

Massive Rotator Cuff Tears without Arthritis

THE CASE FOR SUPERIOR CAPSULAR RECONSTRUCTION

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Disclosures:

I am a consultant for Arhrex, Inc and Endo Pharmaceuticals.

During the course of this talk, I will discuss a technique marketed by Arhrex.

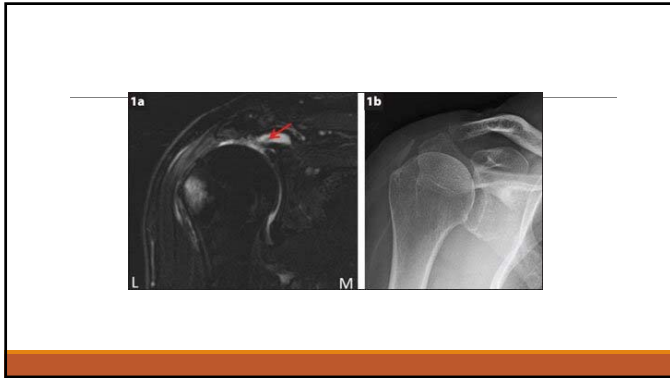
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The Irreparable Rotator Cuff

Most Rotator cuff tears are reparable

Once tears have retracted and significant atrophy has occurred at the muscular level, fewer options exist to treat these patients

Natural history of unrepaired retracted rotator cuffs is not good, often leading to degenerative joint disease (Rotator Cuff Arthropathy)



Options to Treat:

- Reverse Total Shoulder
- Partial Repair
- Graft assisted Repair
- Tendon Transfer
- Superior Capsular Reconstruction

Rotator Cuff Arthropathy

Loss of the superior rotator cuff alters joint mechanics such that the humerus superiorly translates.

This leads to hinging of the humerus under the acromion

Ultimately, the superior subluxation of the shoulder and loss of congruency of the glenohumeral joint leads to irreversible degeneration of the articulation

A window of opportunity exists to treat these patients prior to onset of arthropathy



Superior Capsular Reconstruction

Biomechanical Studies have shown the importance of the Superior Capsule in preventing superior migration of the humeral head

Replacing the superior capsule can maintain a concentric shoulder joint

This allows the force couple of the rotator cuff to remain intact for more normal motion

Superior Capsule Reconstruction to Restore Superior Stability in Irreparable Rotator Cuff Tears

A Biomechanical Cadaveric Study

[Teruhisa Mihata](#), MD, PhD et. al.

American Journal of Sports Medicine August 10, 2012

Superior Capsule Reconstruction to Restore Superior Stability in Irreparable Rotator Cuff Tears

A Biomechanical Cadaveric Study

Methods:

Eight cadaveric shoulders were tested in a custom shoulder testing system. Superior translation of the humerus, subacromial contact pressure, and glenohumeral joint force were quantified in the following 5 conditions: (1) when the rotator cuff was intact, (2) after cutting the supraspinatus tendon, (3) after the patch graft to reconstruct the supraspinatus tendon, (4) after the patch graft to reconstruct the superior capsule, and (5) after the patch graft to reconstruct both the supraspinatus tendon and superior capsule. While the graft was sutured to the torn tendon in condition 3, the graft was attached to the superior glenoid in condition 4.

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Results:

Compared with values for intact rotator cuffs, cutting the supraspinatus tendon significantly increased superior translation ($P < .05$), significantly increased subacromial contact pressure ($P < .05$), and significantly decreased glenohumeral compression force ($P < .05$). Superior translation was restored partially after the supraspinatus tendon patch graft and restored fully after the superior capsule patch graft and after both patch grafts. All patch grafts fully restored the subacromial contact pressure ($P < .05$) but did not alter the glenohumeral joint force.

Conclusion:

When patch graft surgery is chosen for irreparable rotator cuff tears, the graft should be attached medially to the superior glenoid and laterally to the greater tuberosity to restore superior stability of the humeral head.

Superior Capsular Reconstruction





Post Operative Protocol

Sling for 6 weeks
Passive ROM at 4 weeks
Active ROM at 6 weeks
Strengthening and return to function at 12 weeks

- Standard rotator cuff repair protocol will apply, though significant strengthening may not be possible

Clinical Results of Arthroscopic Superior Capsule Reconstruction for Irreparable Rotator Cuff Tears

Teruhisa Mihata, M.D., Ph.D. et al.

Arthroscopy Volume 29, Issue 3, Pages 459-470

Clinical Results of Arthroscopic Superior Capsule Reconstruction for Irreparable Rotator Cuff Tears

Methods

From 2007 to 2009, 24 shoulders in 23 consecutive patients (mean, 65.1 years) with irreparable rotator cuff tears (11 large, 13 massive) underwent ASCR using fascia lata. We used suture anchors to attach the graft medially to the glenoid superior tubercle and laterally to the greater tuberosity. We added side-to-side sutures between the graft and infraspinatus tendon and between the graft and residual anterior supraspinatus/subscapularis tendon to improve force coupling. Physical examination, radiography, and magnetic resonance imaging (MRI) were performed before surgery; at 3, 6, and 12 months after surgery; and yearly thereafter. Average follow-up was 34.1 months (24 to 51 months) after surgery.

Clinical Results of Arthroscopic Superior Capsule Reconstruction for Irreparable Rotator Cuff Tears

Results

Mean active elevation increased significantly from 84° to 148° ($P < .001$) and external rotation increased from 26° to 40° ($P < .01$). Acromiohumeral distance (AHD) increased from 4.6 ± 2.2 mm preoperatively to 8.7 ± 2.6 mm postoperatively ($P < .0001$). There were no cases of progression of osteoarthritis or rotator cuff muscle atrophy. Twenty patients (83.3%) had no graft tear or tendon retear during follow-up (24 to 51 months). The American Shoulder and Elbow Surgeons (ASES) score improved from 23.5 to 92.9 points ($P < .0001$).

Conclusions

ASCR restored superior glenohumeral stability and function of the shoulder joint with irreparable rotator cuff tears. Our results suggest that this reconstruction technique is a reliable and useful alternative treatment for irreparable rotator cuff tears.

Conclusion

Irreparable rotator cuff tears present a treatment challenge

In patients without progression to arthropathy, SCR is a viable treatment option

SCR should be performed by experienced shoulder/upper extremity surgeons

Clinical results show improvement in shoulder function after recovery

Thank You!
