

ESP Clinics - An Approach to Shoulder Pain

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Objectives:

- Formulate the key questions leading to the proper diagnosis
- Examine the shoulder
- Define the main investigative modalities
- Treat the problem, including injection techniques

History

- Is the key!
- Each question should have specific purpose that affects decision-making
- **7 “Questions”**
- **Question 1: Demographics** (Age, Handedness, Occupation) – How old are you? What hand do you write with? What do you do for a living?
- **Question 2: Duration/Onset/Trauma** – When did the pain start? What were you doing? Has the pain gotten worse or better? (Acute, Chronic, Gradual, Progressive)
- *****Question 3: Location** - Point with 1 finger where the pain is the worst?
- **Question 4: Severity** - Does the pain keep you up at night? What % of normal is your shoulder?
- **Question 5: Precipitating factors** – What activities make your pain worse? What activities are you unable to do because of the pain?
- **Question 6: Treatment** – Have you had any treatment? – NSAIDs, Physio, Injection
- **Question 7: Associated symptoms** – Do you have any numbness or tingling in your hand or neck pain?

Physical Examination

Inspection

Palpation – SC, Clavicle, ACJ, posterolateral acromion, greater tuberosity, biceps

ROM

- Active – Forward flexion, Abduction, External rotation, Internal rotation
- Passive
- Place hand on shoulder w passive ROM – crepitus

Strength – Supraspinatus, Infraspinatus/Teres, Subscapularis, Deltoid

Special tests

- Impingement – Neer/Hawkins
- Biceps – Speed
- Labral – O’Briens
- Instability - Apprehension/Relocation

Neurovascular exam

Neck – ROM, lateral flexion w extension

Shoulder Imaging

Plain Xrays

- Always with trauma – bony Bankart, greater tuberosity avulsion, dislocation, fracture
- **Always obtain Axillary view**
- AP – separate IR/ER views can be helpful
- Axillary view – rule out bony Bankart, posterior dislocation
- Transcapular Y view

U/S – usefulness dependent on ultrasonographer

MRI – best for workup if fail appropriate conservative treatment

When to refer for orthopaedic assessment?

Acute:

- Fractures or dislocation of glenohumeral joint
- AC joint separations with visible deformity
- Acute traumatic rotator cuff avulsion – Fall/Unable to lift arm/No fracture/Reassess at 3 – 6 weeks shows no improvement

Chronic:

- Subacromial impingement w failure of conservative treatment – 3- 6 months, cortisone injection, functional limitations, night pain
- Full thickness rotator cuff tears in young patients (age < 60 yo?)
- Recurrent shoulder instability
- Glenohumeral joint OA – night pain and functional limitations
- Adhesive capsulitis – severe restriction and functional limitations/prolonged course
- Labral tear – Failure of physiotherapy, posterior capsule stretching and activity modification

Case Vignette One

A 48 year old right-handed woman who works as a golf instructor presents with a six month history of left-sided shoulder pain of increasing frequency and severity. It is sharp in nature, exacerbated by abduction or internal rotation of the left shoulder and by laying on her left side. No significant weakness, numbness, or popping sensation in the shoulder. Multiple nonsteroidal analgesics have provided insufficient pain relief.

Past Medical History

- a) Medical - hypertension
- b) Surgical - none
- c) Activities - golf seven days per week as well as tennis twice a week
- d) Injuries - none to neck or shoulders

Physical Examination

Neck: full range of motion; compression test negative

Shoulder:

- a) palpation - tenderness over the left subacromial/tuberosity area
- b) range of motion – active abduction to 90 degrees, flexion to 100 degrees, internal rotation in abduction to vertebral process L1, external rotation normal
- c) impingement signs - forced forward flexion in internal rotation (Neer's impingement sign) and forced internal rotation with the arm in forward flexion (Hawkin's impingement sign) are positive
- d) drop arm sign is negative
- e) tests for instability and further examination are unremarkable

Q1) What is your differential diagnosis?

Q2) What imaging study/studies, if any, would you order?

Q3) How would you treat this patient?

Case Vignette Two

The patient is a 28 year old right-hand dominant gentleman c/o right shoulder pain for two months. The discomfort was initially noted only with certain activities such as pitching for an amateur baseball league but is now more frequent. The pain is anterior and sharp. He denies any history of trauma or dislocation. However, his right shoulder does feel "loose". He denies any weakness nor sensory change. Overhead activity does exacerbate the pain as does the cocking phase of pitching. He has used nonsteroidal analgesics without relief.

Past Medical History

None

Physical Examination

The AC joint is nontender

Shoulder: Active range of motion reveals forward flexion to 160 degrees. He is also limited in external rotation in abduction. However, he has full passive range of motion.

Specific Maneuvers: Negative impingement and Jobe's sign.

O'Brien test positive

Positive anterior apprehension test as well as relocation test.

Q1) What is your differential diagnosis?

Q2) What imaging tests, if any, will you order?

Q3) How will you treat him?

Conservative Management of the Shoulder Impingement Syndrome

Nonsurgical treatment is initially indicated in the vast majority of cases of shoulder pain thought to be caused by this syndrome. An exception to this would be in the patient who is found to have a massive rotator cuff avulsion, in which case prompt surgical intervention may improve clinical outcome.

Steps of Treatment

- 1) Attempt to identify and avoid aggravating factors
- 2) Rest BUT continue ROM exercises to avoid stiffness
- 3) Consider nonsteroidal anti-inflammatory medication.
 - Some patients will respond to this class of medication; although data from prospective, randomized, double-blind trials are sparse
- 4) Consider subacromial bursa corticosteroid injection
 - Commonly used modality of treatment
 - A paucity of literature supporting or refuting the efficacy and safety of this treatment modality exists
 - It may be useful in confirming the diagnosis as well as in treating the pain
 - The choice of steroid used for injection is subjective. There is little evidence supporting the clinical superiority of a particular steroid brand or mixture. At UHN Depomedrol 40 or 80 mg/mL is frequently used.

Tips in Performing Injection

- a) Make an accurate clinical diagnosis with reasonable certainty prior to injection.
- b) Obtain adequate informed consent.
- c) Be familiar with and be able to locate the appropriate anatomical landmarks on the patient.
- d) Adhere to strict, sterile technique

Needed Materials

- a) needle: 21 gauge
- b) 10 mL syringe
- c) corticosteroid (1 mL of 80 mg/mL Depomedrol)
- d) local anesthetic (10 mL of 2% lidocaine without epinephrine. Be sure the patient has no allergy to this type of medication)
- e) sterile gloves

Steps

- a) Position patient with arm hanging loosely at side.
- b) Sterilize area of skin overlying the entire shoulder area with alcohol (if not allergic).
- c) Draw up 10 mL of 2% lidocaine without epinephrine and chosen corticosteroid agent into syringe.
- d) Locate the posterolateral or mid-lateral edge of the acromion and insert needle approximately one centimeter inferior to the edge.
Do not forcefully inject, significant resistance may mean that the needle is not located

within the bursa and needs to be redirected.

e) Apply bandaid and reassess patient's shoulder pain and range of motion after several minutes. Pain should be improved if subacromial problem. Document extent of improvement.

f) Counsel patient to avoid rigorous overhead lifting for 2 weeks after injection and prescribe range of motion exercises.

Home Exercises/Physical Therapy

- Exercise therapy is a cornerstone of treatment
- Evidence supporting or refuting the efficacy of formal physical therapy treatment programs is sparse. However, physical therapy is often thought to be a beneficial modality of treatment and is widely prescribed.
- Overall goals: minimize pain, optimize range of motion/functional capacity.

Phase 1 - Goals are to decrease pain and optimize range of motion.

a) Codman's pendulum exercises

Patient flexes 90 degrees at waist and swings arm like a pendulum, progressing to marking out full circles as tolerated.

b) Wand exercises

Passive flexion, abduction, external and internal rotation are performed utilizing a wand. Gradually increase passive range of motion as tolerated. A two week trial seems reasonable.

Phase 2 - Goal is to strengthen a) the rotator cuff and three parts of the deltoid, and b) rotators of the scapula.

a) Rotator cuff/deltoid elastic tubing exercises

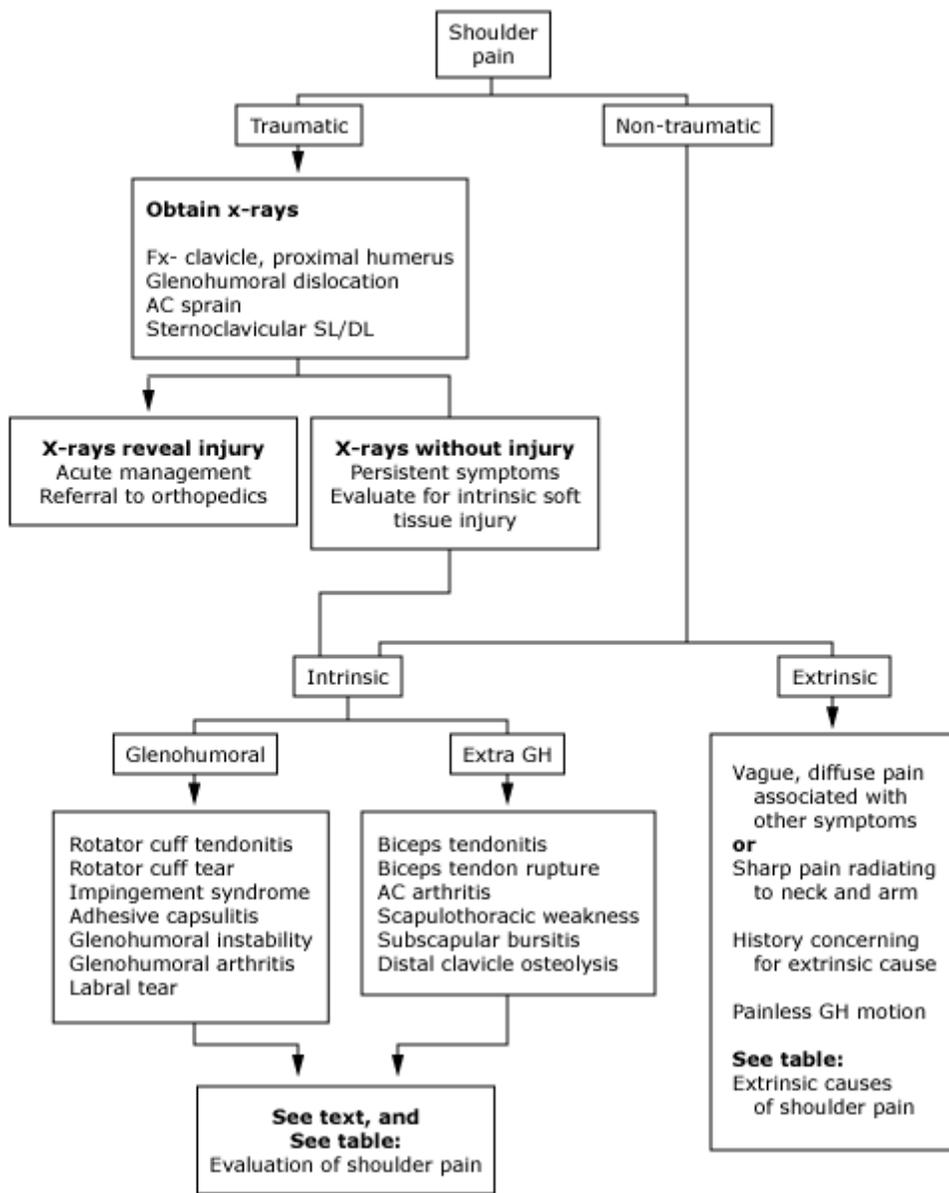
Elbow flexed at 90 degrees with arm adducted against body

- 1) external rotation
- 2) abduction
- 3) extension
- 4) internal rotation
- 5) flexion

b) Scapular stabilizing exercises

- 1) shoulder shrug- for trapezius
- 2) wall push-ups- for serratus anterior

Phase 3 - Gradual return to work/sports



From Uptodate: Evaluation of the patient with shoulder complaints

- Step 1: Traumatic vs Nontraumatic
- Step 2: Intrinsic vs Extrinsic
- Step 3: Glenohumeral vs Extra Glenohumeral
- Step 4: Differentiate glenohumeral pathology