ROTATOR CUFF TEAR
See also: Rotator Cuff Injuries
See also: Rotator Cuff Tendonitis
See also: Shoulder Physical Exam in Athletes
See also: Shoulder Rehabilitation

Background
1. Definition: partial or complete tear of one or more of the following musculotendinous bundles, which comprise the rotator cuff:
   - Supraspinatus
     - Most common
   - Infraspinatus
   - Subscapularis
   - Teres minor

Pathophysiology
1. Extrinsic Causes: Traumatic tear in tendon
   - Falls, accidents, acute injuries
   - Overuse injuries-repetitive lifting, throwing, pushing, or pulling
2. Intrinsic Causes
   - Poor blood supply
   - Normal attrition
   - Calcific invasion of tendons
   - Degenerative changes
     - Acromioclavicular joint arthritis with spurring
     - Anatomic variant of acromion (Type 3)
3. Annual incidence of shoulder pain is 10 per 1000 population
   - Third most common musculoskeletal complaint behind lumbar and cervical pain
4. Risk Factors: Sports with overhead activity
   - Baseball, softball, volleyball, tennis, swimming
   - Age >40
   - Painters (overhead motion)
   - Narrow acromioclavicular arch
   - Heavy lifting
   - Improper rehabilitation from previous injury
5. Morbidity: cuff arthropathy develops in approximately 4%

Diagnostics
1. History
   - Age
   - Sport
   - Activity
   - Work
   - Acute/chronic
   - Location
   - Radiation
   - Duration
   - Limitations
2. Physical exam
   o Inspection
     ▪ Atrophy of muscles-supraspinatus, infraspinatus, deltoid, trapezius
     ▪ Ecchymosis, swelling
   o Palpation
     ▪ AC joint
     ▪ Biceps tendon
     ▪ Subacromial bursa
     ▪ Cervical vertebrae
     ▪ Clavicle
     ▪ Acromion
     ▪ Humerus
     ▪ Supraspinatus, infraspinatus, deltoid
   o Range of motion: Passive and active
     ▪ Internal Rotation
       • Tests subscapularis
     ▪ External Rotation
       • Tests teres minor and infraspinatus
   o Cervical exam: Spurling’s maneuver
     ▪ With the neck extended and rotated to affected side, the examiner puts an axial load on patient’s head
     • Exam is positive if it reproduces pain
   o Muscle Strength
     ▪ Lift Off test
     ▪ Empty Can
     ▪ Neer Impingement Test
     ▪ O'Brien's Test
     ▪ Hawkins’
     ▪ Painful arc sign
     ▪ Speed’s test
     ▪ Scarf Sign
     ▪ Drop Arm test
     ▪ Infraspinatus muscle strength testing

3. Laboratory Testing: Not indicated
4. Diagnostic Imaging
   o Shoulder X-ray
     ▪ First imaging modality
     ▪ 4 view shoulder
       • Internal rotation
       • External rotation
       • Axillary lateral view
       • Scapular Y view
   o Ultrasound
     ▪ Useful for detection of full thickness tear
       • Sensitivity is 87%, specificity is 96% for full thickness tears
       • Sensitivity of partial thickness tears: 67%

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o MRI
  ▪ Sensitivity and Specificity of full thickness tears was 89% and 93%, respectively\(^3\)
  ▪ Sensitivity and Specificity of partial thickness tears: not consistent\(^3\)

o MRI Arthrogram
  ▪ Sensitivity and Specificity of full thickness tears was 95% and 93%, respectively\(^3\)
  ▪ Sensitivity and Specificity of partial thickness tears: 44% and 90% respectively\(^3\)

5. Recommendations
  o Evaluation of a suspected rotator cuff tear should start with history and clinical exam of shoulder (SOR:B)\(^4\)

Differential Diagnostics
  1. Key differential
     o Shoulder impingement
     o AC joint arthritis
     o Biceps tendon rupture
     o Shoulder instability
     o Adhesive capsulitis
     o Cervical radiculopathy
     o Labrum tear
  2. Extensive Differential diagnosis: Pancoast’s tumor, thoracic outlet syndrome, septic arthritis, rheumatoid arthritis, gout, lupus, avascular necrosis, Lyme disease, gonococcal arthritis

Therapeutics
Decision based on patient’s age, activity level, and etiology of rotator cuff injury
  1. Acute Treatment
     o Rest: Avoid painful motions, limit overhead activities
       ▪ Avoid sling
       ▪ Continue using arm decreases risk for adhesive capsulitis
     o Ice: use for first 24 hours
     o NSAID
     o Early physical therapy
       ▪ Re-establish ROM
       ▪ Rotator cuff and scapular stabilization
       ▪ Glenohumeral stabilization

Follow-Up
  1. Return to clinic in 6 weeks to evaluate effectiveness of conservative treatment
  2. Recommendations for earlier follow-up
     o Decreased range of motion
     o Worsening pain
     o Neurological changes
     o Motor abnormalities
Refer to orthopedist

1. Conservative treatment failure
2. Consider earlier referral for acute traumatic tears\(^5\)
   - Especially for acute traumatic tears in patients less than 40

Prognosis

1. Surgical repair may require 6-12 months before being able to fully return to sports

Prevention

1. Maintaining strength and flexibility of muscles of shoulder
2. Limit heavy lifting, especially overhead lifting
3. Avoid repetitive motion with arms extended or overhead

Patient Education


References


Author: Christopher Sperry, MD, Self Regional Health Care FMRP, SC

Editor: Carol Scott, MD, University of Nevada Reno FPRP