

Disorders of the Rotator Cuff Tendon

General Information

What is it?

The rotator cuff refers to a group of four muscles that go from the shoulder blade to the head of the humerus, and that function in lifting the arm overhead. The muscles are named the Supraspinatus, Infraspinatus, Teres Minor and Subscapularis.

A tendon is the attachment of a muscle to the bone, and it is the tendon of the rotator cuff that degenerates over time. The Supraspinatus Tendon is the most commonly injured. It averages 12 mm in thickness. Disorders of the tendon include inflammation, partial tears, and full thickness tears.

Rotator Cuff Disease

The primary force on the tendon is a tensile strain or longitudinal pull. Years of lifting the arm up can cause inflammation and degenerative tearing of the rotator cuff tendon. The speed at which rotator cuff tendons wear out depends on genetic strength of the tendon, the size of the overlying bone spur, and environmental variables like occupation or trauma. (I suspect its 70% genetic, 30% extrinsic forces like abrasion or impingement from the bone spur, or traumatic tears).

Rotator cuff problems range from minor inflammation (Bursitis) that resolves on its own, to more serious partial or complete thickness tears of the tendon off the bone. If the tendon pulls away from the bone, a gap is created, and this will not heal on its own

How is the Rotator Cuff Injured?

Most rotator cuff tears are insidious. Most patients don't know when they tore it. Usually the tendon degenerates so much and becomes so weak that a relatively minor injury like lifting a gallon of milk will tear the tendon. Occasionally a younger patient will suffer a tear of normal quality tendon as a result of a high force injury (car accident, fall from a ladder), but most tears are normal forces on an abnormally weakened tendon. Most tears happen in patients over age 50.

Symptoms of Rotator Cuff Disease

The most common complaint is of pain at nighttime in the upper arm. Patients also complain of pain with overhead activities. Larger tears will cause weakness with overhead activities.

Diagnostic Testing

The rotator cuff is a tendon, and so it will not show up on x-ray. We do shoulder x-rays to evaluate the shoulder for other problems, but we may order an MRI to evaluate the rotator cuff tendon more closely.

Treatment Options

1. Bursitis/ Rotator Cuff Inflammation

Inflammation of the tendon or the overlying bursa is treated with anti-inflammatory pills or Cortisone injections and with home physical therapy exercises. This is successful about 80% of the time. Some patients may require arthroscopic removal of the bursa and overlying bone spur. This is an outpatient surgery with 90% good or excellent results. Return to deskwork in 2-3 days, heavy labor 6 weeks.

2. Partial Thickness Rotator Cuff Tear.

Initially, all partial tears are treated with physical therapy, injections, and rest. But remember, tendon degeneration is a continuum. Some tendons are normal, some show some degeneration within the tendon, some have partial tears that are torn 30% of the way through, some partial tears are 80% torn, and then many are 'full-thickness tears', or torn all the way through. I usually recommend surgery for full-thickness tears. All the other grades of tears will be treated according to your symptoms; in other words, if it stops hurting, we leave it alone; if it keeps hurting, we will fix it. If it is a borderline call, say a tendon that is 30% torn, sometimes I will just remove the spur, leave the partial tear, rehabilitate your shoulder and see how you do. This is an easier surgery to recover from (3 weeks instead of 3 months), and if your pain persists and it becomes obvious you can't function well with a 30% tear, I can always go back and fix the tear later. In general, the tears in which greater than 50% of the tendon is torn usually won't respond to a limited arthroscopic 'clean out'. These tears usually need to be treated as full-thickness tears with formal repair.

3. Full-thickness Rotator Cuff Tears.

Once a gap is created between the torn tendon edge and the bone, the only way to restore normal anatomy is to surgically sew the tendon back down to bone. In my practice, this is most often done with arthroscopic surgery. Some older patients with small tears and good function and little pain may elect to leave the tendon torn.

Why do I need surgery! Can't I just live with it like this?

Sometimes patients with torn rotator cuff tendons feel better after a cortisone injection, and wonder why they should have surgery if they have no pain.

The answer is that you can live with a torn rotator cuff tendon, but you risk letting the size of the tear getting too big. Unfortunately, we think most neglected cuff tears get larger in size, pull away from the bone further, and can go from being repairable tears to irreparable tears. Once the tendon is torn, the muscle tissue starts atrophying, and the muscle tissue turns to fat. If you get there too late, even if your surgeon is successful in surgically reattaching tendon to bone, the muscle may not be able to lift the arm anymore because the muscle is all gone. And unfortunately, some torn tendons are simply too far retracted to sew back down to bone.

Because of that, if you are found to have a rotator cuff tear, I will recommend surgery to repair it while it's still repairable.

About the surgery

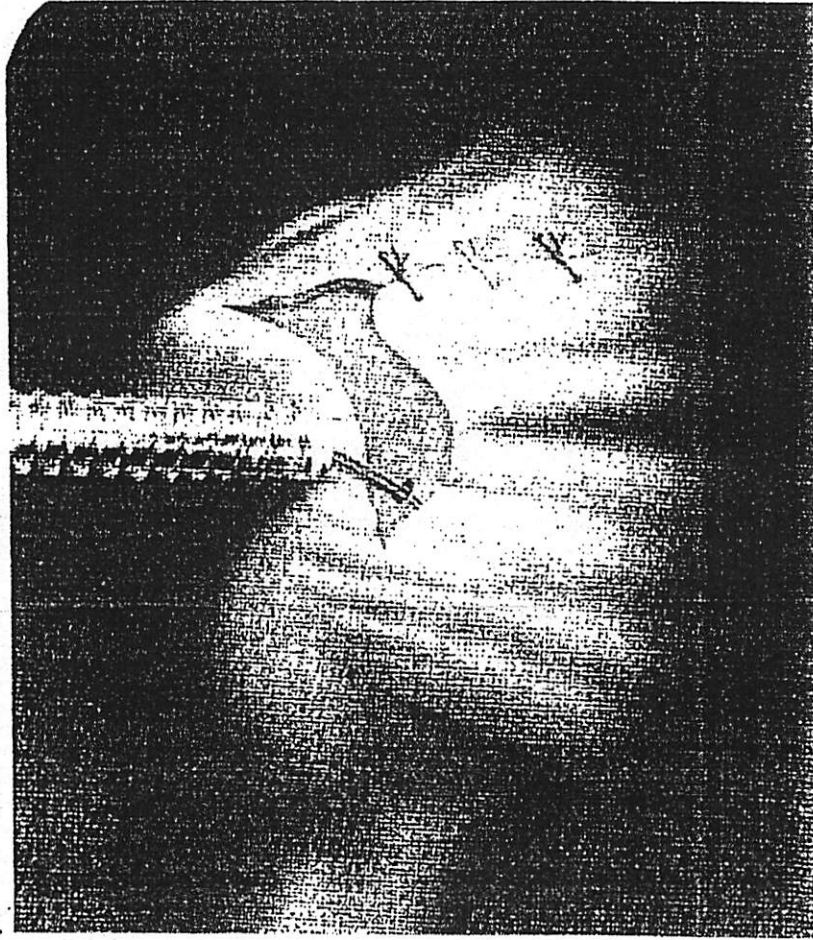
This is outpatient surgery, takes about one hour under general anesthesia. Most are done arthroscopically, very few open. The healing of the tendon down to bone takes one year!! You will feel 75% at 3 months, 90% at six months, 100% at a year. You have to wear a sling for three weeks, and you may need to go to therapy.

The main risks of surgery are re-tear of the tendon (8-10%), and frozen shoulder (2-3%, mostly white females). I think retears happen mostly because the quality of the tendon genetically is poor to start with, and sometimes the stitch pulls out of the degenerated tendon in spite of the patient doing everything correctly after surgery.

You can drive two weeks after surgery. Return to work depends on your job; a self-employed lawyer can go to work in a sling in 4 days, a factory worker at Philip Morris may miss a full 4 months of work. I allow you to lift 5 lbs after three months, and 10 lbs at four months.

The surgery is 90% successful for smaller tears, but is probably only 50% successful for the larger or 'massive' tears (two or more tendons torn). This again speaks to why we try to intervene early with these tears. Really the issue is more about how long the tendon has been torn, not so much how big the tear is. Old tears are more likely to have undergone fatty replacement of the muscle, and more likely to have therefore lost its ability to be stretched back out to length, so we are less likely to be able to repair it with minimal tension. In these old tears, I have to pull and stretch more, so the repair is under more tension, and therefore more likely to pull off and fail. A fresh large tear is easy to repair, and we get better results with newer tears.

Please call me at 730-2121 with any further questions.



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