**Rotator cuff injury** (including Rotator Cuff Tendinopathy, Partial and Full Rotator Cuff Tears) incorporates the full spectrum from injury to tendinopathy to partial tears, and finally complete tears. These injuries are commonly encountered and increase in incidence with increasing age. Rotator cuff injury is the most common treated tendon injury. (May T, 2023)

## History

**Shoulder Pain**

- The history of rotator cuff disease starts with pain and shoulder weakness. Pain can be acute from a traumatic event, or gradual and steadily increasing.
- Active individuals often present when the complaint interferes with sporting activities, or work. Athletes may try to adapt or alter their biomechanics and seek care when they can no longer adapt.
- Depending on patient presentation, tendinopathy can range from tendinitis, tendinosis, partial tear or a complete tear.
- Partial tears are at risk for progression (Codding, 2018). Risk factors include tear size, symptoms, location, and age. A small tear may remain dormant, while larger tears are more likely to undergo structural deterioration and complete failure.
- Patients usually report increasing pain and difficulty with overhead activity that require rotator function. Shoulder pain may be noted when lifting or carrying heavy objects.
- Rotator cuff pain most commonly refers to the area of the deltoid.
- Younger patients commonly have overuse problems, older patients often have degenerative (osteoarthritis) as a contributing factor (Lazarides et. al. 2015).
- Age is a common factor for predicting rotator cuff disease, which is considered a progressive degenerative disease. (Dang A, 2018)
- Acute tears happen in younger patients; degenerative tears occur in older patients.
- Poor posture is a predictor of rotator cuff disease. (Sambandam SN, et. al. 2015)
- Other risk factors include trauma, hypercholesterolemia, and occupations or activities requiring significant overhead activity.
- Subdeltoid pain is a hallmark, pain radiating below the elbow is rare.

## Physical Examination Findings

Physical examination of rotator cuff injury is useful when incorporating the history. RC injury may be associated with other shoulder pathologies (Impingement, Labral Tears, Instability) (Hegedus et. al. 2012).

**Observation/Posture**

- Usually unremarkable, unless associated with a traumatic injury (Dislocation) but may observe anterior head carriage and rounded shoulders. Swelling is an atypical finding.

**AROM**

- Rotator cuff pathology usually causes pain in the abduction or flexion range of motion (commonly called a painful arc).
- Scapulothoracic motion should also be evaluated for scapular dyskinesis.
- The longer the pain has been present, the more likely patients will develop scapular dyskinesis.
- When dyskinesis is present, scapular motion initiates well before the arm reaches 90 degrees of abduction.

**Palpation**

- Upon inspection, muscle atrophy may be visible in the supraspinatus or infraspinatus fossa of the scapula (Hsu et. al. 2015).
- Shoulder tenderness is usually and may be noted esp. around on the greater tuberosity at the insertion of the subscapularis, supraspinatus, infraspinatus, and teres minor.
- Painful joint play may be noted with glenohumeral internal and external rotation, but pain is usually poorly localized.

**Rotator Cuff Injury Orthopedics:**

- Muscle testing of the rotator cuff muscles is an important component of the examination.
- Codman's Drop Arm (associated with full thickness tears, esp. supraspinatus)
- Empty can/Full can
- Belly Press test and Hug Test (Subscapularis)
- Resisted external/internal rotation Teres press test
- Lift Off Test (Subscapularis)

## Ancillary Tests

- The role of imaging is to provide structural information and influence therapeutic decision-making.
- There are three typical options when evaluating Rotator Cuff Injuries: X-Ray, Diagnostic MSK Ultrasound, and MRI/MR Anthography.
- X-Rays are the first imaging approach using a four view series (AP/True AP (Grashey)/Scapular Y (lateral) and Axillary) (Hsu et al. 2015
- Diagnostic MSK Ultrasound is also useful for evaluating the rotator cuff. (O'Kane, 2014).
- MRI remains the gold standard imaging choice. MRI demonstrates soft tissue injuries, identifies tear size, location, retraction, changes in tendon and muscle changes along with degenerative changes and helps to R/O other associated shoulder pathologies (Sambandam et al. 2015)
- Laboratory studies are not useful.

## Treatment Options

- The care emphasizes decreasing pain and improving function by increasing pain free active range of motion, increasing muscular strength, improved shoulder segmental motion, and reducing mechanical faults.
- Treatment depends on several factors including the degree of the tear, patient age, functional demands, and if the tear is acute or chronic.
- Patients < 40 with complete tears should receive an orthopedic consult followed by appropriate rehabilitation (Lazarides et. al. 2015) Delay in orthopedic referral for a younger patient decreases patient surgical outcomes because of soft tissue degeneration.
- Asymptomatic tears are always nonoperative lesions, use conservative care management.
- Newly diagnosed, symptomatic rotator cuff tears should start with active care to address both core and rotator cuff strengthening.
- Patients who fail to improve within 1-2 weeks should be imaged and/or referred.

**Manual Therapy**

- Shoulder manipulation/mobilization may be used with caution in patients with acute tears. It is possible to increase the tear with manipulation of the shoulder. Soft tissue techniques should be incorporated (PIR, Pin and Stretch, Ischemic Compression)

**Exercise**

- Exercise interventions begin within maintaining and increasing the pain free range of motion (Codman arm swings, broomstick exercises, and wall walk/table walks), and active assisted ROM exercises.
- Shoulder isometrics are useful (internal rotation, external rotation, flexion, extension, adduction, and abduction) along with scapular stability programming.
- As pain range of motion increases and pain decreases, incorporating free weight and work/sport specific exercises are added.

**Activity Modification**

- Avoid painful motions which exacerbate the symptoms.
- Focus on staying within a pain free zone.
- Maintain joint ROM.

**Common Treatment Duration**

- 6-12 weeks

**Other options**

- Low level laser
- Pharmaceuticals: NSAID's
- Corticosteroid injections
- Surgery
- Acupuncture/dry needling

## Potential ICD 10 Codes

- **M75.1** = Rotator Cuff Tear
- **M75.102** = Rotator Cuff Tendinitis
- **M75.100** = Rotator Cuff Pain

## DDX List for this Condition

- Labral Tear
- Acromioclavicular Osteoarthritis
- Scapular dyskinesis
- Cervical Radiculopathy
- Shoulder Impingement
- Biceps Tendinitis
- Calcific Tendinitis

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