Shoulder Disorders

Shoulder pain and weakness due to rotator cuff muscle/tendon or biceps tendon can be caused by normal wear and tear of daily activity, sports or sudden injury. Not all shoulder pain is due to rotator cuff or bicep dysfunction. Pain in and around the shoulder itself can be due to referred pain via nerves from the neck or the shoulder itself, fibromyalgia, glenohumeral arthritis or acromioclavicular arthritis, frozen shoulder, tumors in the chest, etc.

How Is Diagnosis Made?

Your physician will ask you about your symptoms, examine the shoulder, may order x-rays of your shoulder, and then identify if you have a rotator cuff or biceps problem.

Types of Disorders

- **Shoulder Impingement / Overuse Tendonitis:** Bursa/tendon becomes swollen and irritated.
- **Calcific Tendonitis:** Chronic injury causes calcium to deposit in the rotator cuff which irritates the surrounding tissues
- **Partial or Complete Rotator Cuff Tear:** This can occur due to severe tendonitis or sudden injury. Your physician may order an arthogram (dye is placed inside the joint) or an MRI to help identify if a tear is present.
- **Biceps Tendonitis:** Biceps tendon becomes irritated with constant use.

Treatment

**Non-Surgical:** Initially shoulder pain is treated without surgery as a majority of patients have complete resolution of the shoulder pain and are able to return to normal function with a period of rest, ice, and anti-inflammatory medications such as ibuprofen, Naprosyn, etc., if they are able to tolerate such medications and are not taking blood thinners. These patients can try Tylenol for pain relief. Exercises are then begun when pain has decreased to strengthen the shoulder muscles and a limited number of cortisone injections in the shoulder can also be done. Physical therapy may also be useful with modalities such as ultrasound, electrical stimulation, taping the shoulder, etc. If pain persists without decreasing for months, surgery may be considered.

**Surgery:** Surgery is done as an outpatient procedure and uses general anesthesia with possibly a shoulder block which numbs the shoulder and arm for several hours after surgery. Surgery may involve the following:

- Manipulation of the shoulder joint/removal of scar tissue; to improve shoulder movement.
- Subacromial decompression where the bursa/bone (acromion) is burred down and the coracoacromial ligament may be removed to make more space for the rotator cuff and biceps tendon.
- Calcification removal is done if calcium is present. If there are any significant gaps in the tendon left behind after calcification removal, the tendon is repaired.
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- Rotator cuff repair is done if the tendon is no longer attached to the bone or if less than 50% of the tendon is still attached to the bone. Surgery is done to relieve pain and muscle strength may not improve after successful repair.

- If the biceps is frayed and significantly inflamed, it may be cut from the joint (tenotomy) or reattached to the humeral head.

Prognosis

Tendonitis usually gets better without surgery, but can take 9 to 12 months and may recur if exercises are not done routinely and the shoulder is overused. If pain persists and surgery is done, most individuals improve their shoulder movement and have decreased pain; however, up to 15% of patients continue to have pain as the shoulder is a very dynamic joint and the muscles can continue to be painful.

AFTER SURGERY FOR TENDONITIS a sling is initially used as needed. One begins moving the operated shoulder with the other arm, and then starts strengthening the shoulder as comfortable. Recovery is usually between 3 to 6 months depending on the pain severity prior to surgery and surgical findings.

AFTER SURGERY FOR CALCIFICATION REMOVAL it can be a long recovery process if there is a large amount of calcium removed as there may be a gap left behind in the tendon and rotator cuff repair may be needed. The shoulder is in a sling for 4-6 weeks, followed by stretching, then strengthening of the shoulder which can take 6-9 months for recovery. If no repair is needed, then rehab is the same as for tendonitis above.

AFTER SURGERY FOR ROTATOR CUFF REPAIR there is a long recovery process while the tendon reattaches itself to the bone. A sling is used full time, including at night, for 6 weeks. Stretching begins 6 weeks after surgery and strengthening begins 3 months after surgery, with return to full activity at 6 to 9 months depending on the extent of the rotator cuff tear. Reattachment of the torn tendon is high, 90 to 95% for small tears and 40-50% for large massive tears.

AFTER SURGERY FOR BICEPS REPAIR the biceps tendon is cut from its original attachment in the glenoid and attached to the humeral head bone. A sling is worn till the tendon attaches to the bone, about 4 weeks, followed by stretching and strengthening which begins gradually at 2 months. Return to activity is 4-6 months.

BICEPS TENOTOMY is done if the biceps tissue is significantly damaged, the tendon is cut and then the biceps muscle may shorten to give a bulge ('Popeye' look) in the arm. Pain is relieved, but there may be some loss of strength.

For more details regarding Shoulder Tendon Dysfunction and “Is Surgery for You?” try the American Academy of Orthopaedic Surgeons web site or the Kaiser web site, specifically “Emmi,” our online educational tool to prepare for surgery.

RISKS OF SURGERY for SHOULDER MANIPULATION, SUBACROMIAL DECOMPRESSION, CALCIFICATION REMOVAL, ROTATOR CUFF REPAIR, BICEPS TENOTOMY OR BICEPS REPAIR
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Summary of Procedure

Shoulder surgery is an arthroscopic procedure which involves making small cuts around the shoulder in order to place instruments into the shoulder joint and subacromial space. The purpose is to:

- Remove scar tissue in order to increase shoulder movement,
- Remove bone (acromion) spur and coracoacromial ligament as needed in order to make more space for the inflamed tendons,
- Remove calcium within the tendon if needed and repairing the rotator cuff tendons to the bone, or
- Repair a tear within the tendon as needed. If the biceps tendon has significant inflammation, it can be cut or reattached to the humeral head via sutures. Repair of the tendons can be done arthroscopically or with an open incision. The objective of the surgery is to relieve pain and improve function.

Complications

In general, shoulder surgery is successful and the majority of patients (90%) are satisfied with the procedure after what can be a long recovery process (up to one year) which includes an extensive exercise program on the part of the patient. Unfortunately, as with all surgery, the success rate is not 100% and there can be complications. Some of the most common complications are listed below, with a brief explanation of each one. (Note that not all possible complications have been listed)

- **Infection.** Any time the skin is opened in an operation, a germ can enter the wound and cause an infection. Usually the body can fight such an infection but in the presence of any artificial material, such as sutures or anchors (used in shoulder surgery only if a repair is done), the body may be unable to fight the infection. If the shoulder becomes infected, the suture and anchors may need to be removed depending on the severity of the infection and the type of bacteria present. Infection usually occurs immediately after surgery but may occur later when the germ travels through the body and settles in the shoulder. Fortunately the infection rates are low, less than 1%, but can be higher if the patient has diabetes mellitus or has any condition which lowers the body's resistance to infection.

- **Bleeding.** All surgeries cause some bleeding. Shoulder surgery does not need transfusion but the arthroscopy fluid used in the surgery combines with the small amount of bleeding which does occur, all of which can cause shoulder swelling along with decreased shoulder movement that can takes several days to resolve.

- **Persistent pain** may still be present if the shoulder does not gain full movement or strength and it is important to do the exercises for maximum recovery. Depending on the exact surgery done, up to 15% of patients can still have pain after shoulder surgery.

- **Stiffness** is very common after shoulder surgery and it is important to stretch the shoulder often as directed by your physician / physical therapist.

- **Repair or Hardware failure.** The tendon is reattached to the bone via sutures. The anchors with the sutures may pull out of the bone after surgery, the sutures may pull out of the tendon, or the tendon does not heal to the bone,
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all of which will cause the repair to fail. Successful tendon repair depends on the quality of the remaining tendon, extent of tendon/muscle retraction/atrophy, and quality of the bone itself, among others. Small tears heal 90 to 95% while larger rotator cuff tears have a lower chance of successful repair and can be as low as 40 to 50%. But, individuals may still have decreased pain after surgery even if the repair fails. Repeat attempt at repair, after an unsuccessful repair, has an even lower success rate. If repair fails and the patient still has significant pain, shoulder prosthesis may be another option.

- **Non-repairable cuff tear.** If the tendon/muscle has significant retraction such that it cannot be stretched over the humeral head, it will not be possible to repair the tendon. Often it is not possible to determine if the tendon can be stretched without surgery. If the tendon has significant retraction and atrophy, shoulder prosthesis may be considered.

- **Injuries to nerves, blood vessels and other structures.** There are several important blood vessels and nerves around the shoulder joint which are at possible risk. The surgery is done in either a sitting or lying on the side position. Every effort is made to ensure the spine is not at risk but rarely there can be an acute nerve compression from the spine resulting in nerve irritation like sciatica which can take months to resolve and (rarely) may not recover.

- **Blood clots.** During any surgery there is a risk of blood clotting in the blood vessels instead of flowing normally. We minimize the risk by placing compression devices on both the legs during the surgery to keep the blood flowing. It is rare but possible to get a blood clot in your arms or legs after surgery.

- **Medical problems related to anesthesia and surgery.** While general anesthesia is usually very safe, there is always the risk of heart attack, stroke, pneumonia, and even death.

- **Wound healing problems.** Occasionally the incisions do not heal within the usual 14 days. This usually does not require another surgery and the incisions eventually heal by keeping the cuts dry. Again, this is more likely to occur in patients with diabetes mellitus, smokers, or if they have any condition which lowers the body’s ability to heal. There can be numbness around the incision sites which may not resolve.

- **Deltoid dehiscence.** Rarely the deltoid muscle which may be surgically detached from the bone (acromion) to perform the surgery fails to heal back to the bone after it is reattached during surgery. This can lead to some loss of shoulder strength and defect in the shoulder contour where the muscle is no longer attached. Repeat surgery for repair is usually not successful if this occurs.

In conclusion, shoulder surgery while successful most of the time, does carry some risks and although rare, can make the person worse than if they had not had the procedure. As a result, any decision to proceed with surgery should be carefully considered and we usually do not recommend surgery unless simpler and safer methods such as medications, therapy, and injections have been tried first and are ineffective, unless a rotator cuff tear is present. If a patient does elect to have surgery, he or she can be confident that we will do all we can to minimize the risks in order to achieve a successful outcome.