Idiopathic Adhesive Capsulitis of the Shoulder

Relationship Between Histology and Clinical Stage

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J. Neviser (1945) “Adhesive Capsulitis”

• Reported changes in capsular volume at arthrography
• Capsular volume loss resulted from intra-articular adhesions
• Described scar formation in synovium and subsynovium

Pathophysiology
• What is location of pathology?
  • intra-articular
  • subacromial
  • adhesions vs contracture
• Pathophysiology
  • inflammation
  • fibrosis
• Risk factors
  • female
  • age > 40
  • thyroid disease
  • stroke, MI
  • trauma

Stages of Adhesive Capsulitis
(Neviser, 1987)

• Stage 1:
  • no true loss of motion
  • ROM limited by pain
  • night and rest pain

• Stage 2:
  • “freezing phase”
  • ROM limited by pain and stiffness
  • Night and rest pain

• Stage 3:
  • “frozen phase”
  • ROM limited by stiffness
  • no night or rest pain
  • pain at end ROM

• Stage 4:
  • “thawing phase”
  • slow and steady recovery of ROM

“treatment must be based on pathogenesis and natural history” (Neviser, 1987)

• Benign neglect
• PT
• Intra-articular steroid
• Subacromial steroid
• NSAID
• Capsular distention
• Manipulation
• Surgery
Pathology

- Idiopathic adhesive capsulitis
- 92 pathology specimens
- Clinical history
- ROM (active and passive), EUA
- Arthroscopic findings
- Clinical stage determined
- Pathologic stage determined
- Correlations between pathologic and clinical stage were made

History

- location and type of pain
- night and rest pain
- onset of pain precedes loss of motion
- description of pain or stiffness is heavily dependent on the stage of the disease
- medical history

“does exercise increase the pain and stiffness?”

Pathophysiology of Adhesive Capsulitis

An understanding of the histologic appearance of the synovium, subsynovium and capsule is critical in understanding the biology of adhesive capsulitis AND the variability in the literature regarding response to treatment.

Stage 1

- duration of symptoms 0-3 months
- rest and night pain
- pain with AROM, PROM
- limitation of FF, ABD, IR, ER
- EUA = full ROM
- arthroscopic findings
- pathology
hypervascular synovitis

normal capsule

Treatment: **Stage 1**
- Intra-articular corticosteroid / anesthetic
  - 80 mg depomedrol, 5 cc 1% lidocaine
- Examine 15 minutes following injection
  - pain
    - range of motion (0, 45, 90 degree GH)
- Re-examine in 2 weeks to determine efficacy
- Consider second injection
- Home PT program
- Examine in one month

**Stage 2**
- Duration 3-9 months
- Rest and night pain
- Pain with AROM and PROM
- Significant loss of FF, ABD, IR, ER
- EUA motion = awake exam
- Arthroscopic findings
- Pathology

synovial and subsynovial scar
dense capsular scar
capsule and synovium

Treatment: **Stage 2**
- Treatment of intra-articular synovitis and capsular contracture
  - intra-articular injection to decrease pain and synovial hyperplasia
  - examine to assess pain and degree of capsular contracture
- Home based gentle stretching
- Examine in two weeks to determine efficacy
- Supervised PT, water based therapy may be helpful
- Examine Q.6 weeks to monitor recovery of ROM
- Consider arthroscopic intervention if patient does not respond to injection or fails to progress with ROM
- Synovectomy, capsular release, manipulation under anesthesia

**Stage 3**
- Duration of symptoms > 9 months
- No rest or night pain
- Pain at end ROM
- Significant loss of motion
- EUA: ROM unchanged
- Arthroscopic findings
- Pathology
Treatment: **Stage 3**

- Treatment of contracture
- No indication for corticosteroid
- Home or supervised PT
  - Recover glenohumeral ROM
  - Restore strength of rotator cuff and periscapular musculature
- Arthroscopic intervention
- Capsular release and manipulation

**Adhesive Capsulitis**

- Can be confused with impingement in early stages
- Understanding the pathophysiology should guide treatment decisions
- Female >> male
- Response in diabetics is less predictable
- Early diagnosis is critical

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Understand pathology and stage of disease

Pathology determines treatment

Treatment and stage determine time to recovery

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THANK YOU

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