Impingement syndrome
or
Rotator Cuff Disease?

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MBAcC
Learning objectives

• An understanding of Rotator Cuff Disease
• An understanding of the differentiation of Rotator Cuff injury.
• An overview of structural and biochemical pathology
• An understanding of tendinosis
• Matching the acupuncture intervention to the pain mechanism
• Clinical reasoning in acupuncture intervention.
What is Rotator Cuff disease?

- 30% of presentations are disease processes
  - (n= 11 practices - 35,150 registered patients (van der Wint et al 1995)
- Supraspinatus tendinitis
- Subacromial impingement syndrome
- Rotator Cuff tendinitis
Rotator Cuff Pathology

- Intrinsic

  - 95% of RC pathology caused by the acromion
    - (Neer 1972)
  - Acromial irritation
  - Pockets of micro-trauma
    - (Bunker 2005)

it is

(Ceccherelli 2003)
Rotator Cuff Disease

• Extrinsic
  • Subacromial impingement
  • Internal impingement
  • Subcoracoid impingement
Rotator Cuff Disease

• Extrinsic
  • Subacromial impingement
  • Internal impingement
  • Subcoracoid impingement
Function of Rotator Cuff

- Movement: GHJ

- Compression: humerus in glenoid

- Centering: humerus in glenoid

  - (Poppen and Walker 1976, Keating et al 1993,
Tendinosis

- Tendon Degeneration
- Increased Cellularity
- Increased Ground Substance
- No consistent evidence for inflammatory cells
- Normal Tendon

- The presence of a RC tear does not correlate with painful shoulder dysfunction n=96 asymptomatic subjects
- MRI and RC pathology evidence
  - (Sher et al 1995 JBJS)
Disease processes

- Oxidative stress (O2 -, H2O2 , OH)
- Nutritional deficiencies (PUFA Omega-3 deficiencies)
- Angio neo genesis
- VEGF, IL-1β, TNF-α, CGRP (calcitonin gene related protein)
- Nitric oxide
- Lactic acid
- Substance P(ain)
- Bradykinin
- Matrix substances
- Glutamate
Angioneogenesis
Treatment should be based on clinical and NOT on imaging findings”

• There appears to be little correlation between imaging findings and symptoms

Lewis J (2007)
What can we get from our needles?

- Dorsal Horn segmental inhibition
- DNIC
- Myofascial trigger point release
- Cortisol release
- Sleep
- Muscle relaxation
- Increased Blood supply
- Increased phagocytic activity
Segmental Effect

• The sensory stimulus must be applied to tissues that share an innervation with the appropriate spinal cord level.

• Neurons of the ANS efferent fibres can be influenced, both sympathetic and parasympathetic activity may be affected depending on the position of the needles.

  • (Bradnam 2007)
• High-intensity (HI) needling may immediately increase sympathetic outflow to tissues supplied by the segment, followed by a decrease in outflow.

• Low-intensity (LI) or non-painful input could reduce sympathetic outflow in the segment.

• (Sato et al. 1997).
He Sea points
Subscapularis
Subscapularis
Or is it a posterior rotator Cuff Tear?
Deltoid Trigger Point Needling

© Travell and Simmons 1995
Deltoid Referral Pain Pattern

© Travell and Simmons 1995
Or is it a Sub deltoid bursitis?
Infraspinatus Referral Pain Pattern
Or is it an Anterior rotator Cuff Tear?
What about Supraspinatus?
Electro-acupuncture Rules

• Low frequency 2-4 Hz / High Intensity
  – endogenous opioids
  – Slow onset
  – Long lasting analgesia
  – Cumulative

• High frequency 80-100 Hz High intensity
  – fast onset
  – short term analgesia
  – TENS