Crash Workshop on Dry Needling

Lecture Number # 3

Case Study – Lateral Epicondyle pain

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History

• 55 years old male, M + 4, farmer, growing apple trees.
• Background - IFG, smoker, prostate hypertrophy
• 3 weeks - moderate elbow pain on right hand, unable to prune
• Describes the pain as “deep sharp pain”
• The pain increases with lifting things and grasping, local touch.
• The pain decreases with rest.
• No numbness, no systemic symptoms
• Ibuprofen and Tramadol – only mild improvement
Clinical approach

• Rule out Red Flags:
  o Age not < 20 or > 55
  o No significant recent trauma
  o No Hx of malignant disease
  o Not HIV and immune compromised
  o No systemic disease or IV drug use
  o No systemic signs: weight loss, fever etc.
  o No severe constant night pain
  o No progressive neurological signs

Rules out fracture, infection, malignancy and rheumatic disease

CASE STUDY - Mr. Bernard
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Physical Exam

• Patient seems suffering
• Mild swelling over the lateral epicondyle
• Moderate tenderness over the lateral epicondyle
• Pain in resisted wrist extension
• No other findings in his general physical exam, including neuro-vascular right arm examination
Outcomes of Shortened Muscle

Increased traction causes “TENDINITIS”

“Tennis Elbow” / Lateral epicondylitis
Myofascial Pain Syndrome of Extensor carpi radialis or other muscles of the arm
Anatomy:

The Primary Hand Extensor Muscles

- REFERRED PAIN
- ANATOMY
- SYMPTOMS
- DDX
- MTRPS
- PHYSICAL
- DRY NEEDLING
- STRETCH
- PRACTICE!
The primary hand extensor muscles
Somatic Referred Pain Patterns

A, Extensor Carpi Radialis Brevis (ECRB).
B, Extensor Carpi Radialis Longus (ECRL).
Myofascial pain – Clinical approach:

Extensor Carpi Radialis Longus & Brevis muscles

- Referred Pain Patterns
- Anatomy
- Function
- Symptoms
- Trigger Points - Activation & Perpetuation
- DDx
- Physical Examination
- Dry Needling
- Stretch Exercises and Self Therapy
- PRACTICE!
**Anatomy:**

**ECRL Attachments:**

**Proximally:** Distal 3rd of the lateral supracondylar ridge of the Humerus.

**Distally:** Base of the 2nd metacarpal bone, dorso-radial aspect.

- **REFERRED PAIN**
- **ANATOMY**
- **SYMPTOMS**
- **DDX**
- **MTRPS**
- **PHYSICAL**
- **DRY NEEDLING**
- **PRACTICE**
Anatomy:

**ECRB Attachments:**

**Proximally:** Common extensor attachment to the lateral epicondyle.

**Distally:** Base of the 3rd metacarpal bone, dorso-radial aspect.
Extensor carpi radialis

**EXTENSOR CARPI RADIALIS LONGUS**

**Origin:** Distal ¼ of the lateral supracondylar ridge of the humerus and lateral intermuscular septum.

**Insertion:** Dorsal surface of the base of second metacarpal bone, radial side.

**Action:** Extends and abducts the wrist, and assists in flexion of the elbow.

**Nerve:** Radial, C5, 6, 7, 8.

**EXTENSOR CARPI RADIALIS BREVIS**

**Origin:** Common extensor tendon from the lateral epi-condyle of the humerus, radial collateral ligament of elbow joint, and deep antebrachial fascia.

**Insertion:** Dorsal surface of the base of the third metacarpal bone.

**Action:** Extends and assists in abduction of the wrist.

**Nerve:** Radial, C6, 7, 8.

From: Travell & Simons’ Myofascial Pain and Dysfunction. Vol 1
Function:

- **Effective grasp** - extensors function synergistically to prevent wrist flexion by finger flexors.
- Activation of the hand extensors is essential to a **power grip**.
- Extension and abduction (radial deviation) of the hand.
- ECRB chiefly extends the hand
- ECRL assists in flexion at the elbow.
Symptoms:

- **Pain in lateral epicondyle**
  - Spreads to wrist and hand
- **Pain shaking hands**
  - Firm grip with hand in ulnar deviation
- **Pain turning a doorknob, using a screwdriver**
  - Forceful supination or pronation added to the grasp
- **Weakness of grip** during these movements
- **Objects tend to slip out of the hand**
- **Loss of control when pouring milk** or juice from a carton
- **Loss of control when drinking coffee** just as the cup reaches the lip and is tipped to drink
MTrPs: Activation and Perpetuation

-REFERRED PAIN
-ANATOMY
-SYMPTOMS
-DDX
-MTrPs
-PHYSICAL
-DRY NEEDLING
-STRETCH
-PRACTICE!
Physical:

- Examination of wrist extension
  
Pain with resisted wrist extension with the elbow in full extension is characteristic of lateral epicondylitis.
  
  Courtesy of Neeru Jayanthi, MD.

- Passive wrist flexion
  
Pain with passive terminal wrist flexion with the elbow in full extension occurs with lateral epicondylitis.
  
  Courtesy of Neeru Jayanthi, MD.

- REFERRED PAIN
- ANATOMY
- SYMPTOMS
- DDX
- MTRPS
  - PHYSICAL
- DRY NEEDLING
- STRETCH
- PRACTICE!
Physical:

Cozen’s Test
Extend the wrist against resistance, elbow flexed
*Extensor Carpi Radialis Brevis (ECRB)*
Physical:

-REFERRED PAIN
-ANATOMY
-SYMPOTMS
-DDX
-MTRPS
-PHYSICAL
-DRY NEEDLING
-STRETCH
-PRACTICE!
Dry Needling:

-REFERRED PAIN
-ANATOMY
-SYMPTOMS
-DDX
-MTRPS
-PHYSICAL
-DRY NEEDLING
-STRETCH
-PRACTICE!
Treatment Plan

• Several possible different manual therapies:
  o **Dry needling**
  o Other manual therapies:
    ✓ Self / family member roller pin self massage
    ✓ Physiotherapy
    ✓ Muscle energy technique
    ✓ Strain counter strain
    ✓ Kinesiotaping
  o Muscle rehabilitation - adjuvant physical therapy
    ✓ Self stretches technique to the affected muscles
Treatment Plan

- Evidence based treatment – fast & effective:
  - Treatment intervention – Dry Needling
    ✓ Repeated dry needling sessions ~ once a week
    ✓ Reassess after 4 weeks
Stretch:

- REferred Pain
- ANATOMY
- SYMPTOMS
- DDX
- MTRPS
- PHYSICAL
- DRY NEEDLING
- STRETCH
- PRACTICE!
Demonstration – Key Illustrations!

(3.70) Lateral view of right forearm with fingers showing order of extensors

Extensor carpi radialis longus

Extensor carpi ulnaris

Extensor digitorum

Extensor carpi radialis brevis

Extensor pollicis longus

Extensor pollicis brevis
PRACTICE!

- REFERRED PAIN
- ANATOMY
- SYMPTOMS
- DDX
- MTRPS
- PHYSICAL
- DRY NEEDLING
- STRETCH
  ➢ PRACTICE!