheath proximally in the distal forearm, and extend to the trapezial crest
    - at the trapezial crest, the tendon enters the FCR tunnel
    - at this point, incise the sheath along the ulnar margin, taking care not to injure the tendon
    - mobilize tendon from trapezoidal groove (releasing trapezial insertion)

**Complications**
- Complications of disease
  - FCR attrition and rupture
- Complications of surgical release
  - cutaneous nerve injury
    - palmar cutaneous branch of median nerve
    - lateral antebrachial cutaneous nerve
    - superficial sensory radial nerve
  - injury to deep palmar arch
  - injury to FPL tendon (lies superficial to FCR tendon)
  - injury to FCR tendon within the tunnel
    - decompression is easy proximal to the tunnel (incision of FCR sheath)
    - within FCR fibroosseous tunnel, take care to avoid cutting FCR tendon