

Considerations for Conservative Treatment of Rotator Cuff Rupture

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Conservative care from a manual point of view for cuff ruptures has to do with friction massage, fascial release and rehabilitation i.e., especially strengthening of the cuff muscles. Surgically it has been found that even a massive cuff tear can be treated without repairing the tendon, especially in patients in their 50s and 60s.¹

Studies show² that when tears are repaired greater than 5cm in diameter, the average final postoperative elevation was only 98°, and when the tears measured 3-5cm in diameter, the average active elevation was 142°. Using arthroscopic surgery, consisting of decompression and debridement of the cuff lesion without tendon repair, seems in many cases to be more beneficial for the 50 and older patient. Debridement is the removal of foreign material, devitalized or contaminated tissue, leaving the normal tissue. A rupture, especially less than 2cm, responds to procedures that do not attempt to repair the tendon tear,³ although large tears (up to 5cm) have also responded. Hawkins⁴ followed the nonoperative management of full-thickness cuff tears for 7.6 years and found that function did not deteriorate with time.

The authors concluded³ that the shoulder pain and loss of function was due to a thickened inflamed subacromial bursa impinged beneath the coraco-acromial arch, rather than the actual tear. This knowledge of scarred bursal tissue rather than the tear itself aggravating the patient, may explain the beneficial results of friction massage and fascial release for cuff tears. We know that friction of soft tissue causes an increase in fibroblastic proliferation and fibroblasts synthesize and maintain collagen, fibronectin, proteoglycans and other proteins of the connective tissue matrix. The fibroblasts continually replace and remodel the matrix.⁵ In other words, deep friction can repair the thickened inflamed bursa, as it has done for chronic bursitis of the shoulder and hip.⁶

It has been found that rotator cuff tears are especially common in patients 50 and up with rather good shoulder function. Basmajian and MacConaill⁷ proved that the supraspinatus muscle was not necessary for normal shoulder motion. Complete paralysis of the supraspinatus only reduced the force of abduction. As long as the cuff depressors of the humeral head (*infraspinatus*, *teres minor* and *subscapularis*) are intact, there will be adequate glenohumeral concavity compression, allowing the deltoid to elevate the arm. While the deltoid/rotator cuff force couple (coronal plane) is important, another force couple between the *subscapularis* and the combined *infraspinatus* and *teres minor* is also important. This is the force couple that works in the transverse plane i.e., the anterior (*subscapularis*) and posterior portions (*infraspinatus/teres minor*) of the rotator cuff.

In most cases, large rotator cuff tears extend posteriorly rather than anteriorly, therefore involving mostly the *infraspinatus* muscle/tendon. Testing of the *infraspinatus* will be extremely weak, usually along with the *supraspinatus*. Tearing of the *infraspinatus* affects both the coronal and transverse force couples, allowing deficient motion due to loss of the glenohumeral fulcrum. As

long as enough of the force couples remain intact and maintain the glenohumeral fulcrum, so that elevation of the humerus is possible, it becomes evident that "the location of the tear seems to be more important than the size of the tear."¹

I have found in many cases of ruptured tendons that deep friction massage to the subacromial bursa and areas in and around the cuff muscles helps to decrease pain and restore function. Especially in older patients suffering with pain and weakness due to tendon rupture, reducing the inflamed scarred bursae by increasing fibroblastic proliferation (friction massage) and muscle strengthening, is definitely a worthwhile procedure for several months before resorting to surgery.

References

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