Common Upper Extremity Tendinopathies

Vic Greco, MD

Bedford Springs 2025

Ortho Update

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What is a tendinopathy?

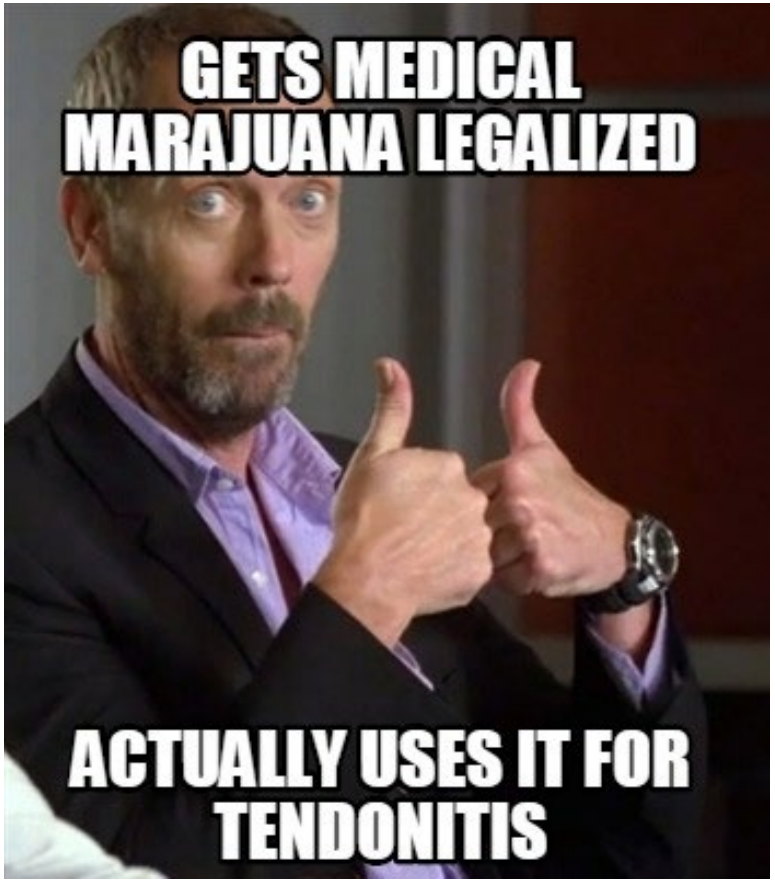
- **Tendinopathy** refers to a **disease of a tendon**. The clinical presentation includes tenderness on palpation and pain, often when exercising or with movement.[1]

- Three terms have evolved in the medical terminology to refer to injuries that cause tendon pain:

- **Tendinitis** - acute tendon injury accompanied by inflammation
- **Tendinosis** - chronic tendon injury with degeneration at the cellular level and no inflammation
- **Tendinopathy** - chronic tendon injury with no implication about etiology

Outline

- Trigger Finger
- De Quervain's tenosynovitis
- Intersection Syndrome
- EPL tendonitis
- ECU tendonitis/instability
- Lateral epicondylitis
- Medial epicondylitis



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Lateral Epicondylitis

- Affects 1-3% of adults every year
- “lawn tennis arm” coined in 1883 due to association with sport
- “There is much witchcraft and pseudoscience involved in the treatment of patients with lateral tennis elbow.”

  Martin Boyer MD and Hill Hastings MD

"A very advanced case of tennis elbow, Mr Scudworthy !"

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Epidemiology

- Adults in 4-5th decade of life
- Men=Women
- Symptoms mostly in dominant arm
- Onset of symptoms to overexertion of the extremity with repetitive wrist extension
- Most patients improve within 1 year
  - **80-90% improve**
    - 4-11% experience residual symptoms but do not seek medical treatment

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Sources of pain

- Multifactorial
  - Intra and extra-articular sources
  - Nerve endings in aponeurosis
  - Plica or joint synovitis

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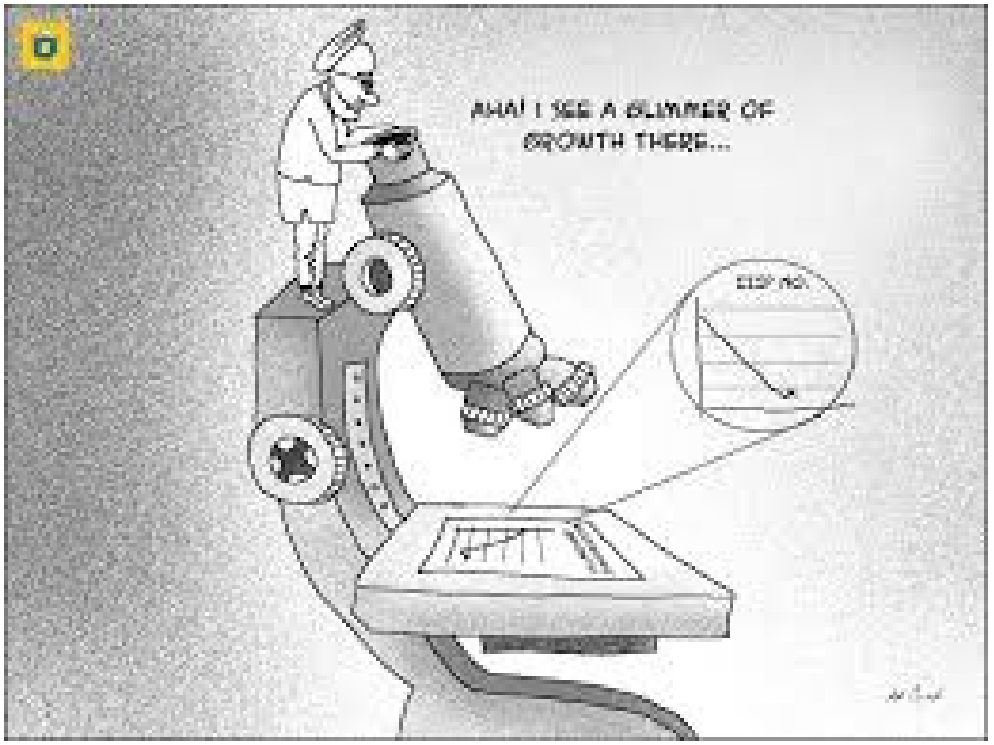
Histology

- **ECRB** is most common cited location of pathology
  - Histology demonstrates **NON-INFLAMMATORY** angiofibroblastic tendinosis with neovascularization, disordered collagen scaffold and **mucoid degeneration**



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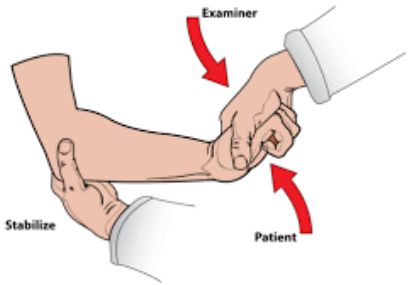
PE and Differential Diagnosis

- Max tender distal and anterior to lateral epicondyle
- Reproduce pain with resisted wrist and finger flexion/extension
- Differential
  - Radial tunnel, cervical radiculopathy, capitellar OCD, elbow plica, posterolateral elbow instability



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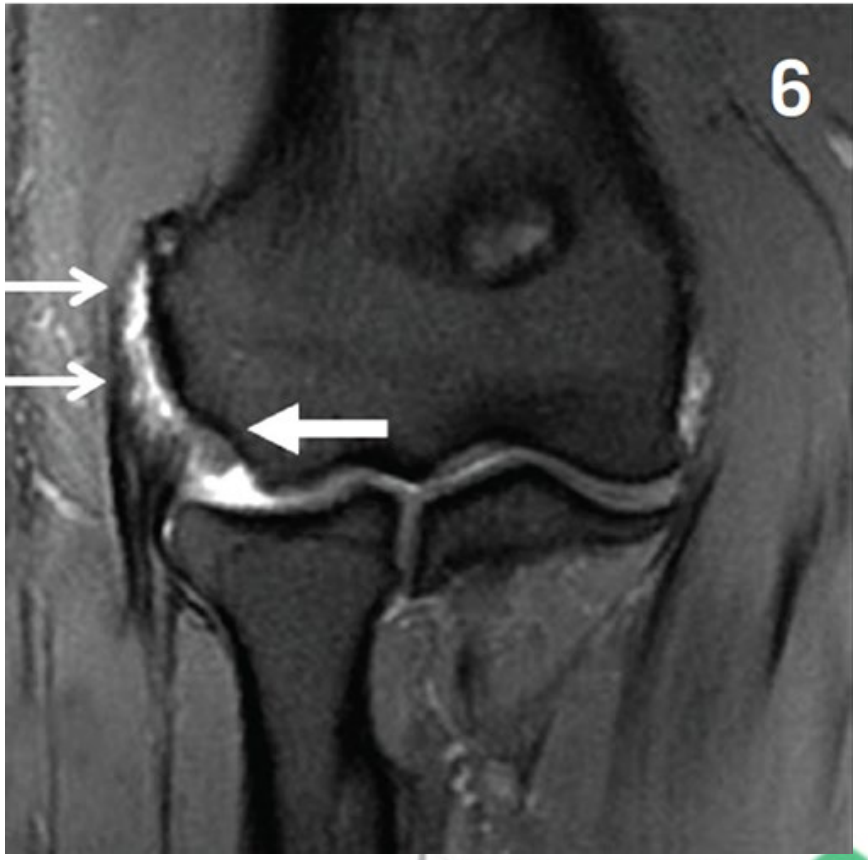
Imaging

- Plain radiographs can show calcifications within extensor mass
  - Associated with patients requiring surgery
- MRI
  - Evaluate intra-articular
  - Evaluate LUCL
  - Extent of tearing of extensor
  - Does not always correlate with symptoms
    - 14-54% of asymptomatic patients have MRI findings
- Ultrasound
  - Only moderate sensitivity and specificity
  - Useful only in experienced hands



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Treatment

- Want to enhance natural healing
  - Ordered treatment progression
    - Control of exudation and hemorrhage
    - Promotion of tissue healing
    - Encourage general fitness
    - Control force loading
  - Final step only required in minority of patients is removal of pathologic tissue

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Nonsurgical

- Rest and NSAIDs
  - Reduce inflammation, relieve strain and provide time for healing
  - Topical NSAIDs mixed support in literature
- Physical therapy
- Injections – PRP
- Dry-needling
- Orthoses – counterforce brace

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NO STEROID INJECTIONS

Original Contribution

FREE

Effect of Corticosteroid Injection, Physiotherapy, or Both on Clinical Outcomes in Patients With Unilateral Lateral Epicondylalgia

A Randomized Controlled Trial

RESEARCH ARTICLE

Trends in Corticosteroid Injections for Treatment of Lateral Epicondylitis: An Analysis of 80,169 Patients

Sun, John Q. BS; Stillson, Quinn A. BS; Strelzow, Jason A. MD; Shi, Lewis L. MD

Author Information

Corticosteroid injections for lateral epicondylitis: a systematic review

Surgery

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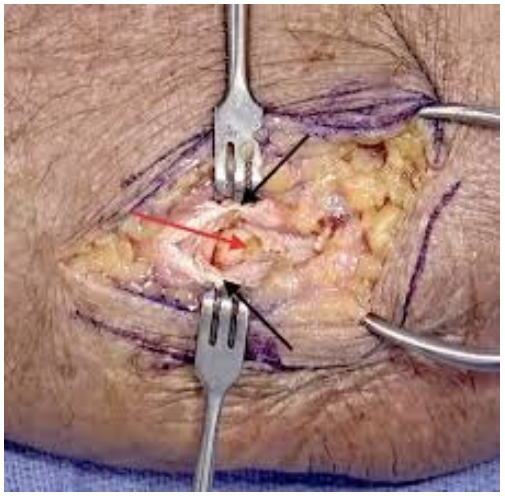
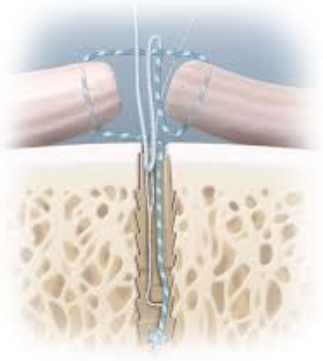
Surgical options

- ECRB origin debridement w/wo reattachment
  - Open Debridement
  - Arthroscopic Debridement
  - Lateral release
- Ultrasonic percutaneous tenotomy
- Denervation
- Revision Cases
  - Anconeus transfer



Operative Intervention



- Open surgery
  - 3cm incision just distal to lateral epicondyle
  - Split common extensor exposing ECRB
  - Degenerative tissue of ECRB debrided and underlying epicodyle is decorticated
- Multiple modifications described
- Anconeus flap can be used in revision situations

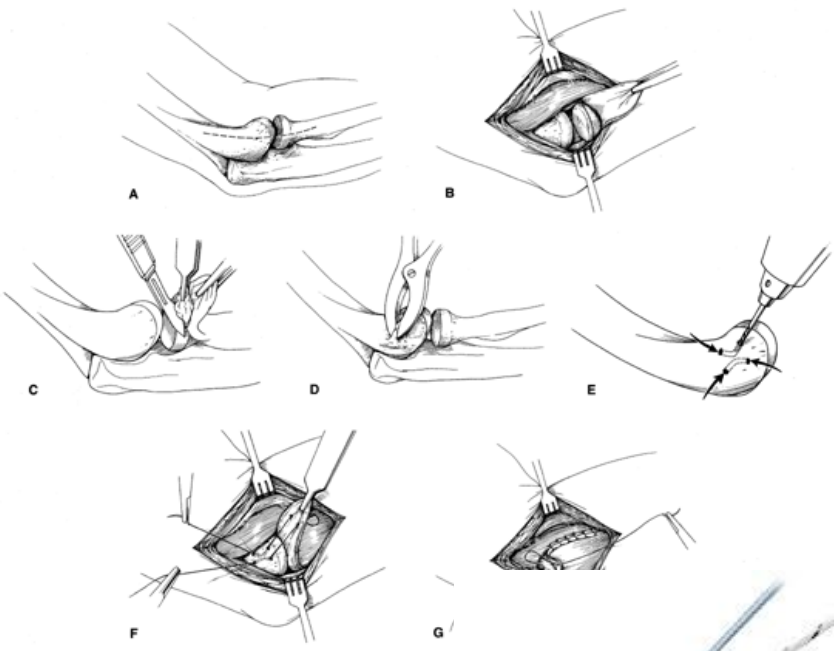


Figure 4
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Post Op regimen

- Wrist brace for 10 days, begin elbow motion immediately
- Range of motion exercises for wrist and extensors at 2 weeks
- Strengthening started after 6 weeks

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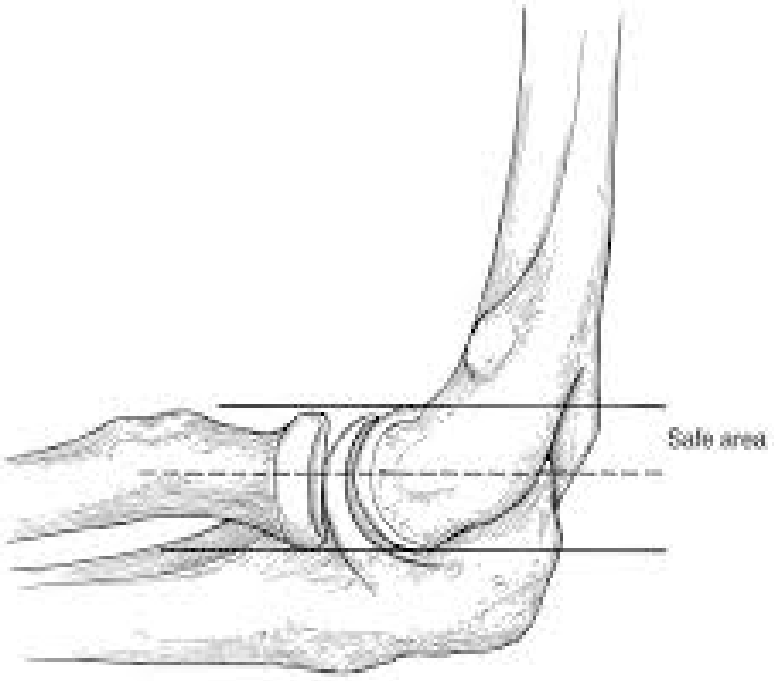
Arthroscopic Debridement

- Advantage of being able to address other intra-articular pathology
- Debride extensor and lateral capsular infolding
- Distal extent of debridement remains parallel to superior half of radial head to protect LUCL



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Complications

- Open Treatment
  - Elbow instability
  - Neuroma of posterior cutaneous nerve of forearm
- Arthroscopic
  - Nerve injury
    - Well documented with elbow scopes
  - Heterotopic ossification
  - Elbow instability

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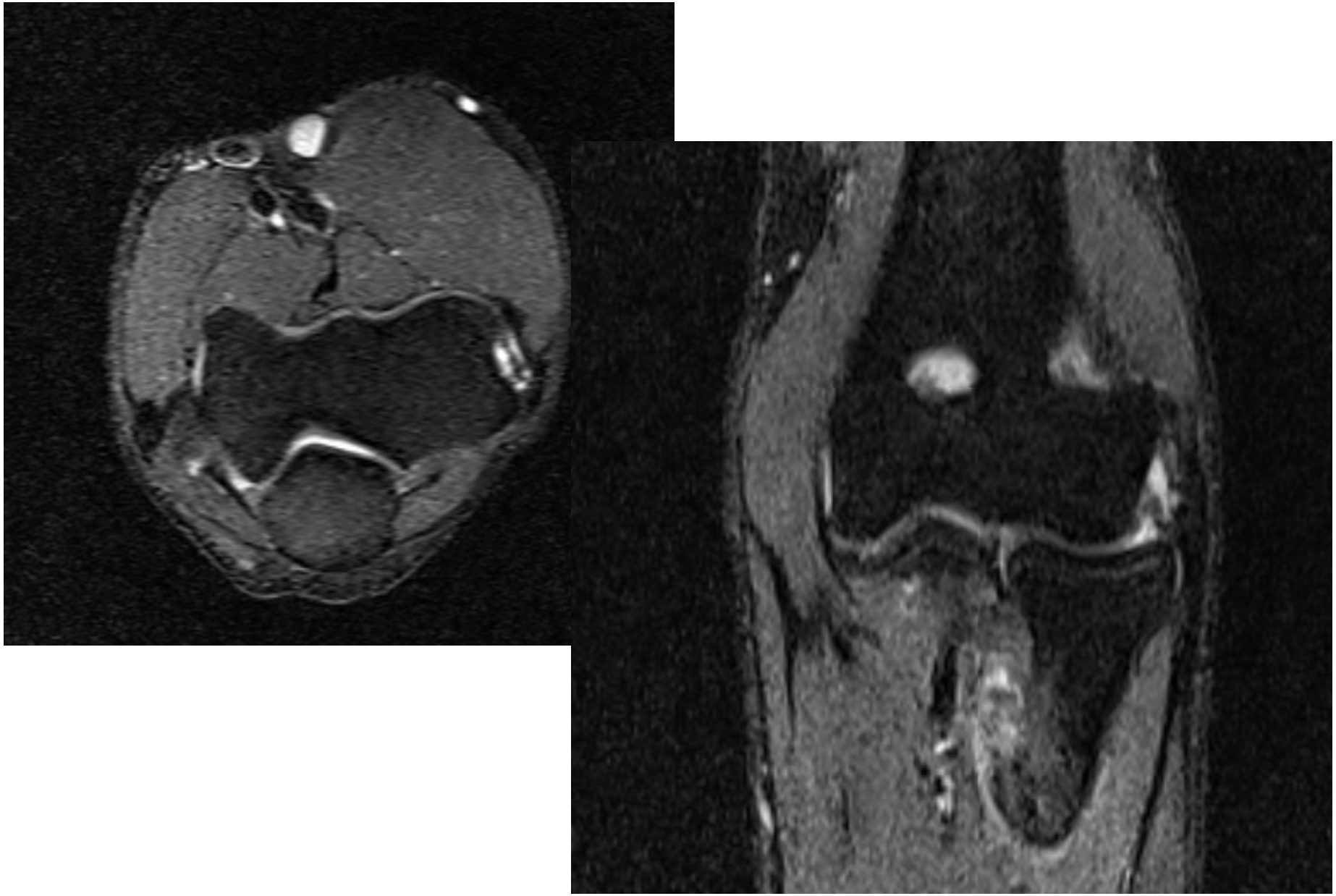

Lateral Extensor Release for Tennis Elbow

A Prospective Long-Term Follow-up Study*

BY JAN VERHAAR, M.D.†, GEERT WALENKAMP, M.D.†, ARNOLD KESTER, PH.D.‡, HENK VAN MAMEREN, M.D.‡, AND TON VAN DER LINDEN, M.D.†, MAASTRICHT, THE NETHERLANDS

Investigation performed at University Hospital Maastricht, Maastricht

- 57 patients underwent lateral release of ECRB origin and followed for a mean of 59 months
- Still largest prospective study to date

VOL. 75-A, NO. 7, JULY 1993

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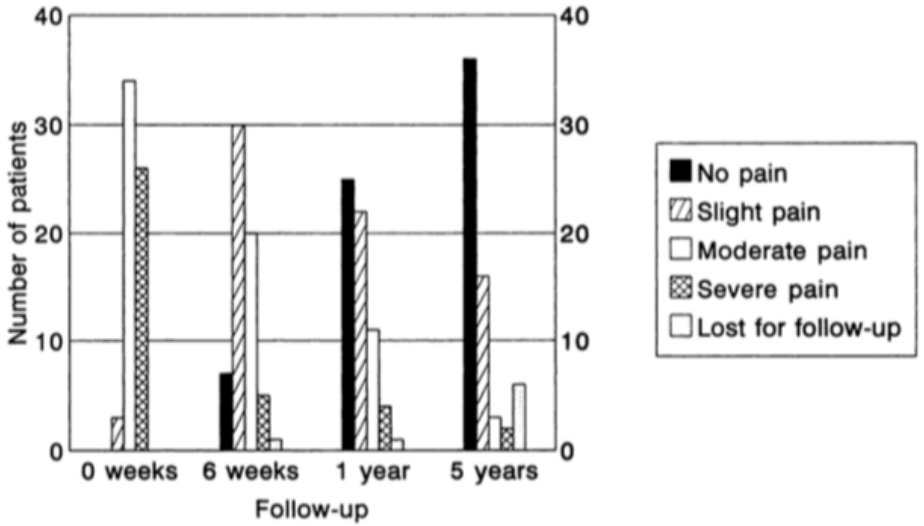
- 76% had no pain or slight pain at 1 year
- 91% had no pain or slight pain at 5 years
- **At 1 year, only 32% had an excellent result, 66% were satisfied**



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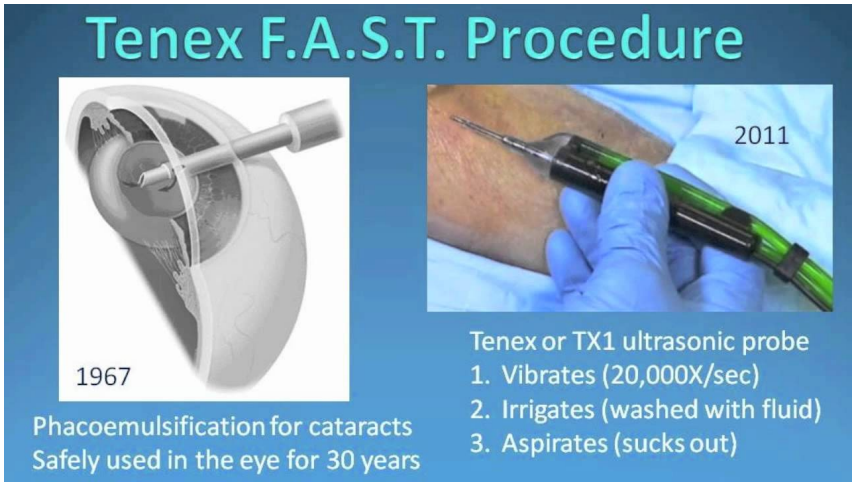
FAST Procedure

- Make stab incision over lateral epicondyle
- Use ultrasound to identify diseased tissue
- Using ultrasonic energy
  - Diseased tissue broken down and removed via probe



Results

- Seng et al. AJSM 2015
  - 20 patients complete resolution of symptoms at 3 years final follow-up
- Moore et al
  - Direct compare open surgery to FAST
    - Pain relief 77% to 91%
    - Time off from work 8.5 weeks to 1.1 weeks

Surgical Treatment of Lateral Epicondylitis

A Prospective, Randomized, Double-Blinded, Placebo-Controlled Clinical Trial

Martin Kroslak,*† MBBS, MSpMed, MS, and George A.C. Murrell,*†‡ MBBS, DPhil, MD
Investigation performed at the Orthopaedic Research Institute, St George Hospital Campus, University of New South Wales, Sydney, Australia

- Study compared sham surgery to Nirschl procedure
- Patients were blinded
- 13 patients each group
- **No difference in patient reported outcomes at any stage up to 2.5 yrs**

Medial Epicondylitis

- ‘golfer’s elbow’
- Overall prevalence of <1%
- May affect 3.8-8.2% of patients in occupational settings
- Occurs in 4-6th decade of life
- Women=men

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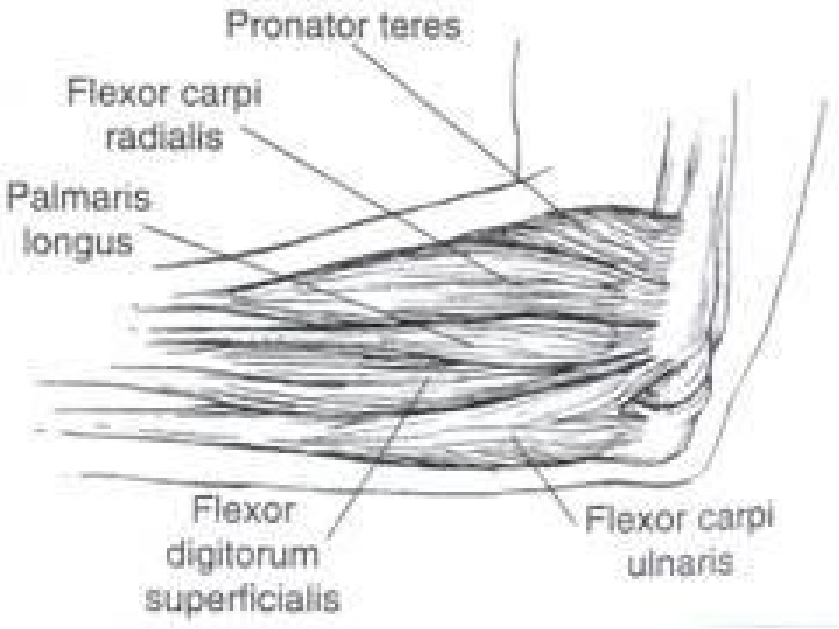
Anatomy

- Common flexor tendon (CFT)
  - Confluence of five muscles of forearm
    - 3 cm long
    - Cross the ulnohumeral joint medially
    - Attaches to the medial humeral epicondyle anteriorly and proximally to anterior bundle of UCL



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Pathology

- Repetitive eccentric loading of muscles in wrist flexion and forearm pronation combined with valgus stress at elbow leads to injury
- Historically the PT identified as primary dynamic stabilizer and most likely unit to be injured
  - Recent cadaver studies have implicated every unit except PL
- Histology similar to what is seen in lateral epicondylitis

Physical Exam

- Point tender over the medial epicondyle
- Pain with resisted wrist flexion

Imaging

- Plain films can demonstrate calcifications
  - Increase incidence of surgical intervention
- MRI can demonstrate tearing of flexor/pronator mass
  - Also evaluate UCL with can present concominantly
- Ultrasound
  - Low-cost
  - Operator dependent

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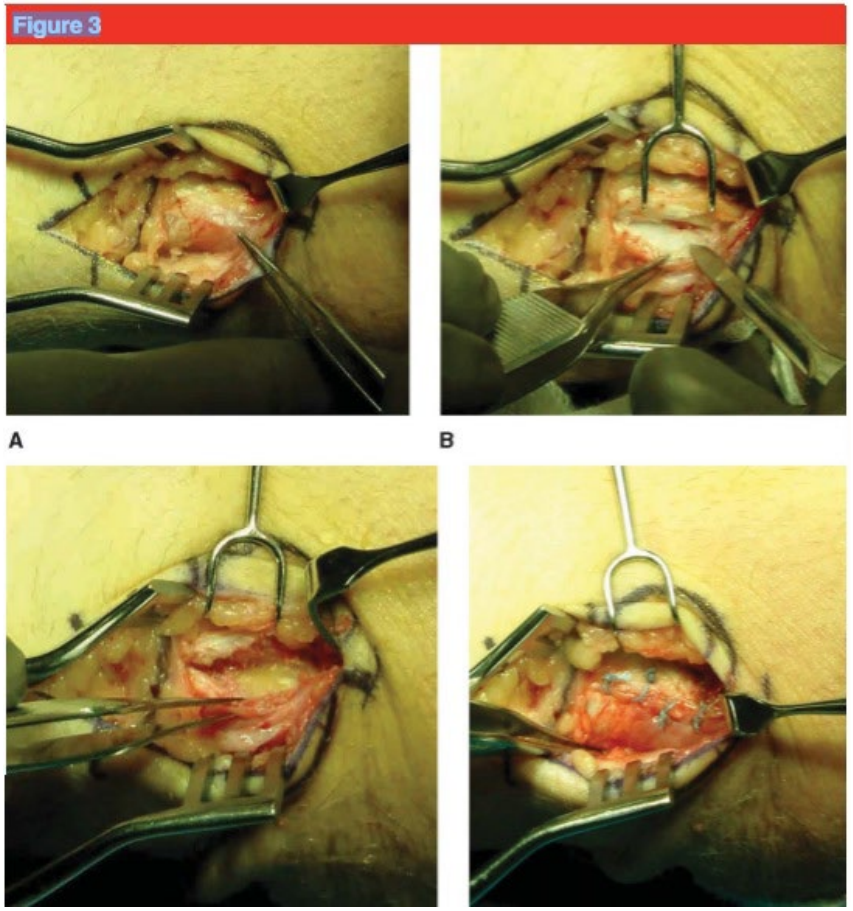
Conservative Treatment

- NSAIDs
- Bracing
- Therapy
- PRP
- Dry needling

Surgical Intervention

- 3 cm incision just distal to medial epicondyle
- Identify ulnar nerve
- Split CFT
- Debride degenerative tissue
- Close CFT



Surgical Outcomes

- Vangsness and Jobe
  - 34 of 35 excellent result with open technique
- Cho et al
  - Mini open technique
    - 10 of 10 report excellent results with return to normal activities within 3 months

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Complications

- Reason for surgical failures:
  - Failure to identify concominant pathology
    - UCL
    - Ulnar nerve issues
      - Literature suggests transposition with lengthening of flexor pronator mass

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Treatment options

- One final remedy…

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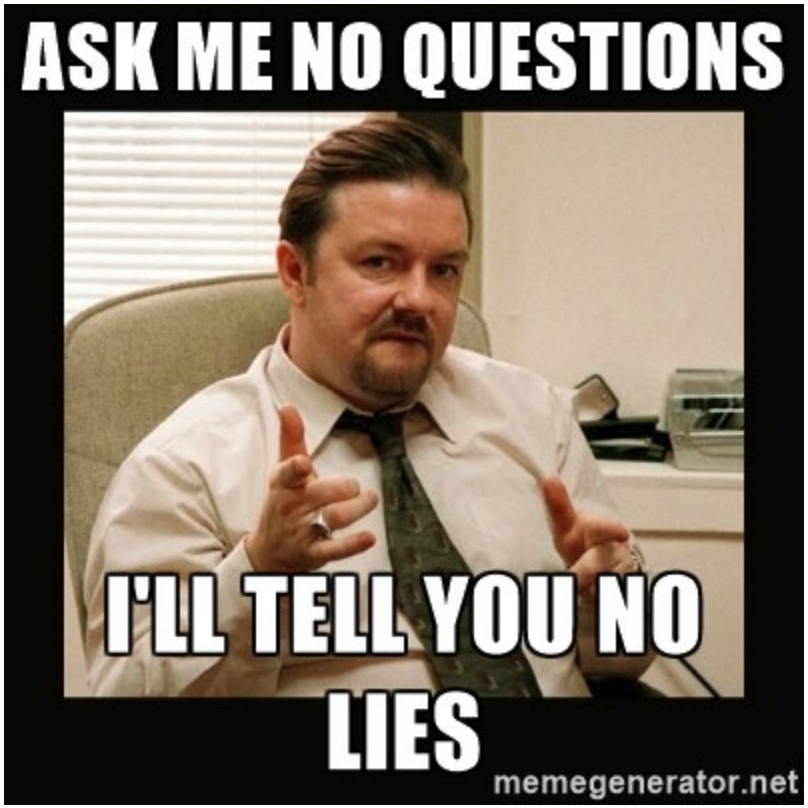
Questions?



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