



Rotator Cuff Repair

Explanation of Procedure and Diagnosis

Rotator Cuff Anatomy

The rotator cuff consists of four muscles that attach the “ball” of the shoulder to the “socket” of the shoulder. They are located under the deltoid muscle, the large fleshy muscle on the outside of your shoulder. The muscles that make up the rotator cuff consist of the supraspinatus, infraspinatus, and the teres minor in the back of the shoulder. In the front of the shoulder, there is the subscapularis. All of these muscles insert on the scapula, or wing bone, and surround the shoulder. These four muscles are attached to the bone by a large tendon called the rotator cuff tendon. This is the tendon that tears when a rotator cuff tear occurs. The most common part of the cuff tendon that tears is the one attached to the supraspinatus muscle. The tendon passes under a bone called the acromion and can become compressed between this bone and the shoulder ball. This process causes bursitis or impingement. Occasionally, an injection into this space can significantly decrease the pain.

Rotator Cuff Tears

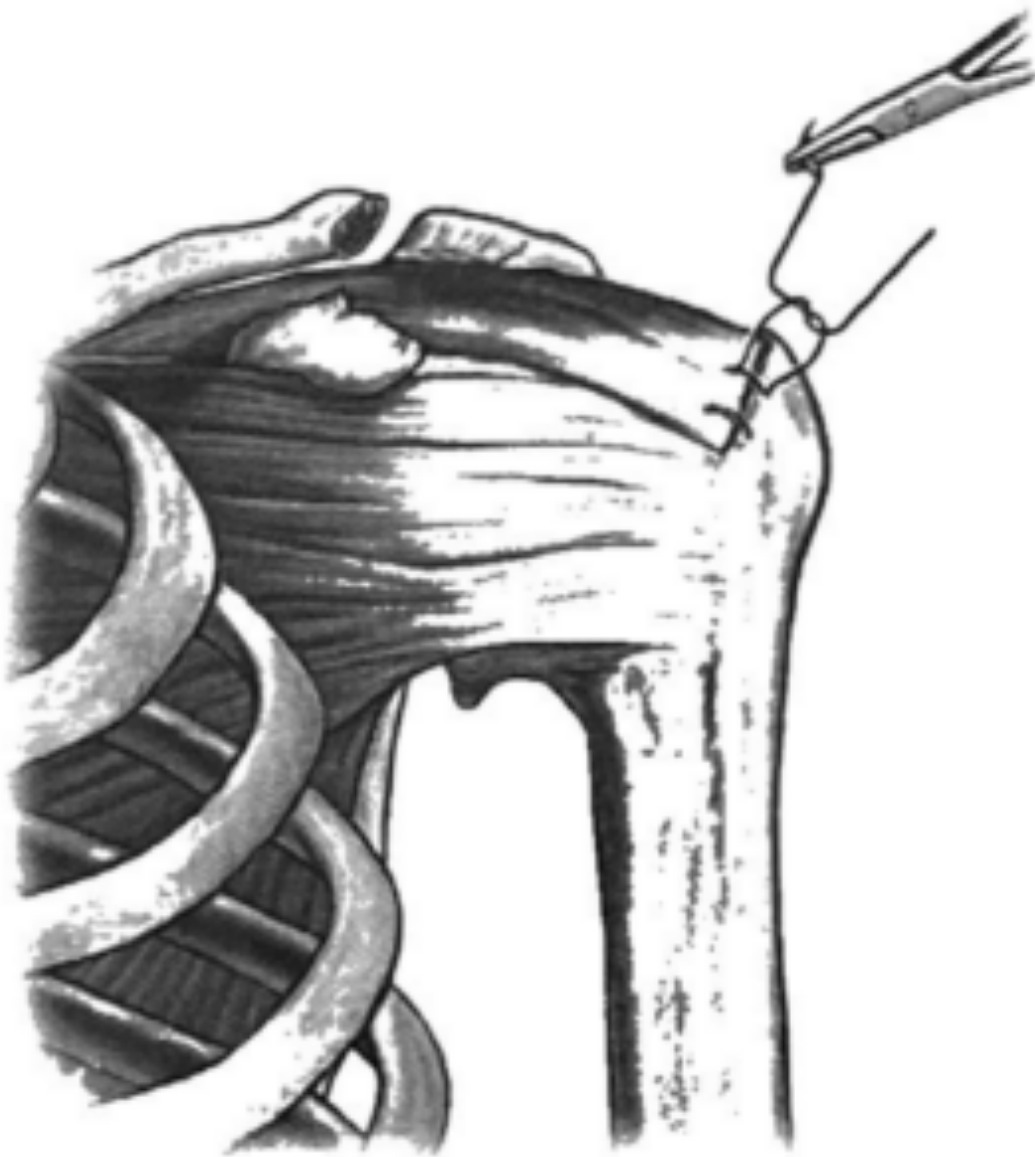
There are many mechanisms by which a rotator cuff tear can occur. In younger patients, the tears usually occur from an obviously traumatic incident, such as a fall. While trauma can still occur in older individuals, more commonly the tears occur from overactivity, such as catching a falling object or lifting too much weight. Occasionally, no mechanism can be recalled, and the shoulder simply started hurting.

A rotator cuff tear is only one of the many causes of shoulder pain. A history of how your shoulder pain started will be discussed, as well as what type of activity makes the pain worse. Most rotator cuff tears cause pain, most commonly at night. The pain is commonly located on the outside part of the shoulder and can radiate to the elbow with activity. The pain usually gets worse with reaching, lifting, or overhead-type activity. A lot of patients complain of weakness as well. X-rays of the bones are taken to see if any arthritis or loose fragments are present within the shoulder causing the pain. Rotator cuff tears do not show on the x-ray. An MRI scan might be ordered to further evaluate the possible causes of the pain. An MRI will take a picture of the soft tissue around your shoulder: the muscles, tendons, ligaments, and other structures that do not show up on the x-ray.

Treatment Options

Conservative, or non-operative, treatment of shoulder pain usually consists of a course of physical therapy to improve the range of motion and strength of the shoulder. This is done to rebalance the shoulder musculature so the bones are aligned correctly, which may help decrease the pain. If there is no relief, or significant weakness is present, an MRI scan will show whether there is a rotator cuff tear. For some patients, continued strengthening exercises may help decrease the pain. However, the tendon will not heal naturally, and the tears tend to get larger as time goes on. It is suggested that some patients, those with significant impairment or weakness, undergo a surgical repair of the rotator cuff to help diminish the pain and improve strength.

Rotator Cuff Surgery



Many improvements in rotator cuff surgery have occurred over the past few years. Initially, rotator cuff repair required a large incision was required to visualize the tear so that it could be repaired. A stay in the hospital was usually required.

More recently, rotator cuff repair is performed with an arthroscopic procedure. In this procedure, a small incision is made on the back of the shoulder and a camera is inserted. Water is pumped into the joint to improve visualization. The entire shoulder can be examined, and the rotator cuff tear can be visualized from both inside the joint and from the space above the joint.

The bone where the rotator cuff attaches is cleared of scar and the rotator cuff tendon is attached to the bone through bone tunnels or a small device called an anchor. These anchors are small, about 5mm, and are made of metal or plastic. They may or may not show up on x-ray or set off metal detectors at the airport. When used, the sutures that are attached to the anchors are then passed through the tendon and the tendon is tied to the bone. Occasionally, the bone spur is smoothed out as well to stop it from wearing on the tendon.

Additional Explanation of Arthroscopy

What is Arthroscopy?

Shoulder arthroscopy is a sterile procedure that allows direct visualization of the shoulder joint to diagnose and treat a variety of shoulder conditions. Specifically, shoulder arthroscopy is utilized to correct (repair) lesions or tears of the cartilage, ligaments, and tendons of the shoulder joint.

In an arthroscopic examination, an orthopedic surgeon makes a small incision in the patient's skin and then inserts a pencil-sized instrument that contains a small lens and lighting system to magnify and illuminate the structures inside the joint.

Why is Arthroscopy Necessary?

Diagnosing joint injuries and disease begins with a thorough medical history, physical examination, and usually x-rays. Additional tests such as an MRI or CT scan also may be needed. Although radiographic studies help establish a diagnosis, shoulder arthroscopy enables the most accurate diagnosis to be made and various problems to be addressed.

What are the Advantages?

Most patients have their arthroscopic surgery performed as an outpatient procedure and are home several hours after surgery. For many people, shoulder arthroscopy provides an excellent alternative to open shoulder surgery. In comparison to open shoulder surgery, shoulder arthroscopy may provide:

- Smaller incisions

- Shorter recovery time
- Less pain
- Less need for pain medications after surgery
- Less damage to soft tissue at the incision site
- Fewer complications
- Greater improvement in strength and range of motion of the shoulder after surgery

What are the Possible Complications?

The risk of complications after shoulder arthroscopy is low. However, as with any invasive procedure, there is some risk that the following conditions may arise:

- Bleeding
- Infection
- Nerve and blood vessel injuries
- A build-up of fluid in the shoulder joint
- Cartilage damage
- A tear in joint tissues
- Loss of limb or function
- Anesthetic complications, including death

These procedures are usually performed as same-day surgeries. A regional anesthetic is used to help decrease the pain for the first 8 to 10 hours after the surgery. The block is placed where the nerves to the shoulder are in the neck and paralyzes and numbs the entire arm so that there is no pain. In most cases, a general anesthetic is also used. When the block wears off, there will be more pain that can last up to 72 hours after the surgery.

A sling is used initially to help protect the rotator cuff repair. The size of the tear and the quality of the tendon tissue play a role in what you can do with the arm after surgery. In general, the use of the arm is limited after the surgery. Elbow range of motion without the sling is allowed once the block has worn off. No active reaching or lifting with the arm is allowed up to two months after the surgery.

Physical therapy is started within the first two weeks after surgery to work on passive shoulder motion that does not damage the rotator cuff repair.

Preparing for Surgery

What Should I Do Before Shoulder Surgery?

Prior to your shoulder surgery, patients with multiple medical conditions may be asked to see their primary care physician (PCP) for pre-operative surgical clearance. This visit to your PCP is necessary to confirm that you are a healthy and appropriate candidate for shoulder arthroscopy.

During your pre-operative work-up, you may be asked to get an EKG, chest x-ray, and other laboratory tests a few days prior to your surgery date.

If the surgery involves your dominant arm, it may present several challenges for you. Following shoulder arthroscopy, your arm will be in a sling. Performing activities of daily living with your non-dominant hand requires some adjustments and patience. Strange as it seems, bathroom hygiene is quite difficult with your non-dominant hand and should be practiced. It will be several weeks before you will be able to use your dominant hand normally.

Women have several additional considerations. Most women will want to use a front-closing bra for several weeks after surgery since their operative arm will be in a sling. Additionally, most women will want to have a close shave of the axilla (armpit) as it will be difficult to do this for several weeks after surgery.

Before having shoulder arthroscopy, you should make sure your doctor is aware of:

- All medical conditions, including any not previously disclosed
- All allergies
- Any medications that you are taking
- Any bleeding problems
- Pregnancy status

In addition, your doctor will ask you not to eat or drink anything after midnight the night before surgery. Unless directed otherwise you should refrain from taking any medications on the day of surgery. You should not take Aspirin or anti-inflammatory medicines (i.e., Advil, Motrin, Ibuprofen, Aleve) for 10 days before your surgery as they inhibit platelet function (blood clotting).

You must arrange for someone to pick you up after surgery and stay with you for the first 24 hours after your procedure. It is important to plan ahead in this regard. We will do our best to make your return home after surgery as easy as possible.

What to Expect at Surgery

On the Day of Surgery

- Wear clothing roomy enough to accommodate the bulky bandage and sling that will be wrapped around your shoulder after surgery
- Remove all jewelry
- Go to the bathroom just before surgery

Before your surgery, you will spend a short period in the pre-operative holding area. Nurses will prepare the surgical site and administer any medications that have been ordered. An intravenous (IV) line will be started. You will receive pre-operative antibiotics to help prevent

infection. The IV will remain in until you have recovered or until you no longer need intravenous support.

Before any surgery requiring anesthesia, a short pre-operative exam will be done by an anesthesiologist. During this exam, your anesthesiologist will be assessing whether you have any conditions that may affect the course of your anesthesia. You will be asked questions pertaining to any allergies you may have and medications you may be taking. The anesthesiologist will also ask about any prior aesthetics that you have had and your reaction to them. Your anesthesiologist will also ask about any previous or current health conditions as well as physical symptoms you currently have.

A brief physical exam will include an assessment of your heart and lungs. The anesthesiologist will also perform an exam of your airway to assure you will not have any breathing difficulty during your surgery.

A general anesthetic is usually the anesthesia choice for shoulder arthroscopy, but it is possible to use other methods. With your input, your anesthesiologist will determine the anesthetic that assures the best outcome for your procedure. Regardless of the type of anesthesia, your anesthesiologist will monitor your condition throughout the surgical process.

How is Arthroscopy Performed?

The length of time shoulder arthroscopy takes varies depending on what is required during the surgery. Generally, the procedure takes between one to two hours, depending on the patient and his or her individual shoulder condition.

A small incision is made in the back of your shoulder to introduce the arthroscope (scope). A camera and light source are attached. They are also connected to a television monitor to view and record the findings. The scope is connected to a pump to precisely monitor the amount and pressure of sterile saline used to irrigate and fill the joint space for better viewing. A second small incision is made in the front of the shoulder to allow passage of arthroscopic instruments. Pictures may be taken and saved for later reference. More incisions may be made to introduce instruments for repair and to correct injuries involving the cartilage, ligaments, and tendons of the shoulder.

First, the surgeon will inspect the entire joint. Your surgeon will have an assistant help move, rotate and reposition the arm for visualization of the entire joint. Surgeons use a motorized “shaving” instrument to shave away torn cartilage, excessive growth, and tissue, which may cause friction and pain. A cautery tool may be used to burn off excess tissue growth. This instrument can also smooth rough surfaces, help with repairs, shrink the capsule of the joint for better stability and decrease bleeding.

The amount of surgery required, and recovery time will depend on the complexity of your problem. Rarely, during arthroscopy, your surgeon may discover the injury or disease cannot be

treated adequately with arthroscopy alone. If this is the case, your surgeon may decide to convert to an “open” procedure in order to best treat your condition. The “open” surgery may be performed while you are still anesthetized, or at a later date after you have discussed the findings with your surgeon.

Upon completion of the procedure, the entire joint is irrigated until it is clear of blood and loose particles. The surgeon will inject a long-acting local anesthetic into the joint to help with post-operative pain. Your incisions will be closed with sutures and covered with steri-strips. The area is then covered with a sterile dressing. Your operative shoulder will be placed in a sling after surgery.

Care After Surgery

What Happens Immediately After Surgery?

After your arthroscopy, you will go to the post-anesthesia care unit (PACU). You will remain there until the effects of your anesthetic have begun to wear off and until you can eat, drink and urinate without difficulty. Specially-trained nurses work in the PAC and will monitor your progress and give you verbal and written discharge instructions. Your surgeon or anesthesiologist will discharge you from the PACU to your home or your hospital room. However, you will not be able to drive home after surgery and should have someone stay with you overnight.

What is the Recovery in the Immediate Postoperative Period?

Ice is applied immediately after surgery and thereafter intermittently for 20-30 minutes at a time over the first seven days. This reduces swelling and relieves pain. The small incisions take several days to heal, sometimes up to two weeks.

The shoulder dressing is usually kept on for 48 hours.

Possible Complications and instructions

Wound Care

Please remove the surgical dressing on the second day after surgery. You may see either skin sutures or steri-strips used to close the arthroscopy incisions. Keep these sutures and incisions clean and dry.

Be sure to watch for signs and symptoms of infection after surgery, which include:

- Redness
- Increased swelling
- Warmth

- Wound drainage
- Fever greater than 101.5 degrees
- If you notice any of these signs and symptoms, please notify your surgeon.

Showering

You may begin showering two days after surgery if your wounds are closed and there is no drainage. You may allow water to briefly run over the steri-strips or the visible sutures, however, do not scrub or soak them. Carefully remove your shoulder sling before showering. **DO NOT** immerse your incisions underwater. This means NO baths, swimming, or hot tubs of any kind for at least two weeks after surgery. To clothe yourself, remember to put your operative arm in your shirt first (keeping your hand at your side), pull the shirt in position, and then reach through the remaining sleeve with your good arm. A helpful hint: button-up shirts are the easiest and safest to wear while recovering from surgery. Once dressed, be sure to properly place your operative arm in the shoulder sling.

Ice

Ice therapy positioned on your shoulder will help decrease swelling. The ice therapy may continue to provide comfort decrease swelling and help with pain control for one to two weeks after surgery. If you are not using an ice therapy device, please ice your shoulder three to six times a day for up to 20 minutes at a time using a large bag of crushed ice. To avoid frostbite, place a towel between the ice and your skin.

Exercise and Physical Therapy

You are to remain in your shoulder sling at all times except when showering, dressing, and if performing stretching exercises provided by your doctor. Depending on your surgical procedure you may remain in your shoulder sling for four to six weeks after surgery. You should come out of the sling to exercise your fingers, hand, and wrist at least once a day unless otherwise specified by your surgeon. Squeezing the ball (attached to your sling) will aid in decreasing the residual swelling in the surgical arm. You may begin to ride a stationary bike or walk when you feel up to it after surgery.

However, please be careful and wear your sling while performing lower body exercises. Formal physical therapy may be delayed several weeks, depending on the procedure performed. Confirm with your surgeon when he or she would like you to commence physical therapy. In certain circumstances, your surgeon may want you to complete the majority of the exercises on your own.

Medications

Take as prescribed. Narcotic pain medications such as Vicodin (hydrocodone) or Percocet (oxycodone) are used for severe pain. They can be taken up to every four hours as necessary.

Most patients only require Vicodin or Percocet for the first week. Once pain is better controlled, you may simply take one to two tablets of extra-strength Tylenol every six hours. Take these medications with food. If you have any problems taking the medications, please stop them immediately and notify the clinic.

Pain Management

If you had a nerve block as part of your procedure, you will likely be home before the effects of the block have completely worn off. Therefore, you may experience some numbness and weakness. In many cases, the block will not wear off until the evening. However, you should start taking your pain pills (as prescribed) when you get home, even though the block has not worn off and you are having little pain.

If you wait until you have pain to start taking your pain pills, it will be very hard to catch up.