# Clinical and Radiological Evaluation of Shoulder Pain

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#### Sir William Osler

• *"It is much more important to know what patient has the disease than what disease the patient has"* 

#### **Basic Anatomy**

- 3 bone, 4 joints (glenohumeral, sternoclavicular, acromioclavicular, scapulathoracic)
- Inherently "unstable" as opposed to the hip.



## Try to use global approach

- **Remember cervical spine:** ie disc herniation/stenosis, cervical sprain.
- More rare causes- infections, malignancy.
- Think of what else is going on within the shoulder and don't treat diagnosis in isolation. Ie chronic impingement can lead to RTC tearing etc.
- Can likely have more than one diagnosis.
- Think prevention- why is this happening?
- Precise anatomic diagnosis is not necessary to being treatment.

### Need a Good History!!

- Chief complaint (pain most common), instability, 2<sup>nd</sup> most common, stiffness, weakness, catching/popping).
- Hand Dominance/Occupation.
- Location: Top/front AC joint, Side- RTC, front-biceps, Backarthrosis).
- Age (Instability, AC injury <30, Impingement >40, Arthritis >50, Frozen shoulder >30 women more than men.
- Mechanism of injury- trauma, overuse, insidious. Instability: Injury on abduction/ER, AC joint-direct blow. RTC-Pain at night, overhead activity.
- Duration and associated symptoms. Ie weakness, numbness tingling, chest pain, systemic symptoms, history of malignancy.

#### EXAM:

- Inspection, symmetry. Palpation.
- Check both active and passive ROM.
- Ranges: Flexion 180 degrees, Extension 60 degrees, IR 90 degrees with arm abducted, ER 60-70 deg, adduction 30, abduction 180.
- 2:1 glenohumeral to scapulothoracic motion in abduction.
- Strength testing.
- Special Tests (Neer's, Hawkin's, Crossed arm, apprehension etc).
- Always compare to other side!

### Rotator Cuff (S.I.T.S)



### **Supraspinatus Testing**



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#### **Strength:** Infraspinatus/Teres Minor



## Subscapularis Lift Off



## Imaging

- Clinical evaluation and X-rays are all that is needed most of the time.
- Routine series (Grashey- True AP view), Supraspinatus outlet view -variant of "scapular Y". A transthoracic lateral with the beam angled downward parallel to the supraspinatus muscle.
- (Abnormalities of acromium ie bone spur. Axillary lateral view (good for GH dislocation bony bankart.)
- Only if it changes treatment algorithm.



#### **Impingement/Subacromial Spur**



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## Imaging modalities

- MRI: Superior soft tissue contrast, high spatial resolution, multiplanar capabilities. Difficulty with smaller intra-articular structures such as glenoid labrum, articular cartilage, glenohumeral ligaments, articular, origin of biceps tendon.
- **MR Arthrogram:** Distends joint and improves soft tissue contrast. Improved delineation of labrum, rotator cuff, and capsuloligamentous structures. **Cons:** Invasive procedure, require fluoroscopy, increased cost,.

### Ultrasound

- Cheap.
- No radiation.
- Dynamic evaluation.
- Can be used for both diagnosis and treatment (ie injections.
- Cons: User dependent. Difficult to assess labrum and glenohumeral ligaments.

#### Impingement





## Impingement

- Typically seen in > 40 years.
- Narrowing of subacromial space causing compression and inflammation of the bursa, biceps tendon, and rotator cuff.
- Neer's 3 stages" 1. Hemorrhage and edema, 2: Tendonitis and fibrosis, 3. Tendon degeneration of rotator cuff and biceps.
- Most commonly involves the supraspinatus.
- Functional: Superior migration of humeral head from caused by weakness or muscle imbalance. Structural: When subacromial space is too narrow due to bone growth or soft tissue inflammation. (Can have both combined).
- Primary versus secondary. Primary: Older overuse, tendon degeneration.
  Secondary: RTC impingement secondary to functional decrease in supraspinatus outlet space. Ie instability.
- 3 types of acromium shapes type 1 (flat), Type 2(curved), type 3 hooked.

## Adhesive Capsulitis "Frozen Shoulder"

- Thickening and contraction of capsule around the glenohumeral joint, loss of motion and pain.
- Slow progressive pain and stiffness.
- Difficult to detect radiographically.
- Female>male
- Bilateral.
- Idiopathic, immobility following and injury, diabetes, autoimmune, history of trauma.
- Loss of passive ROM esp at ER.

## Thank you!

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