

ENTITLEMENT ELIGIBILITY GUIDELINES
ROTATOR CUFF DISEASE
Also known as Rotator Cuff Syndrome

MPC 01319
ICD-9 726.1

DEFINITION

Rotator Cuff Disease is a disorder of the musculotendinous cuff surrounding the glenohumeral joint (see Anatomy and Physiology).

Please note: Entitlement should be granted for a chronic condition only. For VAC purposes, “chronic” means that the condition has existed for at least 6 months. Signs and symptoms are generally expected to persist despite medical attention, although they may wax and wane over the 6 month period and thereafter.

DIAGNOSTIC STANDARD

A diagnosis from a qualified medical practitioner is required. Radiographic changes are dependant upon the stage of the disease, with most changes occurring in advanced stages. Standard x-rays may be routinely obtained to rule out other disease processes. Electromyography, arthrography, shoulder arthroscopy or MRI tests may be required.

For pension purposes, location must be specified as to right or left, and evidence of duration of a disability for at least 6 months should be provided.

ANATOMY AND PHYSIOLOGY

The chief muscles producing glenohumeral joint motion are the deltoid, pectoralis major and minor, teres major, latissimus dorsi and those of the rotator cuff. All rotation comes through the glenohumeral joint. The predominant stability in this joint occurs from the centering effect provided by the musculotendinous or rotator cuff. The rotator cuff muscles consist of the subscapularis, the supraspinatus, the infraspinatus, and the teres minor.

The rotator cuff is regarded as having the following three functions:

- rotation of the humeral head as the deltoid muscle elevates the arm

- stabilization of the humeral head against the glenoid
- provision of a relatively watertight compartment

The rotator cuff is usually covered by a thin film of bursal tissue, i.e. the subdeltoid or subacromial bursae. Factors that impact on the rotator cuff also impact on the bursae, and inflammation of both structures often occurs together.

Rotator Cuff Disease is a continuum of pathology starting with inflammatory changes in the subacromial bursa and rotator cuff tendons, which may continue on to become a rotator cuff tendon rupture or tear. The supraspinatus insertion into the greater tuberosity passes directly between the coracoacromial arch when the upper extremity is elevated to the overhead position. The area beneath the coracoacromial arch is known as the supraspinatus outlet. If the rotator cuff insertion impinges or abuts against the coracoacromial arch on a chronic basis, as may occur in overhead labourers, the structures in the supraspinatus outlet (i.e. the bursae, rotator cuff and biceps) may become inflamed. This cumulative soft tissue trauma can eventually result in pain and/or dysfunction and is called *subacromial impingement*.

Subacromial impingement has been classified into the following three stages:

- Stage 1 - Where the microtraumatic process is sufficient to produce edema and hemorrhage in the subacromial bursa and supraspinatus tendon.
- Stage 2 - Where the edema and hemorrhage go unchecked and progress to result in fibrosis and tendinitis at the distal supraspinatus tendon.
- Stage 3 - Where the rotator cuff tendon reaches a point of failure and results in a rotator cuff tear.

CLINICAL FEATURES

The affected individual may have weakness, pain, and tenderness, and may have limited ranges of shoulder abduction and external rotation.

Pain is the most consistent symptom. It is generally present at the greater tuberosity and anterior acromion. It can extend into the deltoid muscle. It may also be referred to the elbow, chest wall, or trapezius muscle. Pain may also affect the acromioclavicular joint (AC joint), if the joint is arthritic or involved in the impingement process. Weakness and loss of function may be secondary to pain, or to stage 3 disease where a rotator cuff tear is present.

There may be tenderness at the greater tuberosity and anterior acromion, and at the AC joint and biceps tendon if the latter are involved in the impingement process.

A positive arc-of-motion test may be present. Forward flexion of the shoulder to 90 degrees with internal rotation of the humerus, called *Hawkins'* impingement sign, reproduces pain. Muscle of the affected arm may be normal or mildly diminished. X-rays may show calcific deposits of the rotator cuff tendons.

It should be noted that while calcification of the rotator cuff is often seen in association with Rotator Cuff Disease, its role in the etiology of the disease is not known. Calcification is not felt to contribute to the development of Rotator Cuff Disease.

PENSION CONSIDERATIONS

A. CAUSES AND/OR AGGRAVATION

THE TIMELINES CITED BELOW ARE NOT BINDING. EACH CASE SHOULD BE ADJUDICATED ON THE EVIDENCE PROVIDED AND ITS OWN MERITS.

1. Overuse prior to clinical onset or aggravation

For overuse to cause or aggravate Rotator Cuff Disease, the following should be evident:*

The overuse activity should be performed for at least 60 days out of 120 consecutive days; *and*

Signs/symptoms should begin during the overuse activity, or within 30 days of cessation of the activity; *and*

Signs/symptoms should be ongoing or recurrent for at least 6 months to be considered “chronic” for pension purposes.

**The definitions and criteria apply to a normal joint. The total time per day or total number of days required to qualify as overuse may be less when the joint is abnormal or where other pertinent circumstances exist. To illustrate:*

1) A combination of relevant factors (where only 1 factor is required for overuse) may reduce the total time per day required to qualify as overuse, e.g. activity involving both high repetition and extreme posture as defined may require performance of the overuse activity less than 2 hours per day, OR activity involving extreme posture as defined and a level of high repetition which is in excess of the definition (e.g. 10 times per minute) may require performance of the overuse activity less than 2 hours per day.

2) A combination of one or more relevant factors performed to excess for more than 2 hours per day may reduce the total number of days required to qualify as overuse, e.g. activity of high repetition in the order of 10 times per minute performed 4 hours per day may require performance of the overuse activity for less than 60 out of 120 consecutive days.

Overuse means high repetition and/or extreme posture of the soft tissues at or above the shoulder joint for a substantial part of the day prior to clinical onset or aggravation.

High repetition means actions performed more than 2 to 4 times a minute, of cycles less than 30 seconds.

Extreme posture means over half of range of movement of the shoulder joint.

Substantial part of the day means for a total of 2 hours or more per day.

Determination of a service-relationship for an overuse syndrome will generally depend on whether the overuse factors can be seen to have arisen out of or to be directly connected with the performance of military duties.

Repetition that causes or aggravates rotator cuff tendinitis involves cyclical flexion, extension, abduction, or rotation of the shoulder joint.

Occupations at risk for rotator cuff tendinitis include automobile exhaust system repair, plumbing, mechanical maintenance, construction work, factory and assembly line work, poultry processors, riveters, welders, mail carriers, telephone operators, grocery store checkers, garment workers, orchard workers, and dentists.

Activities at risk for rotator cuff tendinitis include baseball, weight lifting, racquet sports, and swimming freestyle, butterfly or backstroke.

Repetition that causes or aggravates subacromial bursitis includes repetitive use of the upper extremity with shoulder movement and, in particular, overhead work.

Repetition that causes or aggravates bicipital bursitis includes highly repetitive use requiring movement of the shoulder, and sustained shoulder postures, especially in flexion and abduction.

Occupations at risk for bicipital bursitis include assembly of heavy equipment, red-meat slaughterhouse work, farm work or harvesting, manufacturing, assembly line work, and grocery store checking.

2. Specific trauma prior to clinical onset or aggravation

For specific trauma to cause or aggravate Rotator Cuff Disease, the following should be evident:

Within 24 hours of the injury, development of tenderness, pain, swelling, discoloration, or altered mobility, or any other pertinent sign or symptom, should occur in the area of the shoulder joint; *and*

Signs/symptoms should recur, either continuously or intermittently, from the time of the specific trauma to the time of diagnosis.

Specific trauma is physical injury to the soft tissue around the shoulder joint occurring prior to onset or aggravation of Rotator Cuff Disease.

3. Daily use of upper limbs in the transfer of body weight for at least one year prior to clinical onset or aggravation

Overuse injuries of the rotator cuff may be caused or aggravated when individuals use their upper limbs to transfer body weight (e.g. from a wheelchair to a bed due to a permanent inability to use the lower limbs).

4. Suffering from the systemic diseases of Rheumatoid Arthritis or Systemic Lupus Erythematosus or Diabetes Mellitus prior to the clinical onset or aggravation

Spontaneous tear of the rotator cuff may occur in persons with Rheumatoid Arthritis or Systemic Lupus Erythematosus as part of the pathological process with invasion from underlying pannus.

Diabetes Mellitus has been shown to be epidemiologically significant; the cause is thought to be multifactorial.

5. Undergoing hemodialysis treatment prior to clinical onset or aggravation

Persons receiving maintenance hemodialysis can develop dialysis arthropathy as a complication of dialysis. The shoulder is the most common joint affected.

For hemodialysis treatment to cause or aggravate Rotator Cuff Disease, it should have occurred for a period of at least one year immediately prior to clinical onset or aggravation of Rotator Cuff Disease.

6. Suffering from bacterial infection in the form of bursitis or cellulitis of the glenohumeral joint of the shoulder prior to clinical onset or aggravation

7. Suffering from excess laxity of the glenohumeral joint of the shoulder prior to clinical onset or aggravation

Excess laxity can result in at least partial dislocation and may result from, for example, shoulder dislocations, and weakness of muscles which stabilize the shoulder joint.

For excess laxity to cause or aggravate Rotator Cuff Disease, it should have occurred for a period of at least one year immediately prior to clinical onset or aggravation of Rotator Cuff Disease.

8. Acquiring an anatomical narrowing of the subacromial space on the affected side prior to clinical onset or aggravation

An “*anatomical narrowing of the subacromial space*” is a narrowing between the acromion and upper end of the humerus. This may occur as the result of malunion following acromial or humeral greater tuberosity fractures or from osteophytes which project into the subacromial space.

For anatomical narrowing of the subacromial space to cause or aggravate Rotator Cuff Disease, it should have occurred for a continuous period of at least three months immediately prior to clinical onset or aggravation of Rotator Cuff Disease.

9. Inability to obtain appropriate clinical management

B. MEDICAL CONDITIONS WHICH ARE TO BE INCLUDED IN ENTITLEMENT/ASSESSMENT

Any accompanying soft tissue pathology surrounding the glenohumeral joint including but not limited to:

- Impingement syndrome
- Calcific tendinitis
- Adhesive capsulitis
- Subacromial bursitis
- Supraspinatus tendonitis
- Bicipital tendonitis

Pathology of the acromioclavicular joint is excluded.

C. COMMON MEDICAL CONDITIONS WHICH MAY RESULT IN WHOLE OR IN PART FROM ALL FORMS OF ROTATOR CUFF DISEASE AND/OR ITS TREATMENT

REFERENCES FOR ROTATOR CUFF DISEASE

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