

Update on the Surgical Treatment of a Stiff Elbow

Surgeon Alert: Update on the Surgical Treatment of a Stiff Elbow

Surgeons will want to take a look at this article. Two surgeons from the Department of Orthopaedic Surgery at Washington University in St. Louis (WUSTL) provide an in-depth review of surgical treatment of the stiff elbow.

The authors begin by discussing when to do arthroscopic surgery versus an open procedure. Then they move on to surgical technique including equipment, patient positioning, and a description of various techniques (e.g., capsular release, debridement, manipulation). Photos provide visual aids before and during the arthroscopic approach.

In the third section, postoperative care, complications, and outcomes are covered. The final segment labeled: pearls and pitfalls summarize what the authors consider the bottom-line or take home message for surgeons treating patients with a stiff, contracted elbow.

Let's start with how this condition of a stiff elbow gets started in the first place. The most common problem leading to a stiff elbow is an elbow fracture with dislocation. Most often, these complex injuries also have nerve damage, muscle tears, and/or ligament ruptures.

Sometimes a condition called heterotopic ossification (HO) develops and further complicates matters. HO is the formation of bone in soft tissues where it doesn't belong (e.g., inside the muscle).

There are other causes of a stiff elbow that are not as likely to respond to surgery. Patients with burns, spinal cord injury, brain injury, or neuromuscular diseases like cerebral palsy can also present with elbow stiffness that limits motion and function.

In order to qualify for arthroscopic surgery for a stiff elbow, the patient must complete at least two to three months of therapy. A hand therapist (occupational or physical therapist) provides a host of different treatment techniques. The goal is to restore normal motion and function. When that just isn't possible (for whatever pathologic reason), then referral to a surgeon is in order.

The surgeon will evaluate each patient carefully in order to determine the best way to conduct the arthroscopic surgery. The surgeon can enter the joint from the front (anterior approach) or from the back of the elbow (posterior). Swelling in the joint and/or scar tissue from previous surgeries can dictate which way the surgeon will begin.

When entering from the front, special care must be taken to avoid injury to any of the nerves in that area. Before beginning the operation, the surgeon may mark the skin of the patient. A black marker is used to identify all of the important soft tissues. During the procedure, fluid may be injected into the joint. This step helps increase the distance between nerves and other soft tissues.

Entering the joint from the back (posterior approach) gives the surgeon an entirely different view compared with an anterior approach. A different part of the capsule can be released from this direction.

The capsule around the joint has to be released to allow the surgeon access into the joint. Special surgical tools called retractors are used to pull the capsule away from the bone and allow the surgeon a better view inside the joint.

Whichever approach is used (and sometimes both anterior and posterior approaches are required), once inside, the surgeon gets busy. Any areas of debris, loose fragments of tissue, or scar tissue are cleaned up. Bone spurs are shaved off. This part of the procedure is called debridement.

Scar tissue from around the nerve is carefully scraped or cut away. This portion of the operation is the decompression. The surgeon will move the arm through its full motion while the patient is under anesthesia (manipulation). Anything that keeps the elbow from moving normally and fully is addressed.

The patient leaves the operating area with a soft dressing and a splint on the arm. Early movement is advised and hand therapy to reduce pain and swelling while maintaining and possibly improving motion begins immediately. Patients can expect to continue in physical therapy for four to six weeks with a very active home program of exercise as well.

How well does this all work? Experts agree that treating the stiff elbow (for whatever reason it develops) can be difficult with a high risk of complications. For example, infection and damage to the nerves and blood vessels are not uncommon problems. It seems the patients who have the best results start out with mild-to-moderate elbow stiffness and without heterotopic ossification.

But for carefully selected patients, arthroscopic treatment of the stiff elbow can be very effective. Patients should not expect a perfectly normal elbow after surgery. But they can expect an elbow that moves enough to restore basic function. Patients can expect to work hard everyday to get smooth motion back and to keep it. In some cases, results are less than optimal and open surgery is still required later.

What about those "pearls and pitfalls"? Surgeons must keep in mind that a contracted, stiff elbow must be entered with the arthroscope carefully and with the intent to avoid punching through blood vessels or nerves. Scar tissue and fibrotic tissue can make normal entry with the scope difficult.

The surgeon should be prepared for distortion of the normal anatomy when there are fractures, dislocations, contractures, and fibrosis. More than one portal (entry way into the joint) may be needed to help improve what the surgeon can see inside the joint.

Proper handling of the surgical instruments will help prevent accidental injuries to vital soft tissue structures. And finally, there is a particular order in which each procedure should be done to give the best results (e.g., debridement before capsular release, tendon/muscle release last).

Reference: Jay D. Keener, MD, and Leesa M. Galatz, MD. Arthroscopic Management of the Stiff Elbow. In Journal of the American Academy of Orthopaedic Surgeons. May 2011. Vol. 19. No. 5. Pp. 265-275.