EVALUATING SHOULDER INJURIES IN PRIMARY CARE
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DISCLOSURES

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How often do you assess shoulder injuries in your practice?

A. Daily
B. Weekly
C. Monthly
D. Yearly
E. Never
SESSION OBJECTIVES

- Discuss anatomy of the shoulder joint.
- Identify common injuries/conditions of shoulder injuries in the primary care setting—including typical presentation and mechanisms of injury.
- Review physical examination skills and orthopedic testing.
- Participation analysis case scenarios for your reference to test your skills.
- Discuss operative and non-operative approaches for the treatment and rehabilitation process.
COMMON SHOULDER INJURIES

- Acute Onset
  - Fractures
  - Dislocations/subluxations
  - Sprains/strains
  - Contusions
  - Rotator cuff tears
  - Bicep tendon ruptures
  - Calcific tendonitis
  - Adhesive capsulitis

- Chronic
  - Osteoarthritis
  - Rotator cuff impingement
  - Cervical disease
38 yo female right shoulder pain worsening 3 weeks after starting CrossFit program with heavy lifting. Pain began 2/10 and has progressed to 7/10. Pain comes and goes with overhead and cross body reach.

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Exam: Visual inspection unremarkable for edema, erythema, deformity. Tenderness over anterior GH joint. ROM limited flexion, abduction, and external rotation. (+) painful arc. (-) empty can, neurovascular intact

(-) imaging
A. Acute rotator cuff tear
B. Labrum tear
C. AC separation
D. Osteoarthritis
SHOULDER ANATOMY

- **Bony**
  - Humerus
  - Scapula
  - Clavicle

- **Joints**
  - Scapulothoracic
  - Glenohumeral
  - Acromioclavicular
  - Coracoclavicular

- **Soft tissue**
  - Trapezius, rhomboids, serratus, pectoralis minor/major, latissimus dorsi, deltoids, SCM
  - Rotator cuff—supraspinatus, infraspinatus, teres minor, subscapularis

- **Capsule and ligaments**

- **Tendons**
  - Rotator cuff tendons, long head of biceps

- **Subacromial and subdeltoid bursa**
SHOULDER PAIN: DIFFERENTIAL DIAGNOSES

- Traumatic disorders
- Instability
- AC joint disease
- Rotator cuff disease
  - Tears
  - Bursitis/tendonitis [impingement]
  - Calcific tendonitis
- Adhesive capsulitis (frozen shoulder)
- Osteoarthritis
- Cervical disease
Rotator Cuff Pathology

- Impingement syndrome
  - Calcific tendonitis

- Rotator cuff tears
  - Partial thickness tears
  - Full thickness tears
  - Massive tears
MUSCULOSKELETAL WORK-UP

- History
- Inspection
- Palpation
- Range of Motion
- Other Tests
- Strength
- Neurovascular
  - Resisted wrist extension tests radial nerve, Resisted opposition of thumb test median nerve, Resisted digit abduction tests the ulnar nerve
## HISTORY

- Age
- Hand dominance (RHD, LHD)
- Occupation
- CC: pain, weakness, instability, strength
- Location—where is the pain?
- What is the quality of the pain?
- Onset
- Precipitating and alleviating factors
- Associated medical conditions and social history
  - Most importantly smoking!
- Previous treatments: surgeries, medications, PT, injections
- Neurological complaints: numbness, tingling, weakness
SHOULDER DISORDERS BY AGE

• Age 12-30
  • Labral tears
  • Instability
  • Traumatic disorders

• Age 30-50
  • Rotator cuff disease
  • Calcific tendonitis
  • Adhesive capsulitis

• Age 50-90
  • Rotator cuff
    • Tears
    • Impingement
    • Calcific tendonitis
  • Osteoarthritis
  • Adhesive capsulitis
ALGORITHM

  - If Yes, refer for X-ray, A&E, specialist.
  - If No, do they have referred pain?
    - Cervical pathology—degenerative disc disease, costochondritis, cardiac—myocardial ischemia, pericarditis, pulmonary—pneumonia, diaphragmatic irritation—ulcer
  - If No, do they have systemic illness?
    Polymyalgia rheumatica, malignant tumor, brachial neuritis, Herpes Zoster, Paget’s Disease, Fibromyalgia

- If Yes, refer, investigate, treat accordingly

- If No. . . .
## ALGORITHM

### Acute
- Fractures of clavicle, humerus and scapula
- Glenohumeral dislocations
- AC joint sprain separation
- Rotator cuff injury/tear

### Chronic
- Rotator cuff tendonitis (including biceps tendon/bursitis/tears)
- Frozen Shoulder (Adhesive Capsulitis)
- Arthritis of the glenohumeral joint
PHYSICAL EXAMINATION

• Observation/Inspection
  • Erythema
  • Swelling
  • Ecchymosis
  • Deformity
    • Bony or soft tissue
  • Asymmetry
  • Atrophy
SHOULDER AND PHYSICAL EXAM

• Palpation
  • C spine
  • Upper trapezius
  • AC joint
  • Long head of the bicep
  • Greater tuberosity
SHOULDER AND PHYSICAL EXAM

- **Range of Motion**
  - Neck and shoulders
  - Always compare bilaterally
  - Active and passive
  - Forward elevation
  - External rotation
  - Internal rotation with adduction (to vertebral level)
SHOULDER PHYSICAL EXAM
The empty can test should be done with the thumbs pointing up toward the ceiling?

A. True
B. False
ROTATOR CUFF TESTING
What is the name of this useful assessment test?

A. Empty Can test
B. Lachman test
C. Hawkins-Kennedy test
D. Neers test
TESTING

- Active ROM shoulder—flexion, extension, abduction, adduction, external rotation, internal rotation, posterior scratch test (adduction/external rotation) and (adduction/internal rotation)

- Assess strength of rotator cuff muscles—drop arm test—evaluates for supraspinatus muscle tear—abduct shoulder to 90, flex to 30, and point thumbs down—test is + if patient is unable to keep arm up after examiner releases

- Resistance known as Empty Can (Jobe’s test) test evaluates supraspinatus muscle strength—+ result indicates tendonopathy or tear

- Infraspinatus and teres minor muscle strength test—resisted external rotation—pain or weakness + for tendonopathy or tear

- Subscapularis muscle strength test—resisted internal rotation or push off test—adduct arm and internally rotate behind back resist patient’s hand as pushes hand away from back

- Hawkings’ assesses for rotator cuff impingement—stabilize scapula, passively abduct shoulder to 90, flex shoulder to 30, flex elbow to 90 and internally rotate the shoulder—+ if painful . . . Also,

- Neer’s stabilize scapula with thumb pointing down and passively flex arm—+ if painful

- Cross arm flexion test—AC arthritis or subluxation—flex shoulder 90 and adduct across body—+ pain at AC joint.
ROTATOR CUFF TESTING
EXTERNAL ROTATION

• Positive findings: Decreased strength or pain on resisted testing.

• Significant weakness-suprascapular nerve palsy secondary to trauma, ganglion cyst or injury
What shoulder muscle is this test assessing strength of?

A. Infraspinatus and teres minor
B. Pectoralis minor and serratus anterior
C. Supraspinatus and teres minor
D. All of the above
Subscapularis lift-off test

- Evaluates the muscular strength of the subscapularis

- Positive findings: Inability to lift the dorsum of hand off the back
Neer’s Impingement

- Assesses the presence of impingement of the rotator cuff, primarily the supraspinatus, as it passes under the subacromial arch during forward flexion
- Positive findings: Pain in the anterior shoulder or reproduction of the patient’s symptoms
Hawkins Kennedy Impingement Test

• Evaluates impingement of rotator cuff and subacromial bursa.

• Positive findings: Pain in the anterior shoulder or reproduction of the patient’s symptoms with the test.
Rotator cuff disease

- Tendonitis/bursitis
  - Subacromial
  - Supraspinatus

- History:
  - Pain reaching to side and back, overhead
  - Pain sleeping

- Physical exam findings:
  - Little to no weakness
  - + Neer’s Impingement
  - + Hawkins Kennedy
  - + Jobe’s/Empty can
  - + Scapular retraction
Rotator Cuff Disease
Impingement Syndrome

- Treatment
  - NSAID’s
  - Rehabilitation
    - Postural training, periscapular stabilization, strengthening of rotator cuff and scapular muscles
    - Posterior stretching
  - Activity modification
  - Injections
    - Lidocaine + corticosteroid
  - Surgical intervention
CALCIFIC TENDONITIS

- Calcification within rotator cuff tendon supraspinatus
- ACUTE onset, very painful
- Painful arc of motion
- Treatment:
  - NSAID’s
  - Injection
  - PT
  - Surgery
ROTATOR CUFF TEARS

- Follow impingement
- Can start small and progress
- Trauma
- Physical exam findings
  - Weakness
- TREATMENT
- Rehabilitation
- Injections
- Surgery
- Arthroscopic repair
- Not all tears require surgery
Adhesive capsulitis—frozen shoulder

- Painful shoulder
- Restricted ROM
  - Insidious
  - Active and passive
- X-ray is normal
- Shoulder capsule thickens r/t inflammation

Etiology
- Idiopathic
  - Diabetes Mellitus
  - Post traumatic
  - Post surgical

Treatment:
- NSAID’s, PT, intra-articular injection, TIME.
AC SEPARATION

• Various types
• Fall on tip of shoulder
• Possible bony deformity
• Pain on palpation of AC joint
• Pain on cross body adduction
• Differential diagnoses include AC arthropathy, AC osteoarthritis

• Treatment:
  • Sling for comfort
  • NSAID’s
  • PT
  • Surgery in severe cases
LABRAL TEAR

- Shoulder joint
- Labrum
- Scapula
- Humerus

Labral Tear

Labrum
- Close up view
Scapula
Labral Tears
SPEED’S TEST
• Suspected labral tear
• No real reason for acute MRI
• Start PT and NSAID
• If no improvement in 6 weeks obtain MRI
• MRI shows labral tear
Glenohumeral Osteoarthritis

- Degenerative process
- Progressive pain
- Limitation in ROM
  - Active and passive
  - Forward elevation
  - External rotation
  - Internal rotation
  - Abduction
- Treatment:
  - NSAID’s
  - PT
  - Injections
  - Surgery—joint replacement
SUMMARY

• With careful history and physical examination the diagnosis can be made in most cases . . . not everyone needs an MRI.

• MRI if suspected large rotator cuff tear, or in patients who fail to progress with other treatment.

• Never too much of a downside to giving someone 1-2 weeks of therapy or rest and re-examining the shoulder.

• At least from a surgeon standpoint . . .
  • Immediate MRI in everyone with work injury may lead to incidental findings
    • i.e. ‘What am I supposed to do with this information?’
Keep in Mind . . .

- Thoracic outlet syndrome
- Additional labral tear tests
- Spurling’s for cervical root impingement
- Glenohumeral joint sulcus
- Impingement signs
CASE STUDY

- 38 yo female right shoulder pain worsening 3 weeks after starting CrossFit program with heavy lifting. Pain began 2/10 and has progressed to 7/10. Pain comes and goes with overhead and cross body reach.

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THANK YOU