PATIENT GUIDE TO "PARTIAL" ROTATOR CUFF TEARS

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What is a partial tear of the rotator cuff?

Before this question can be answered, it is important to know what the rotator cuff is exactly. We recommend that prior to reading this Guide that you read the "Patient Guide to Rotator Cuff Tendinitis" which explains what the rotator cuff is and what it means to have problems with the rotator cuff. Some of the information in that Guide will be repeated here.

What is the rotator cuff?

The rotator cuff are muscles that attach to the shoulder blade and they turn into tendons which attach to the top of the arm bone (humerus) near the shoulder socket (Figure 1). The way the rotator cuff works is that the muscles contract and they pull on the tendons which then pull on the bone. This pull helps the arm (humerus) move in space. There are four rotator cuff muscles and thus there are four rotator cuff tendons. The tendons are about 1 centimeter thick (as thick as your little finger) and about as wide as 2 to 3 centimeters (the width of two or three fingers). They attach to the humerus bone around the top near the joint and help the shoulder move.

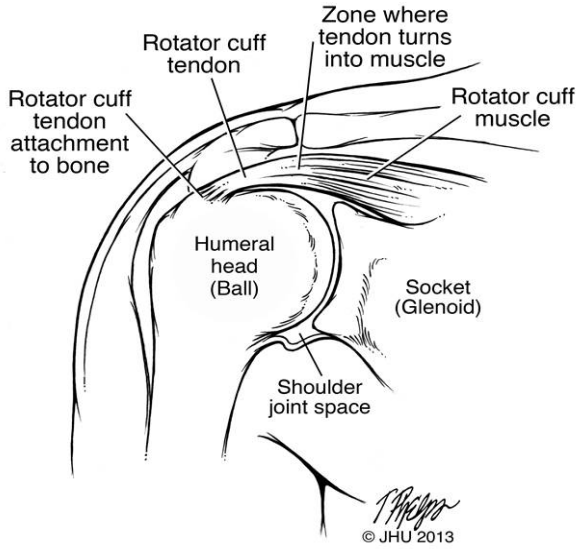

Figure 1: Normal rotator cuff shoulder view from front

How do these tendons get tears?

It is not known why rotator cuff tendons develop tears, but they are associated with aging. Changes in the rotator cuff occur around the age of 30 and increase after that so that by the time someone is 60 years old, there is a good chance they have some partial tears or complete tears of the rotator cuff. Many people are unaware that they have some changes in the rotator cuff because for some reason not all rotator cuff changes cause pain.

There are several theories about why rotator cuff tendons begin to see wear and tear. It is largely believed now that the tendons just start to wear out as part of the aging process. One common theory is that the tendon hits against bone spurs but it is now known that this is probably not the case. Regardless of how these changes occur, they happen to people from all walks of life and all occupations. As a result, the consensus now is that changes in the rotator cuff with age are part of getting more "mature."

Occasionally younger patients (less than 35 years old) get partial tears of the rotator cuff. These tears may be associated with an injury. Partial tears of the rotator cuff are very common in people who are overhead athletes, particularly baseball pitchers. Partial rotator cuff tears in competitive athletes are treated the same way as partial tears in the more "mature" individual.

What changes are seen in the rotator cuff with time?

As we get older all the tendons in our bodies undergo changes which cause them to get weaker. These changes cannot initially be seen without a microscope, but sometimes these changes can be seen with a magnetic resonance imaging (MRI) scan. MRI scans are read by the radiologist and they call these early changes "tendinosis." Tendinosis changes are a normal part of the aging process and we do not do anything about them unless they cause pain.

So what then is a "partial tear"?

As the tendon changes called tendinosis increase, eventually the tendon they may be seen with the naked eye. When a tendon begins to tear it literally looks like fibers of a rope as the rope begins to split and fray (Figure 2). These partial tears are very common and it is not known why one person may have symptoms and another may not. One study using MRI was performed on people over the age of 60 years old and found that over 50% had partial tears of their rotator cuff tendons and never knew it. As a result partial tears on MRI do not need treatment as long as they do not hurt or cause problems.

The rotator cuff tendons are actually pretty big tendons. They are about as thick as your little finger and wide as two fingers, and there are four of them around your shoulder joint. A partial tear is one that goes only part of the way into the tendon, and a full thickness tear is when the wear in the tendon goes all the way through (Figure 3). Partial tears can be only one millimeter deep (only about 10% of a tendon that is one centimeter thick) or can be one third, one-half or any other percent of the full thickness of the tendon. A partial tear usually refers to how deep the tear is in the tendon and does not refer to the other dimensions of the tear in terms of length and width.

When a radiologist looks at a MRI scan he must make a judgment about what he is seeing in the scan. They must decide if the changes are just tendinosis, a partial tear or a full tear. Sometimes it is not possible to distinguish tendinosis from a partial tear, or a partial tear from a full tear. It takes experience and judgment to be able to read MRI scans of the rotator cuff tendons.

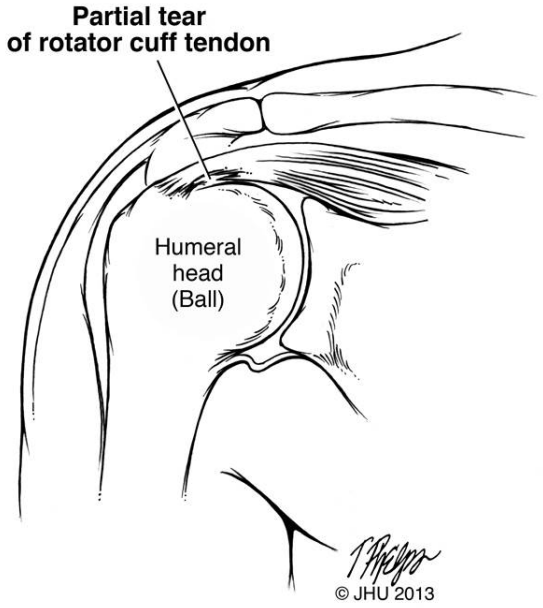

Figure 2: Partial tear of rotator cuff shoulder view from front

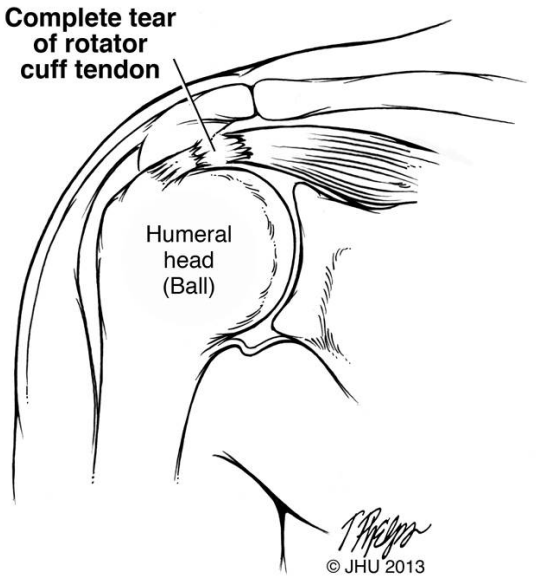

Figure 3: Complete tear of rotator cuff shoulder view from front

What is the treatment for a partial tear?

If there is no pain then no treatment is necessary for a partial tear of the rotator cuff tendons. If the shoulder is painful, it is important to realize that the partial tear may not be the cause of the pain. The most common condition in the shoulder which mimics a tear in the rotator cuff is stiffness or a "frozen shoulder." (See a Patient Guide to Adhesive Capsulitis) A frozen shoulder is characterized by loss of movement and the pain typically comes about as the shoulder will only move so far and then it hurts (see "Patient Guide to Stiff Shoulder"). It is very common for a patient to develop a stiff and painful shoulder with no injury, and then obtain an MRI scan which the radiologist reads as having "tendinosis" or a "partial tear" of the rotator cuff. In this case these findings in the MRI have nothing to do with the problem in the shoulder. For this reason partial tears of the rotator cuff seen on MRI scan have meaning only if the symptoms and examination are consistent with that diagnosis and not with a stiff shoulder or some other cause of shoulder pain. When the MRI finding has nothing to do with the patient problem it is called an "incidental" finding.

Generally partial tears of the rotator cuff are treated without surgery. The treatment is first to maintain the range of motion and not let the shoulder get stiff. We recommend stretching for five minutes everyday to prevent stiffness. Ice packs are great for pain relief and they can be applied for 20 to 30 minutes as often as every 2 hours if needed. Medication for pain such as ibuprofen or Tylenol can be helpful to keep the pain under control. Generally the most painful motion with a partial tear of the rotator cuff is lifting things over shoulder level or lifting them far away from the body. Lifting in this manner is very stressful for the shoulder. Basically with a partial tear of the rotator cuff you can do anything that does not hurt, including running, cycling, swimming, weights etc. If you do have pain with the activity then you should either cut back on that exercise or activity, but there is no evidence that by doing that activity is going to make your tear worse.

In cases where it is felt that the partial tear is the cause of the pain in the shoulder and the above treatments do not work, then formal physical therapy can be helpful. Also, cortisone shots into the bursa near the rotator cuff tendons can be beneficial.

What is the goal of physical therapy for a partial tear of the rotator cuff?

The goal of physical therapy is to help decrease the pain but also to strengthen the muscles and tendons slowly to increase the endurance and strength of the tissues. The therapy may also be needed to increase motion of the shoulder as sometimes stiffness is the cause of the pain and not the tendon. The exercises should not be painful or they are being done incorrectly.

When does a partial tear need surgery?

It is very uncommon to operate upon a partial tear of the rotator cuff. Sometimes the tear is almost all the way through the thickness of the tendon (over 90%) and the tendon is nearly completely torn (Figure 4). These tears in comparison to smaller partial tears (Figure 5) can be much larger. In cases of deep partial tears, surgery is recommended only if the symptoms cannot be controlled with non-operative (non-surgical) treatments such as the ones mentioned above.

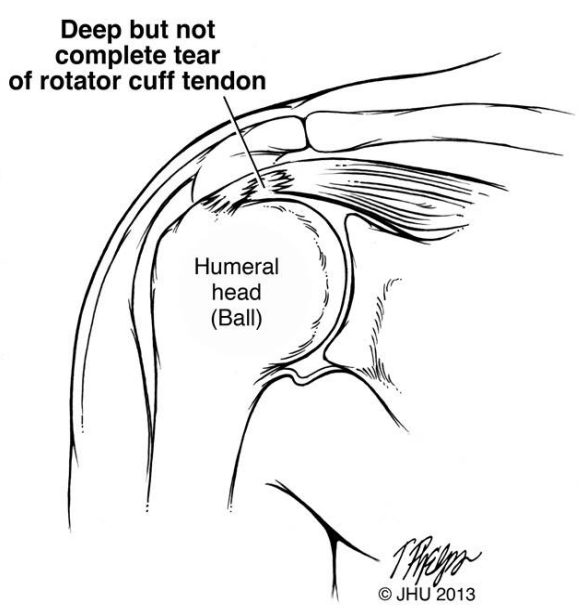

Figure 4: Deep partial tear of rotator cuff shoulder view from front

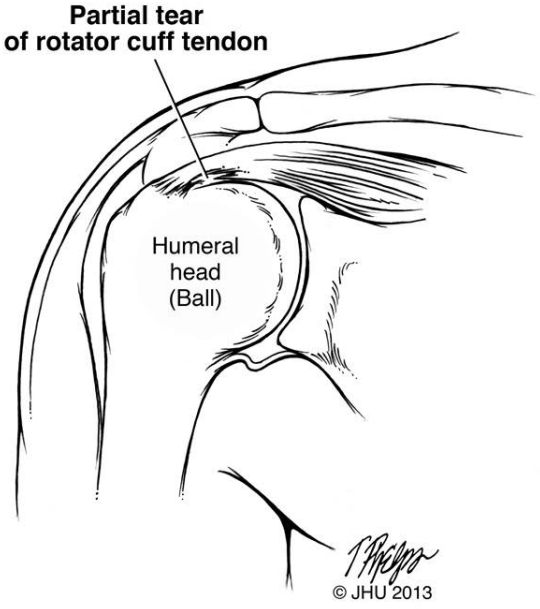

Figure 5: Small partial tear of rotator cuff shoulder view from front

Should I worry about a partial tear if found on an MRI?

The answer is generally “no” as these partial tears are very common and considered to be part of the process of getting more mature. The radiologist is just looking at the images made by the scanner and the radiologist has no way to know if there is pain associated with the findings or not. As a result, a finding of a partial tear of the rotator cuff is essentially a normal finding in people over the age of 40.