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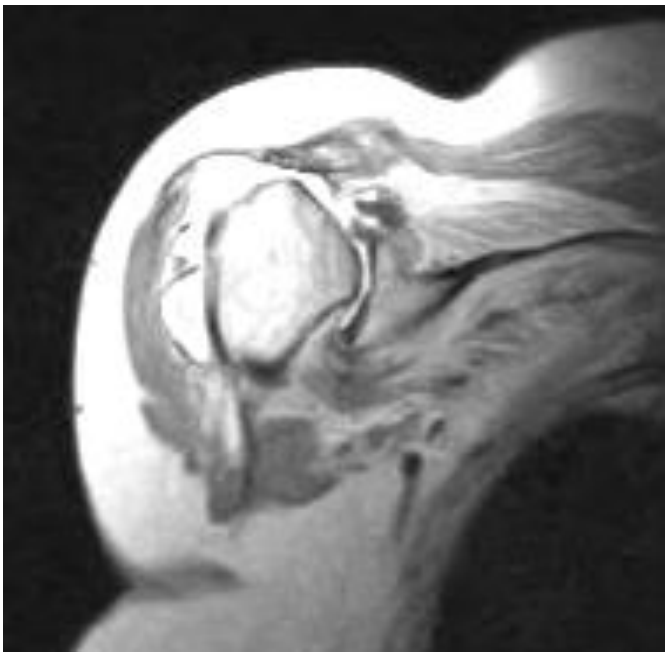
Rotator Cuff Arthropathy

The rotator cuff is a series of four muscles that run along the shoulder blade (scapula) around the shoulder socket (glenoid) to surround and attach to the ball (humeral head) of the shoulder joint by their tendons. The muscles of the rotator cuff work to keep the humeral head centered in the socket (glenoid) as we move our arm. Injury or degeneration (wear and tear) can result in a tear of the rotator cuff tendon. Rotator cuff tears can cause weakness and rotator cuff dysfunction. Significant or massive rotator cuff tears that are left untreated can result in the humeral head migrating upward and moving closer to the acromion (roof of the shoulder joint). This abnormal position causes the cartilage covering the bony surfaces to deteriorate (arthritis), often resulting in pain and physical limitations.

There are many theories as to why this condition occurs for some patients and not others. Regardless, the pathology of arthritis and massive rotator cuff tear lead to weakness, pain, and inflammation, which cause decreased mobility and continued symptoms.

X-ray showing upward migration of humerus in shoulder joint, common in patients with rotator cuff arthropathy



MRI of rotator cuff arthropathy

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Frequent Signs and Symptoms

- Pain along the upper arm between the shoulder and elbow
- Pain that is worse or sharper when reaching out and overhead or lifting objects
- Aching pain at rest; often pain at night while trying to sleep
- Loss of strength
- Limited motion of the shoulder, especially reaching behind for a back pocket or bra
- Crepitation (a crackling sound) when moving the shoulder

Etiology (Causes)

- Aging or degeneration of the tendon with regular or excessive use
- Rotator cuff tear that has been left untreated
- Fall or injury that caused symptoms to become worse and condition to deteriorate

Risk Factors

- Age, typically 60 and older
- History of shoulder pain or injury (pain is often long-term)
- Previous injury to rotator cuff, including impingement
- Poor physical conditioning (strength and flexibility)
- Inadequate warm-up before activities
- Spurring of the acromion
- Repeated steroid injections
- Underlying inflammatory disease, such as rheumatoid arthritis
- Failure of previous rotator cuff repair
- Neglected rotator cuff tear

Prevention

- Appropriately warm up and stretch before activities
- Allow time for adequate rest and recovery between bouts of physical activity
- Maintain appropriate conditioning:
  - Cardiovascular fitness
  - Shoulder flexibility
  - Strength and endurance of the rotator cuff muscles and muscles of the scapula (shoulder blade)
- Use proper technique when lifting and working overhead
- Seek medical care early after shoulder injuries and continuous pain
- Repair rotator cuff tears early

Outcomes

While rotator cuff tears and joint deterioration will not improve on their own, some patients are able to maintain function and pain control non-operatively through physical therapy. Additional pain control may be achieved through anti-inflammatories (ibuprofen, Aleve®, etc.) or steroid injections. For other patients, however, these measures only provide temporary relief from symptoms. These patients may opt to pursue surgical intervention.

Potential Complications

- Persistent pain that may progress to constant pain
- Shoulder stiffness, frozen shoulder, loss of motion, or weakness
- Recurrence of symptoms
- Inability to return to same level of function, even post-surgically
- Risks of surgery, including infection, bleeding, injury to nerves, shoulder stiffness, weakness, instability, implant loosening, and persistent pain

Treatment Considerations

Treatment depends on the patient's overall medical health and physical demands (activity level). Conservative treatment is the first approach to rotator cuff arthropathy and involves restricting aggravating activities combined with injections and physical therapy to enhance the strength and function of the shoulder. If conservative treatment fails, surgery may be warranted. If the patient has failed initial activity restriction and therapy, arthroscopic surgery to debride (clean-up) the rotator cuff and shoulder joint, release the damaged biceps tendon to repair the rotator cuff, remove the inflamed bursa or decompress the bony space between the humeral head (ball of the shoulder) and the acromion (bony roof of the shoulder) may be helpful to relieve symptoms.

Another surgical possibility is a reverse total shoulder arthroplasty. In this procedure, prosthetic devices are used to replace the damaged ends of the humerus and glenoid bones; however, the implants are "reversed" so that the "ball" portion of the joint is attached to the glenoid, and the "socket" is attached to the humerus. This approach is more effective in patients with a deficient rotator cuff and lower activity demands. "Reversing" the ball and socket helps to compensate for the deficient rotator cuff. This procedure is done through an open incision in the front of the shoulder. Recovery from a reverse total shoulder arthroplasty involves approximately six weeks in a sling followed by several months of physical therapy to restore shoulder function.

Post-operative X-ray of reverse total shoulder arthroplasty

Possible Medications

- Nonsteroidal anti-inflammatory medications, such as aspirin, ibuprofen, or Naprosyn®, Aleve®, Advil®, or other minor over-the-counter pain relievers, such as acetaminophen or Tylenol®, may be helpful. **DO NOT** take nonsteroidal, anti-inflammatory medications within 10 to 14 days of surgery or following surgery and stop these medications if they cause any bleeding or upset stomach.
- Pain relievers are not prescribed for this condition but may be prescribed after surgery as necessary. Use only as directed.
- Steroid injections reduce inflammation and can be helpful in certain cases but should be used with proper discretion. They can negatively affect the biomechanical properties of the tendon and should not be used when surgery is planned.

Modalities (Heat and Cold)

- Cold is used to relieve pain and reduce inflammation. Cold should be applied for 10 to 15 minutes every two to three hours for inflammation and pain and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage with a cloth between the ice and your skin to prevent burning /freezing your skin.
- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Use a heat pack or a warm soak.

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