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# COMMON PAINFUL SHOULDER CONDITIONS

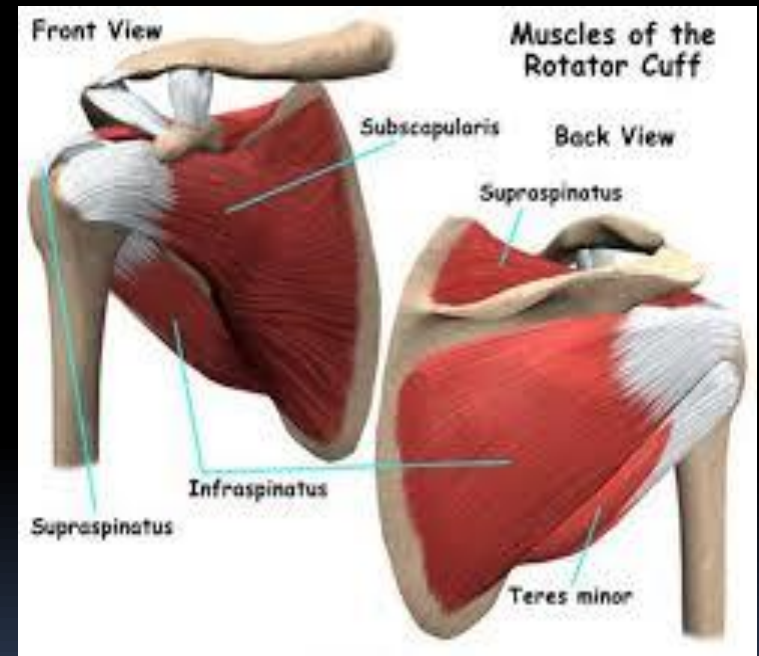


# Overview

- Rotator Cuff Tears
  - Shoulder Instability
  - Frozen Shoulder
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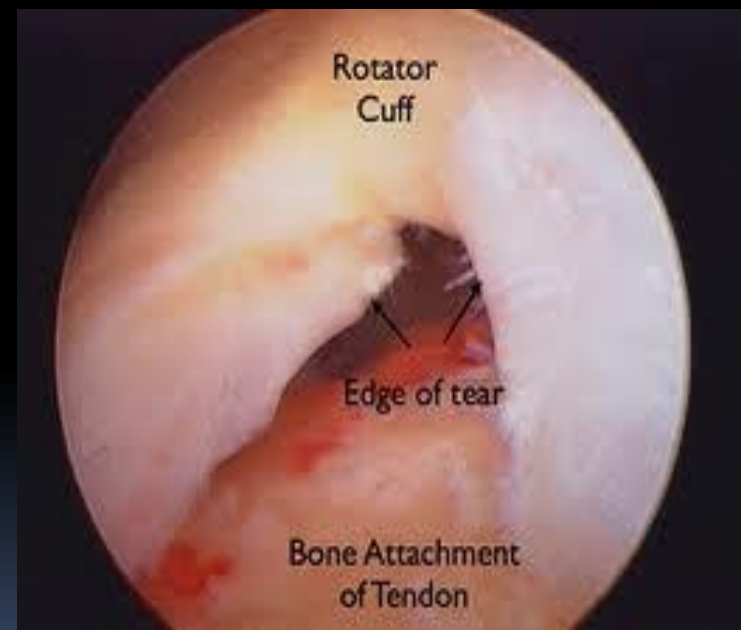
# Rotator Cuff

- **4 components**
  - Supraspinatus, Infraspinatus, Teres Minor
    - Attached to GT, commonly referred as rotator cuff tears.
    - Elevate, rotate the humerus
    - Run under the acromion, vulnerable to damage
  - Subscapularis
    - Attached to LT, largest and strongest cuff muscle
    - @53% of total cuff strength
    - Internal rotator, key in lifting across chest



# Rotator Cuff tear

- Several Classifications, commonly used
  - Partial or Full thickness
  - Size of tear
    - Small (<1cm)
    - Medium (1-3cm)
    - Large (>3cm)
    - Massive (>5cm)
  - Side
    - Articular
    - Bursal



# Rotator Cuff tears

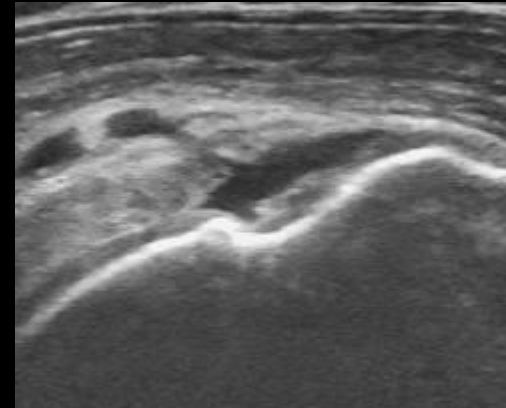
- **Cause**
  - Injury-lift or catch a heavy object, FOOSH
  - Overuse, impingement
  - wear and degrade with age liable to rupture
- **Symptoms**
  - painful, weak shoulder and decreased ROM
  - Night pain common, often radiating down the arm.
  - Subscap tears more painful as often associated with LHB tears and dislocation

# Clinical tests for Rotator Cuff

- Several tests, Over 100!! described, can be confusing?? Adopt simple approach and common tests
- **Impingement**
  - Neers sign, test
  - Hawkin's-kennedy test
  - Copelands
- **RCT**
  - Supraspinatus, Infraspinatus, Teres minor
    - Empty can(Jobs) / Full can test (SS)
    - Ext Rot lag sign (IS)
    - Hornblower test (IS,TM) – massive tears
  - Subscapularis
    - Gerbers lift off, Napoleon belly press
    - Int Rot Lag sign

# Rotator Cuff tears- Investigations

- **Ultrasound Scan**
  - One stop clinic
  - Accurate, dynamic and cost effective
  - However, operator dependant
- **MRI Scan**
  - Expensive and less accessible,
  - Quality of the muscles and fatty infiltration
  - Other intra-articular pathology



# Rotator Cuff tears- Investigations

- **MR arthrography**
  - most sensitive and specific technique for diagnosing both FT and PT RCT.
  - US and MRI are comparable in both sensitivity and specificity
    - de Jesus Jo, AJR Am J Roent.2009,a **meta-analysis**
- **US Scan**
  - acceptable sensitivity and specificity.
  - superior for the detection of FT compared to PT tears.
    - Smith TO (Clin Radiol. 2011) a syst. rev and meta-analysis



# Clinical tests

- The use of any single test to make a pathognomonic diagnosis cannot be unequivocally recommended.
- *Support for stressing a comprehensive clinical examination including history and physical examination.*
  - **Hegedus EJ, Br J Sports Med. 2012** (Syst. Review & Meta-analysis)
- Insufficient evidence upon which to base selection of physical tests for shoulder impingements, and local lesions of bursa, tendon or labrum that may accompany impingement, in primary care.
- Extreme diversity in the performance and interpretation of tests.
  - **Hanchard NC , Cochrane Database Syst. Rev. 2013**

# Rotator Cuff tears

- **Do they progress?** (*Yamaguchi JSES 2001*)
  - 50% tears progress if pts symptomatic & <20% tears if asymptomatic
- **Is age, gender, side or cuff thickness related to symptoms** (*Yamaguchi JBJS 2006*)
  - Av age 48.7=no tear, 58.7=U/L tear, 67.8=B/L tear
  - 50% likelihood of B/L tears > 66years
  - If symptomatic one side 35% chance of C/L tear
  - Symptomatic tears significantly larger
  - NO evidence of spontaneous healing

# RCT- Non-operative Rx

- 1. Painkillers and anti-inflammatory medications
- 2. Physiotherapy
- 3. Cortisone steroid injections
  - Reduces inflammation and control the pain.
  - Avoid repeated steroid injections in the presence of a tendon tear, as this may weaken the tendon further.
- Outcome following Non-op Rx (**Maman JBJS2009**)
  - >50% FT and @8% PTRCTs progressed
  - 17% deterioration if <60 yrs, 54% if >60 yrs
  - Fatty infiltration results in increase tear size

# RCT – Operative Rx

- **Single vs. Double row** (*DeHaan AM AJSM 2012*)
  - Single-row repairs did not differ from the double-row repairs in functional outcome scores
  - Trend toward a lower retear rate in DR , although the data did not reach statistical significance
- **All arthroscopic vs. Mini-open repair** (*van der Zwaal P Arthroscopy 2013*), (*Kim SH Arthroscopy 2003*)
  - Functional outcome, pain, range of motion, and complications do not significantly differ
  - Patients do attain the benefits of treatment somewhat sooner
  - Surgical outcome depended on the size of the tear, rather than the method of repair

# Partial Thickness RCT

- Articular side (PASTA) or bursal surface
- O/E Like impingement, strength often reasonable
- Pre-op diagnosis difficult, MRI inconclusive
- Beware young patient with PTRCT, other aetiology than impingement
- Initial conservative Rx appropriate



# Partial Thickness RCT

- The "50% rule" (Pedowitz RA, Arthroscopy 2012)
  - Little scientific information is available to support the 50% rule
- Significant PT tears need repair, not debridement (Weber OCNA, Arth 1999), (Kartus Arth 2006)
  - 1 in 5 (18%) re-op rate with debridement, progression to FT tears not uncommon
  - Acromioplasty and cuff debridement does not protect tear

# Massive Cuff Tears

- More common in older people, unusual under 60 years.
- In patients with cuff degeneration
- Disabling pain and weakness, pseudo paralysis
- Marked atrophy and fatty infiltration poor clinical outcomes



# Massive Cuff Tears - Rx

- **Non-op**
  - Injection
  - Deltoid rehab prog
- **Operative**
  - SAD, LHB tenotomy, Debridement
  - SS nerve ablation
  - Tendon transfers (Younger patient with irreparable RCT)
  - Reverse Shoulder Replacement





# Shoulder Instability

- Glenohumeral stabilisers

- **Static restraints**

- Glenohumeral ligaments (below)
    - Glenoid labrum (below)
    - Articular congruity and version
    - Negative intraarticular pressure

- **Dynamic restraints**

- Rotator cuff muscles
      - the primary biomechanical role of the rotator cuff is stabilizing the glenohumeral joint by compressing the humeral head against the glenoid
    - Biceps
    - Periscapular muscles



# Dislocation Categories

## ***1. Traumatic Dislocation***

A Bankart lesion is the most common injury but other injuries can occur

- HAGL tear
- Bony Bankart
- Hill-Sachs lesion

## ***2. Atraumatic dislocation***

associated with joint laxity

## ***3. Positional Non-traumatic dislocation***

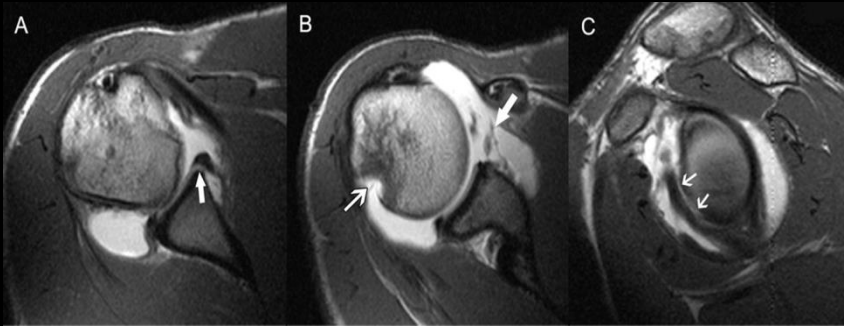
'abnormal muscle patterning' (party tricks)



# Clinical tests – Instability

- **Anterior instability**
  - anterior Apprehension
  - Jobe Relocation (Fulcrum Test)
  - anterior Drawer Test
  - anterior Load and Shift
- **Posterior instability**
  - posterior Apprehension test
  - posterior Drawer Test
  - posterior Load and Shift
- **Inferior Laxity**
  - Sulcus Sign

# Instability Investigations



- **Plain X-ray**

- Initial imaging

- **MR arthrogram**

- Imaging modality of choice to evaluate the labrum
- Associated ST lesions

- **CT arthrogram**

- Detection of bony injuries like glenoid rim # or HAGL
- Also capsuloligamentous lesions



# Shoulder Instability Rx

- **Non-op Rx**
  - What position of immobilisation? ER or IR
    - Liavaag S JBJS(Am) 2011
      - Immobilization in ER does not reduce the rate of recurrence for patients with first-time traumatic anterior shoulder dislocation
  - Physiotherapy - to train the shoulder muscles to control the shoulder correctly and prevent further instability
- **Operative Rx**
  - A number of procedures are available depending on the causes and findings on investigations.
    - arthroscopic Procedures
    - Open Shoulder Procedures
      - **Latarjet procedure** for glenoid bone loss or
      - open capsular repair for HAGL lesions

# Shoulder Instability Rx

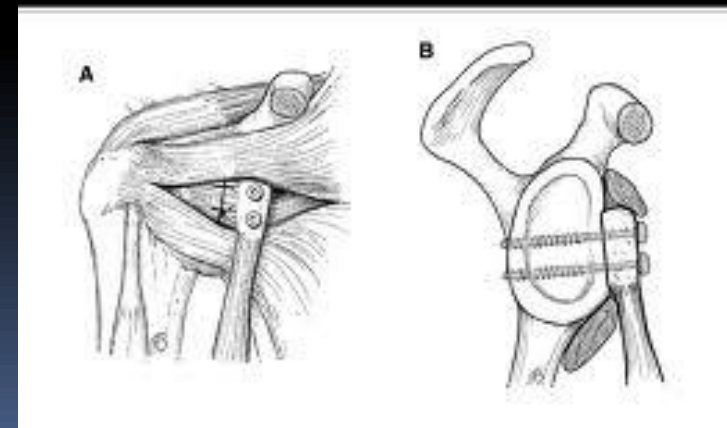
- **Arthroscopic Stabilisation (Bankart Repair)**
  - Repairing the over stretched or torn labrum and capsule
- **Latarjet-Bristow Procedure**

(transfer of the coracoid with it's attached muscles to the deficient area over the front of the glenoid)

  - Success due to the 'triple effect' described by Patte.
    - 1) Increase the glenoid contact surface area;
    - 2) The conjoint tendon reinforces the inferior subscapularis and anteroinferior capsule (Sling effect)
    - 3) Capsular repair

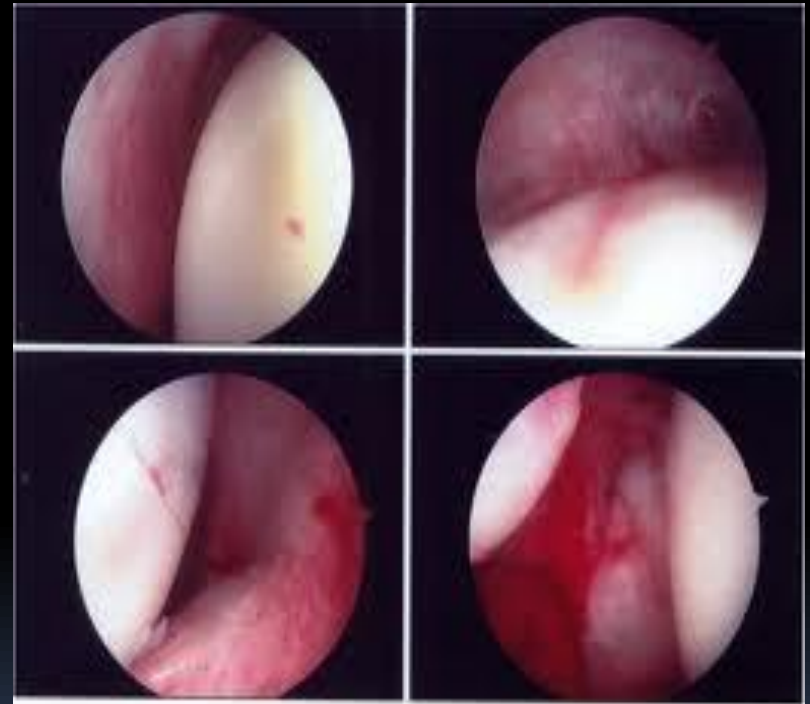


Final Reconstruction



# Frozen shoulder

- Frozen Shoulder is an extremely painful condition
- Often starts acutely, but may be triggered by a mild injury to the shoulder.
- Frozen shoulder may be associated with diabetes, high cholesterol, heart disease and Dupuytren's contracture.
- The capsule and its ligaments becomes inflamed, swollen, red and contracted. The normal elasticity is lost



# Frozen Shoulder-Stages

- *Three stages*
- **1)Freezing phase:**
  - Pain increases with movement and is often worse at night.
  - Progressive loss of motion with increasing pain.
  - Lasts approx. 2 to 9 months.
- **2)Frozen phase:**
  - Pain begins to diminish,
  - ROMmuch more limited
  - This stage may last 4 to 12 months.
- **3)Thawing phase:**
  - May begin to resolve.
  - Gradual restoration of motion over the next 12 to 42 months



# Frozen shoulder Rx

- Improve over 2-4 years after onset.
- Painful & stiff shoulder generally require treatment.

## Rx modalities

- Physiotherapy
- Analgesics & Anti-inflammatories
- Injections - reduce inflammation and provide pain relief
- Hydrodilatation Procedure
- MUA & Injection
- Surgery - Arthroscopic Capsular Release
  - . Intensive physiotherapy is essential after the surgery.

# Frozen Shoulder Capsular Release

- Over 80% success and the freedom from pain is quicker than MUA.
- Diagnose other associated pathologies
- Capsular release is safer and more effective than MUA for people who have developed a resistant stiff (frozen) shoulder after injury, trauma or fractures, as well as for diabetics.

THANK YOU

