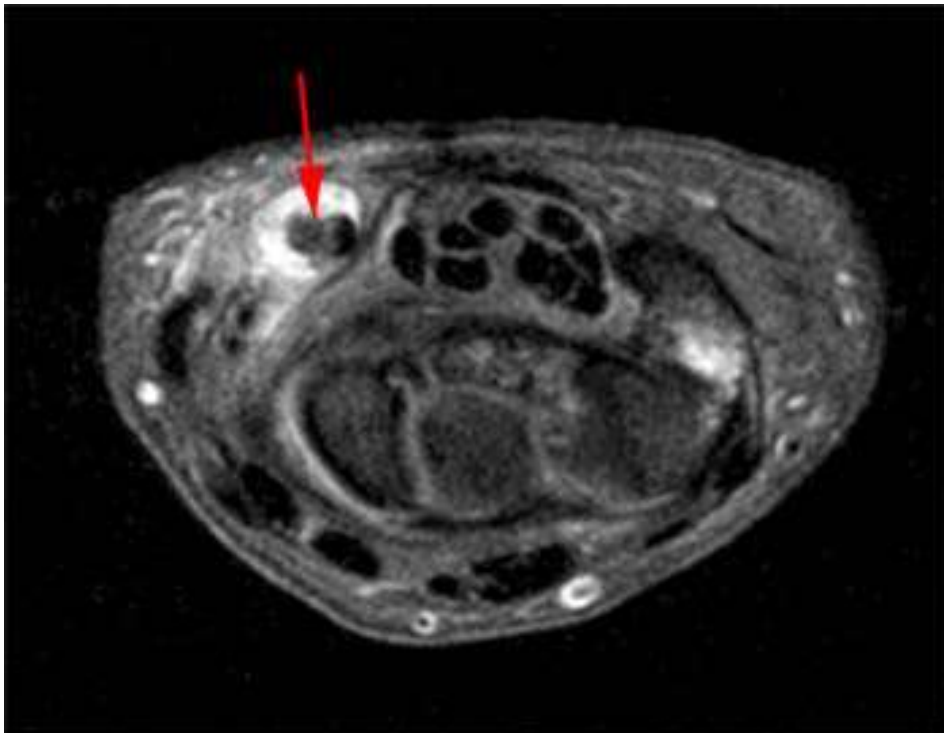
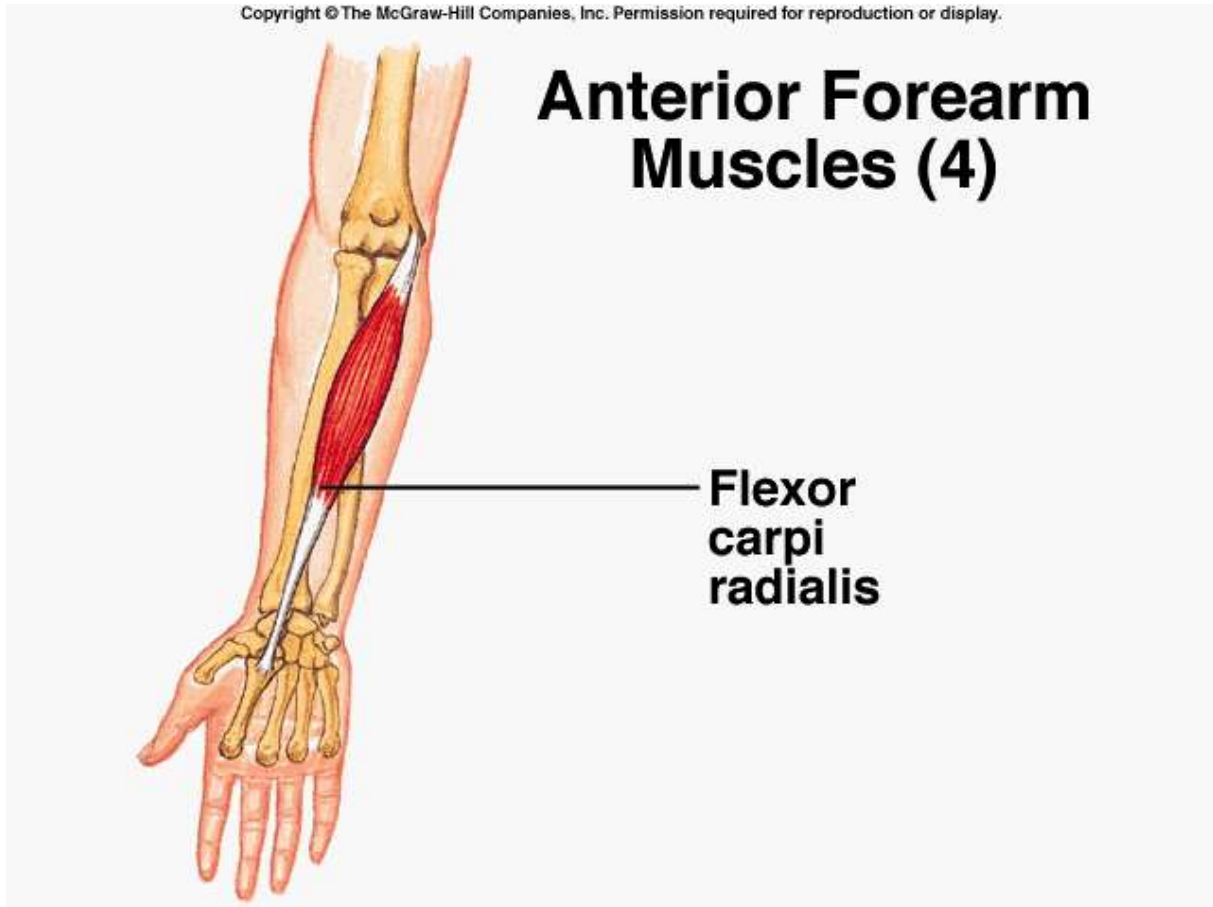


# **FLEXOR CARPI RADIALIS TENDINITIS**





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## 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 trapezoidal crest
  - at the trapezoidal 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 trapezoidal 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 fibrous tunnel, take care to avoid cutting FCR tendon