

Chronic Shoulder Pain: From A to Z



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Chronic shoulder pain is a term that refers to pain that occurs for a duration longer than four to six months. The three most common conditions that lead to chronic pain in the shoulder are:

- rotator cuff disease (from tendonitis to full tears),
- frozen shoulder and
- shoulder arthritis.

Rotator cuff tears

A history of a shoulder injury may lead to tears in the rotator cuff. However, most rotator cuff tears are degenerative in nature and occur more commonly later in life.¹ Not all rotator cuff tears are symptomatic. Common symptoms include:

- nocturnal pain,
- pain with elevation of the arm above shoulder level and
- weakness if the rotator cuff tear is extensive.

Physical examination

The physical examination should include assessment of tenderness, which includes the subacromial space and the biceps tendon. Concomitant pathology in the acromioclavicular (AC) joint may also occur and manifests as

Garry's case

Garry, 55, presents with a 3 month history of shoulder pain. He works as a master plasterer which requires overhead use of the arm. He complains of pain off the cap of the shoulder.

History

Garry complains of pain that occurs primarily over the lateral aspect of the shoulder, near the deltoid insertion. The pain is worse with overhead use, although it also occurs nocturnally. He has had little relief with acetaminophen.

Physical examination

An examination of the cervical spine reveals a full, pain-free range of motion. The neurological examination is normal.

The shoulder lacks 15° in active forward elevation compared with the contralateral side. Strength is well preserved, except in the supraspinatus, which is painful to testing and weaker than the normal side. Impingement tests are positive.

Diagnosis

An ultrasound confirms the presence of a full thickness tear of the supraspinatus tendon.

Initial treatment consists of anti-inflammatory modalities and short-term avoidance of overhead activities. A cortisone injection is also administered.

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pain and tenderness over the AC joint. Range of motion is sometimes restricted, typically in

forward elevation. This is due to associated capsulitis. The most reliable method to examine for capsulitis and subtle loss of forward elevation is to test the patient in the supine position. Impingement signs are often present. Jobe's sign ("empty can test") is positive if a significant full thickness supraspinatus tear is present. Tears that involve the infraspinatus will result in weakness in external rotation testing and subscapularis tears will result in weakness with the belly-press and liftoff tests. Wasting of the rotator cuff musculature posteriorly may be present in patients with large, chronic tears.

X-rays may reveal superior migration of the humeral head if the disease process is advanced. This constellation of symptoms should warrant imaging studies of the rotator cuff.

Ultrasound is the most cost-effective modality to detect rotator cuff tears. The degree of pathology ranges from tendinosis of the rotator cuff with bursitis, to partial tears, to full thickness tears. It is often difficult to distinguish tendinosis from partial thickness tears with history and physical examination alone.

Treatment approach for rotator cuff disease

Education

Educate the patient about cuff disease, the nature of the problem and its prevalence in the population. In elderly patients with large rotator cuff tears (age > 70 years), symptoms may be managed by avoidance of overhead use of the arm and avoidance of lifting.

Anti-inflammatory medication

Anti-inflammatory medication may help to alleviate the symptoms of rotator cuff pathology.

Garry's case cont'd...

Follow-up

A follow-up of Garry's case 6 weeks and then again 3 months later reveals that although he has improved in the short-term, resumption of overhead activities leads to a flare-up in symptoms.

A discussion is held concerning the potential benefits of a surgical repair of the rotator cuff, through a referral to an orthopedic surgeon. Rotator cuff repair can be carried out by arthroscopic or open technique. Following surgery, the arm is usually protected in a sling for 4 to 6 weeks. Total recovery time, including complete pain relief, recovery of range of motion and strength, usually takes 4 to 6 months.

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Cortisone use

Cortisone (methylprednisolone 1 ml of 40 mg/ml with lidocaine 1%, 5 ml to 7 ml) infiltration into the subacromial space may be used a maximum of three times annually. The typical technique involves a posterior injection site with the needle entering 2 cm below and 1 cm medial to the postero-lateral corner of the acromion. The needle is directed just below the posterior acromion.

Physiotherapy

Physiotherapy has been shown to be useful for the treatment of associated capsulitis (stiffness in the shoulder due to capsule-derived pain that often accompanies cuff pathology). Range of motion exercises in the forward plane, with the assistance of the contralateral arm, can help relieve pain associated with capsulitis. Stretching should be done at least twice daily and patients may benefit from supervision by a physiotherapist.

The three most common conditions that lead to chronic pain in the shoulder are rotator cuff disease, frozen shoulder and shoulder arthritis.

Referral to a surgeon

Consider referral to an orthopedic surgeon if symptoms fail to improve after four months. Surgical options for treatment of cuff disease are generally very effective if non-operative modalities fail. There are two situations that require urgent referral. The first is in the setting of a traumatic rotator cuff tear. Early repair is

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preferable from a technical standpoint and post-surgical rehabilitation is often easier for the patient. The second situation is with the occurrence of a chronic, two-tendon tear. Tears that involve the antero-superior aspect of the rotator cuff (subscapularis and supraspinatus) or postero-superior cuff (supraspinatus and infraspinatus) retract more quickly and undergo fatty infiltration of the muscle bellies at an accelerated rate. For these reasons, success repair is dependant on timely surgical referral and treatment.

Frozen shoulder

Frozen shoulder is a condition that occurs most commonly in women in the fourth and fifth decade of life, in patients with diabetes mellitus and in patients with thyroid disorders (hypothyroidism).² In the worst cases, the syndrome can persist for 24 months. Onset is usually insidious. The first phase (“freezing”) is characterized by pain that occurs globally in the shoulder and is accompanied by progressive stiffness. The pain is described as “achy” at rest and sharp with motion. Sleep disturbances may occur. Range of motion is globally limited and only partially relieved with injection of local anesthetic. The stiffness is due to a global decrease in capsular volume.

The second phase (“frozen”) is characterized by persistence of stiffness with minimal pain at night or at rest. There is a rigid end-point on capsular stress. Symptoms have been present for approximately nine to 15 months.

Typically, in the third phase (“thawing”) patients slowly regain motion if appropriate treatment is instituted. The capsular changes revert to normal and the symptoms slowly improve. There is minimal pain in the third phase. Plain x-rays are normal in frozen shoulder. If weakness accompanies the symptoms, associated tears of the rotator cuff should be sought.

Treatment approach for frozen shoulder

Education

In the first phase, educate the patient on positioning and avoidance of pain. Treatment is directed at interruption of the cycle of inflammation and pain through activity modification and pharmacotherapy. Symptoms in the first phase can be minimized by avoidance of motion past the pain-free range and avoidance of a stretching program.

Anti-inflammatory medication and cortisone

Anti-inflammatory medication and Cortisone (see above under “treatment for cuff disease”) may be helpful in all stages of the disease.

Physiotherapy

Physiotherapy or a self-directed stretching program have both been shown to be effective, particularly in Stage 2 or higher of the disease, since the first phase is usually too painful to allow improvement in range of motion.

Referral to a surgeon

Consider referral to an orthopedic surgeon if range of motion fails to progress during the latter stages. Options for surgical intervention include:

- manipulation under anesthesia,
- arthroscopic capsular release and
- open surgical release.

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Glenohumeral Arthritis

Glenohumeral arthritis is characterized by pain and loss of function, which is refractory to rest, anti-inflammatory medications and exercise.³ Systemic or polyarticular manifestations of infection, degenerative joint disease or rheumatoid arthritis should be sought. A past history of steroid medication or fracture may suggest the possibility of avascular necrosis. Past surgery or a history of instability suggest the possibility of capsulorrhaphy arthropathy or arthritis of instability.

The shoulder becomes stiff and painful, often throughout the arc of motion and this is accompanied by moderate muscle wasting and crepitus with joint motion. Internal rotation is frequently the first to be affected although motion is globally affected in the latter stages of the disease. Symptoms typically wax and wane but the natural history of one of slowly worsening

Take-home message

- In the treatment of rotator cuff disease, physical therapy should be directed at re-establishing range of motion and NSAIDs and cortisone are effective at relieving pain. Patients with traumatic tears, or large tears that involve 2 tendons should be seen in consultation by an orthopedic surgeon on an urgent basis.
- Frozen shoulder treatment is directed at relief of pain through activity modification and pharmacotherapy in the early phases. Physical therapy is most effective after the first phase
- Arthritis of the shoulder is generally unresponsive to medical treatment. Early arthritis can be managed with anti-inflammatory modalities but joint replacement may be considered when medical therapy fails

and progressive stiffness. The rotator cuff is usually not affected in patients with osteoarthritis of the shoulder. X-rays reveal loss of joint space, osteophytes and subchondral sclerosis.

Treatment approach for osteoarthritis of the shoulder

The following lists possible treatment approaches for arthritis of the shoulder.


Education and treatment

Educate the patient in regards to the natural history of the disease. The first-line of treatment for patients with osteoarthritis of the shoulder is anti-inflammatory medication and cortisone (see above under “treatment for cuff disease”).

Physiotherapy

Physiotherapy should be directed at gentle maintenance of range of motion, always within the pain-free range. Isometric strengthening exercises may also be beneficial.

Referral to a surgeon

Consider referral to an orthopedic surgeon if symptoms progress and pain is not well controlled with oral analgesics. Shoulder replacement is a very effective treatment for pain relief and has been shown to improve patients’ quality of life as effectively as total hip and total knee replacement. 

References

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