Arthroscopic Rotator Cuff Repair with Interval Release for Contracted Rotator Cuff Tears

Joseph C. Tauro

As experience has been gained in the arthroscopic repair of small and moderate rotator cuff tears, there has been a natural progression toward the repair of larger tears.1–3 There is now considerable experience in the arthroscopic repair of these larger tears. The most significant advantage of an all-arthroscopic approach in the repair of large and massive rotator cuff tears is the elimination of deltoid morbidity that often occurs after open surgery.4–6 Many patients will not recover full function of the cuff despite attempts at repair, and so loss of deltoid function is an even more significant complication in this group. The larger the cuff tear (and the more extensile the surgical exposure), the greater the potential benefit of an arthroscopic repair.

Some large rotator cuff tears may be quite mobile and therefore do not require soft tissue release. Other tears are contracted and cannot be repaired without mobilizing the tendon from contracted capsule or, in the case of revision repairs, scar tissue.2,7–9 In this chapter, we will discuss the indications and the techniques for soft tissue release for contracted cuff tears and revision repairs.

15.1. Surgical Procedure

Arthroscopic repair of large rotator cuff tears is technically challenging but possible using a systematic and stepwise approach. Experience in repairing smaller tears is mandatory before taking on this greater challenge. Loss of rotational stability (not only superior, but anterior and posterior as well) is one of the major causes of pain and loss of function in these patients. The repair is performed to correct this problem by closing as much of the cuff as possible. However, it is much better to perform a partial repair of the cuff that will function well than to perform a high-tension repair of the cuff that will fail postoperatively. All of the concepts of arthroscopic cuff repair discussed in prior chapters need to be followed. Especially critical to success is complete exposure of the tear and the identification of its configuration.
Smaller tears of the supraspinatus are usually contained within the bursa so that exposure is not difficult. Large tears will usually extend more posteriorly and, therefore, outside the bursa. This necessitates a more difficult extrabursal debridement but one that must be performed in order to fully expose the tear. An electrosurgical ablative device is used primarily in this exposure as the extrabursal tissue is quite vascular and will bleed if debrided initially with a rotary shaver alone.

Pattern configurations of large tears are the same as those described for smaller tears, namely, crescent and longitudinal. Many tears that appear to be very large are still quite mobile. In these cases, crescent-shaped tears can be repaired directly to bone and longitudinal tears can be repaired with a combination of side-to-side repair (margin convergence) and then end-to-bone repair if necessary. Some retracted tears, however, have poor mobility. Inability to close the cuff tear due to intrinsic muscle atrophy and fibrosis is not correctable with primary repair. Poor cuff mobility secondary to attachment to contracted capsular tissue or scar tissue from prior repair attempts (open or arthroscopic) is correctable with arthroscopic releases.

In large tears, we subdivide the crescent and longitudinal patterns into nonretracted and retracted categories. Note how in Figures 15.1(A) and 15.2(A) the supraspinatus tendon is tethered by the contracted coracohumeral ligament and the attached rotator interval capsule. Retracted tears must be released from these tissues to achieve the maximum closure possible. Other special considerations need to be made when repairing large cuff tears arthroscopically, which will be outlined below.

15.1.1. Positioning and Setup

All arthroscopic cuff repairs are performed as outpatient surgeries, usually under general anesthesia. Scalene block anesthesia is used if there is a patient preference or a medical contraindication to general anesthesia. We perform the procedure with the patient in the lateral decubitus position with the arm placed in 45° of abduction and 15° of forward flexion and with 10 pounds of traction. The beach chair position is preferred by some surgeons and is certainly acceptable. Excessive abduction should be avoided because it will block access to the greater tuberosity.

15.1.2. Surgical Technique

Routine diagnostic arthroscopy is performed first in the glenohumeral joint to assess the size and shape of the tear. In revision cases, the cuff tendon may be scarred to the acromial roof and can be difficult to identify. Careful dissection of cuff tissue off the acromion, starting from more posterior where more normal cuff tissue can be identified, is necessary in these cases before proceeding with any further work. This is best accomplished