

Patient Information Guide

Treatment for Rotator Cuff Tear Arthropathy



How is Cuff Tear Arthropathy Treated?

The primary goal of treatment for cuff tear arthropathy is relief of pain. Because the rotator cuff cannot be repaired, restoration of strength is unlikely in the affected arm. The optimal treatment depends on several factors. These include:

1. physical demands
2. amount of functional disability
3. ability to tolerate and comply with the necessary rehabilitation
4. presence of other medical problems that might complicate the effectiveness of surgical treatment

Each case must be individually assessed in terms of these factors to define a treatment regimen that best restores quality of life while minimizing risk to the patient.

Non-operative Treatment

- Physical Therapy: therapy may be successful in patients with well-compensated shoulder function and pain that is at a manageable level. The goals are to improve shoulder flexibility and strengthen the muscles around the shoulder girdle that compensate for the torn cuff. These muscles are called the scapular stabilizers and include the serratus anterior, trapezius, rhomboids, latissimus dorsi and pectoralis major. In addition, deltoid strengthening may improve shoulder function.

Aquatherapy may prove beneficial in allowing patients to exercise in a relatively weightless environment. Water helps support the joint and is also soothing for the sore shoulder.

Physical therapy is less effective in patients with poor function and moderate to severe pain. In these cases, painful abrasion of the bones limits what can be accomplished through range of motion and strengthening exercises

- Non-steroidal Anti-inflammatory Medications (NSAIDS): These medicines include Ibuprofen, Motrin, Advil, Alleve, Celebrex, Bextra and others. They reduce inflammation and also act as mild pain relievers. They may provide some relief and help keep some patients at a manageable level. In other cases, the arthritis may be severe enough that these medications are of little benefit. Long term use of NSAIDS may be associated with risks such as irritation of the stomach lining, ulcers and kidney problems. Patients should become informed about the possible short and long-term side effects of each medication prior to use. This is especially true for patients who take other medications for blood pressure, heart problems, diabetes etc...
- Other Medications: Narcotic pain medications, muscle relaxants and sleeping pills are generally not recommended for frozen shoulder syndrome as prolonged use may diminish their effectiveness and may cause medication dependence or even addiction.

- **Cortisone Injections:** Cortisone is a powerful anti-inflammatory medication that can be injected directly into the shoulder so that it acts locally on the inflamed joint. These injections can provide fairly dramatic pain relief. Their duration of effect is variable and there is no way to predict how long each injection will last. Patients who have had several injections may find that these shots lose their effectiveness. In general, most patients can expect relief to last between 4-8 weeks.

Cortisone injections are generally well tolerated and have minimal side-effects. In patients with diabetes, cortisone shots may temporarily elevate the blood sugar and careful glucose level monitoring is recommended for the first few days after treatment. Repeated injections may cause some weakening of the surrounding bone and we generally try to space injections out every 3-4 months.

Surgery for Cuff Tear Arthropathy

Who should consider surgery?

The principle goal of surgery is pain relief with a fast recovery. No attempt is made to repair the rotator cuff. Surgery is considered when:

1. cuff tear arthropathy results in substantial pain and loss of function that has not responded to non-operative measures
2. one's quality of life is sufficiently impaired to consider surgery
2. one is sufficiently healthy to undergo the procedure,
3. one understands and accepts the risks and alternatives,
4. the surgeon is experienced in the surgical techniques and their indications.

Urgency of Surgery

Shoulder replacement surgery for cuff tear arthropathy is an elective procedure that can be scheduled when circumstances are optimal for the patient. It is not an urgent procedure. The patient has plenty of time to become informed about the process of surgery and recovery.

Factors that the patient should consider in choosing the optimal time include the following:

1. The cuff tear arthropathy has become sufficiently disabling to impair the performance of daily activities. Patients who are still able to sleep comfortably and manage daily activities may and probably should consider waiting;
2. A planned period of time can be specifically dedicated to the recovery and rehabilitation process that will not interfere with other scheduled events;
3. Overall health and nutritional status are optimal and will not limit the ability to comply with the performance of rehabilitation;

Motivation and readiness to undertake the process of surgery, recovery and rehabilitation is a priority.

Recommended Surgeries

There are 3 different surgical options and each is geared toward a different subset of patients depending on the level of pain, the amount of bone erosion, the degree of which shoulder function is compensated by the other shoulder girdle muscles and the severity of instability caused by the lack of rotator cuff function. These will be detailed below.

Arthroscopic or keyhole surgery has not proven effective in the treatment of cuff tear arthropathy.

Rotator Cuff Debridement with Lysis of Adhesions (Smooth and Move)

This operation is considered in patients with an irreparable rotator cuff tear in whom significant erosion of the upper socket has not yet occurred. These patients tend to be earlier in the course of the disease and have substantial loss of shoulder function without significant arthritis.

The goal of treatment is to clear away any remaining inflamed tendon tissue that causes mechanical abrasion and to release any scar tissue that prevents a full range of motion. In addition, any rough areas of bone on the humeral head are contoured and rounded off so that the ball glides smoothly beneath the acromion bone. This operation can be done through a relatively small incision on the outside of the shoulder. It does not violate any muscle attachments so that recovery is accelerated.



Postoperatively, patients are permitted immediate full use of the arm. Post-operative physical therapy is aimed at preserving range of motion and strengthening the shoulder girdle muscles that compensate for the torn rotator cuff. Patients are also generally placed into a special machine that passively moves the arm through a full range of motion. This is called a CPM machine (Continuous Passive Motion) and can be set up in a patient's home if the insurance company permits. Patients use the CPM machines for roughly 3 weeks and then focus on outpatient physical therapy.

Partial Shoulder Replacement (Hemiarthroplasty)

This operation is geared toward patients with an irreparable rotator cuff who have disabling pain from abrasion of the humeral head against the arthritic socket and acromion bone. Unlike the Smooth and Move Operation, this surgery addresses the arthritis that has developed between the ball and upper socket.

Through an incision on the front of the shoulder, an artificial ball with a smooth round metal head is inserted onto a metal stem that fits in the canal of the humerus bone. This ball reduces the friction and abrasion against the arthritic socket and acromion from bone-on-bone contact. Unlike a total shoulder replacement, the socket is not replaced in cuff tear arthropathy because of a high risk of socket loosening.

Postoperatively, patients are placed in a continuous passive motion machine and started on immediate range of motion exercises. This operation is effective in diminishing pain from the arthritis but does not guarantee any improvement in shoulder strength or the ability to lift the arm.



Reverse Ball and Socket Replacement

This operation is intended for patients who have developed instability from cuff tear arthropathy where attempts to elevate the arm results in dislocation of the ball from the socket. These patients have generally undergone resection of part of the acromion bone as part of a previous rotator cuff tear. The reverse prosthesis is also a possibility for patients with pseudoparalysis of the shoulder who have poorly compensated function.

As the title describes, in this operation an artificial ball is placed against the socket and an artificial socket is used to replace the ball. This constrains the ball and socket so that dislocation does not occur. By reversing this relationship, the deltoid muscle is able to elevate the arm in the absence of a rotator cuff. This operation requires that the socket has sufficient bone to place the prosthetic ball.



Recovery from this operation also involves immediate range of motion exercises and early strengthening of the deltoid muscle. Continuous passive motion is not used in these cases, rather patients are started in early outpatient therapy for range of motion and strengthening exercises.

This is a relatively new procedure that few surgeons are trained to perform. Dr. Parsons had the opportunity to perform this operation on several occasions while in Australia before the prosthesis was available in the United States. He was also amongst the first group of surgeons in the United to be approved for performing this operation.

Length of surgery

Surgery for debridement and lysis of adhesions generally takes about one and a half hours. Replacement surgery for cuff tear arthropathy takes approximately three hours. In both cases, the preoperative preparation and the postoperative recovery may add several hours to this time. Patients often spend an hour in the recovery room prior to returning to the inpatient ward.

Risks of Surgery

The risks of shoulder replacement surgery include but are not limited to the following: infection, injury to nerves and blood vessels, fracture, stiffness or instability of the joint, pain, and the need for additional surgeries. There are also risks of anesthesia and blood transfusion (although transfusions are not always necessary). An experienced shoulder joint replacement team will use special techniques to minimize these risks, but cannot totally eliminate them.

Preparing for surgery

Preparation

The success of surgery depends on a partnership between the patient and the experienced shoulder surgeon. Patients should optimize their health so that they will be

in the best possible condition for this procedure. Any heart, lung, kidney, bladder, tooth, or gum problems should be managed before surgery. Any infection may be a reason to delay the operation. The shoulder surgeon needs to be aware of all health issues, including allergies and the non-prescription and prescription medications being taken. Some of these may need to be modified or stopped. For instance, aspirin and anti-inflammatory medication may affect the way the blood clots. If patients take blood-thinning medications such as Coumadin, they should check with their primary care physician about the safety of stopping their use 5-7 days prior to the procedure. These medications can usually be resumed the day following surgery.

The incision for a shoulder replacement extends across the front of the shoulder from the outside end of the collar bone to the mid-aspect of the upper arm. This area must be kept clean and free from cuts or scratches leading up to the surgery.

Plans for necessary assistance need to be made before surgery. For individuals who live alone or those without readily available help, arrangements for home help during the early recovery period should be made well in advance. Many patients will benefit from a stay in a rehabilitation facility for a period after the surgery until they are sufficiently recovered to manage with daily activities.

The Surgical Team

Replacement surgery for cuff tear arthropathy is a technically demanding procedure that should be performed by an experienced surgeon in a medical center accustomed to performing shoulder joint replacements at least several times a month. While most general orthopaedic surgeons perform 1-2 hip or knee replacements a month, the average surgeon may only perform 1 shoulder replacement per year. Dr. Parsons is extensively trained in these procedures, having performed advanced specialty training in the field of shoulder surgery in one of the busiest shoulder replacement centers in the country. This included training in the management of complex and failed shoulder surgeries for cuff tear arthropathy. Our surgical team includes dedicated staff experienced in performing these procedures and we carefully select our implants based on the best products available for individual cases.

Recovering from surgery

Pain and pain management

Recovery of comfort and function after surgery for cuff tear arthropathy continues for the first year after surgery. Adequate pain control is an important part of the postoperative management because it facilitates rehabilitation and allows recovery of motion. Immediately after surgery, strong pain medications are often given by injection. Patients are transitioned to oral medications over the first two days. These oral narcotic medications are generally only needed for a few weeks and patients are encouraged to wean off of them to regular Tylenol when sufficiently comfortable.

Pain medications can be very powerful and effective. Their proper use lies in balancing their pain relieving effect and their other, less desirable effects, such as sedation. Pain medications can cause drowsiness, slowness of breathing, difficulties in emptying the bladder and bowel, nausea, vomiting and allergic reactions. Patients who have taken substantial narcotic medications in the recent past may find that usual doses of pain medication are less effective. For some patients, balancing the benefit and the side

effects of pain medication is challenging. Patients should notify their surgeon if they have had previous difficulties with pain medication or pain control.

Potential Complications

Complications related to surgery for cuff tear arthropathy can be divided into those that occur during surgery, those that occur soon after surgery and those that occur at a time remote from the surgery

- Complications during the procedure include:
 1. Injury to the axillary nerve or brachial plexus: these nerves control the muscles of the shoulder and arm. They may be injured by being overstretched during the surgical exposure or by being severed. This is rare and surgeons experienced in shoulder replacement can generally minimize this risk through proper surgical technique
 2. Fracture of the humerus bone: this can occur during insertion of the metal stem. Again, it is rare and can be avoided through careful attention to surgical technique
- Complications that occur soon after surgery include:
 1. Wound infection is the main problem that can occur in the early recovery period, generally between 1-3 weeks. Symptoms include fever, weakness, fatigue and nausea. Signs include redness, swelling and wound drainage. If infection is diagnosed and treated early, it can be managed by an irrigation and debridement operation with preservation of the replacement. If however, the infection is long standing, the artificial components may have to be removed and a staged reconstruction performed after thorough antibiotic treatment.
 2. Stiffness can occur secondary to scar tissue that forms between tissue layers. Generally, with a properly conducted physical therapy program, this is not a problem. However, some patients have an overactive healing response and stiffness may be unavoidable. Stiffness may require a manipulation under anesthesia if further physical therapy cannot improve the range of motion.
- Complications that occur remote from surgery include:
 1. Late infections may occur by spreading to the shoulder from a different source such as the urinary tract, a tooth abscess, or other breaks in the skin. For this reason, we generally recommend that prophylactic antibiotics be taken prior to any invasive procedures such as dental work, colonoscopy, etc...

Rehabilitation

Recovery and rehabilitation in the hospital

Early motion after shoulder replacement surgery helps achieve the best possible shoulder function. Early motion is facilitated by the complete surgical release of the tight tissues so that after surgery the patient has only to maintain the range of motion achieved at the operation. However, after surgery, scar tissue will tend to recur and limit movement unless motion is started immediately. Early motion also stimulates recovery of muscle function. During the hospitalization, the patient learns a simple rehabilitation program that will be used for maintaining the range of motion after discharge.

Outpatient Physical Therapy

Recovery of mobility and function is a graduated process that follows tissue healing. We have developed comprehensive therapy protocols that are designed to prevent stiffness and re-educate the muscles about the shoulder girdle to function in a smooth and

coordinated fashion. These protocols are designed in such a way for the therapist to educate the patients about home exercises throughout the recovery process. The exercises that a patient does on his/her own between therapy sessions are equally as important as the sessions themselves, and patient adherence to this program is critical to preventing early stiffness. A properly performed home exercise program ensures that the exercises are done frequently, effectively and comfortably.

Because the focus of these procedures is not on repair the rotator cuff tendons, an extended period of immobilization in a sling is not necessary. Gentle use of the arm for daily activities is allowed immediately following surgery. Exercises to strengthen the shoulder girdle muscles are started after full range of motion is achieved. The goal of the recovery process is to resume functional activities within a few weeks following surgery.

By following this exercise program, patients are almost always satisfied with the increases in range of motion, comfort and function that they achieve during the recovery period. If the exercises are uncomfortable, difficult, or painful, the patient should contact the therapist or surgeon promptly.

Maintenance Rehabilitation

Once the range of motion goals are achieved, the exercise program can be cut back to a minimal level. However, gentle stretching is recommended on an ongoing basis. In addition, a maintenance program to keep the rotator cuff muscles strong and healthy will ensure proper function of the artificial joint and may help prolong its benefit.

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