ATI = 88.6, CS = 74.0 and 12 (p<0.01, ATI = 93.3, CS = 62.9) months. The mean ASES scores in the ATI group improved from baseline to 6 and 12 months (14.4 and 19.1 points, respectively) and were greater than the MCID (12.0 points). At 12 months post treatment, 95% of ATI participants reported a PASS (patient acceptable symptom state) in their ASES score. Overall, 7 of 11 participants in the CS group withdrew from the trial between 6 and 12 months due to worsening shoulder pain and function. Conclusions: This study demonstrated that ATI resulted in a significantly better and sustained reduction in pain, and improvement in shoulder function, compared with CS. ATI is an emerging non-surgical treatment to promote tendon healing and repair. This is the first Level 1 study using ATI to treat interstitial supraspinatus tears with chronic impingement syndrome.

Category: Shoulder - Rotator Cuff

Long-term Clinical and Structural Outcomes of Arthroscopic Superior Capsule Reconstruction for Irreparable Rotator Cuff Tears: 10-year Follow-up

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Summary:
For irreparable rotator cuff tears, arthroscopic SCR restored shoulder function and relieved shoulder pain, with high rates of return to recreational sports and physically demanding work, and it maintained significant improvements in clinical and structural outcomes for at least 10 years after surgery.

Data:
INTRODUCTION Short-term follow-up studies have reported favorable clinical outcomes after arthroscopic superior capsule reconstruction (SCR) for irreparable rotator cuff tears. Our objective here was to assess whether these positive outcomes are maintained long-term and whether cuff tear arthropathy worsens over time after fascia lata autograft SCR. METHODS This study analyzed data collected prospectively from 34 consecutive patients (36 affected shoulders) with irreparable rotator cuff tears who underwent arthroscopic SCR from 2007 through 2011. Active shoulder range of motion (ROM) and American Shoulder and Elbow Surgeons (ASES), Japanese Orthopaedic Association (JOA), and Visual Analog Scale (VAS) scores were evaluated before SCR and at 1 year, 5 years, and 10 years after surgery; rates of return to participation in sports and physically demanding work were determined as well. In addition, radiography and MRI data were collected before surgery and at 3 and 6 months and at 1, 2, 3, 4, 5, and 10 years afterward. Acromiohumeral distance (AHD) and Hamada grade (stage of cuff tear arthropathy) were evaluated by using radiography. We defined Hamada grades 3 and 4b as acetalabularization and grades 4a and 4b as glenohumeral osteoarthritis. Graft survival rate and thickness were assessed by using T2-weighted MRI. RESULTS Compared with presurgery values, ASES and JOA scores and active ROM (elevation and external rotation) were increased significantly at 1 year after SCR (P < 0.001) and maintained throughout follow-up. At 10 years after SCR, 88% (15 of 17 patients) of workers with physically demanding jobs and 90% (9 of 10 patients) of sports players still participated in these activities. Graft survival rate was 94% (34 of 36 shoulders) at 1 year after SCR, 92% (33 of 36 shoulders) at 2 to 4 years, and 89% (32 of 36 shoulders) at 5 to 10 years. In healed grafts, graft thickness was maintained for at least 10 years after SCR (7.8±2.0 mm at 3 months after SCR, 7.8±1.6 mm at 10 years). The incidence of acetalabularization (affected shoulder, 9% unaffected shoulder, 6%) and glenohumeral osteoarthritis (affected shoulder, 28%; unaffected shoulder, 16%) during the 10 years after SCR did not differ between affected and unaffected shoulders. The complication rate was 2.8% (1 of 36 patients, anchor pull-out). CONCLUSION For irreparable rotator cuff tears, arthroscopic SCR restored shoulder function and relieved shoulder pain, with high rates of return to recreational sports and physically demanding work, and it maintained significant improvements in clinical and structural outcomes for at least 10 years after surgery. In addition, graft healing completely prevented any progression of cuff tear arthropathy. Arthroscopic SCR is an effective surgical option for irreparable rotator cuff tears and retains positive outcomes for at least 10 years.

Category: Shoulder - Rotator Cuff

Temporal Changes in the Magnetic Resonance Imaging after Arthroscopic Rotator Cuff Repair with Superior Capsule Reconstruction for Reinforcement

Abstract ID# 21645

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Summary:
This study aimed to assess the temporal changes in magnetic resonance imaging (MRI) appearance after arthroscopic rotator cuff repair with superior capsule reconstruction for reinforcement (SCR-R). SCR-R prevented postoperative retear even in severely degenerated tendon tears. The MRI appearance of repaired tendon and graft continued to mature during 2-year follow-up.

Data:
Introduction: Retearing of repaired rotator cuff tendons often worsens clinical outcomes and decreases patient satisfaction after arthroscopic rotator cuff repair. Recently, arthroscopic rotator cuff repair with superior capsule reconstruction for reinforcement (SCR-R) was developed to improve the repair integrity and prevent retear of the repaired tendon for the treatment of degenerated rotator cuff tears. However, there have been no study which assessed the temporal changes in the structural integrity of repaired tendons and graft on magnetic resonance imaging (MRI) after SCR-R. Hence, this study aimed to assess the temporal changes in MRI findings after SCR-R. Methods: We retrospectively reviewed 33 consecutive patients (11 men and 22 women; mean age: 71.0 years) with degenerated rotator cuff tears (thin and/or fatty degenerated tendon) who underwent SCR-R and completed postoperative MRI examinations at 3, 6, 12, and 24 months. Thirty tears were medium and three were large tears. Seven shoulders had isolated supraspinatus tears, 23 shoulders had two tendon tears (supraspinatus and infraspinatus or supraspinatus and subscapularis), and three shoulders had three tendon tears (supraspinatus, infraspinatus, and subscapularis). The Goutallier grade of supraspinatus was 1–3. We assessed the postoperative repair integrity using the Sugaya classification and the high-intensity area between the repaired tendon and graft at 3, 6, 12, and 24 months. The McNemar test was used for the statistical analysis. Statistical significance was defined as P < .05. Results: None of the 33 patients had postoperative retears after SCR-R. Regarding repair integrity, five shoulders were type I and 28 were type II at 3 months; 10 were type I and 23 were type II at 6 months; 21 were type I, 10 were type II, and two were type III at 12 months; 26 were type I, 5 were type II, and two were type III at 24 months. There were 15%, 30%, 64%, and 79% type I shoulders at 3, 6, 12, and 24 months, respectively, with a significant increase between 6 and 12 months (P = 0.002). As for the high-intensity area between the repaired tendon and graft, there were 28, 23, 12, and 4 shoulders with high-intensity areas at 3, 6, 12, and 24 months, respectively. The rate of shoulders with high-intensity area between repaired tendon and graft was 85%, 70%, 36%, and 12% at 3, 6, 12, and 24 months, respectively, with a significant decrease between 6 and 12 months (P = 0.002) and between 12 and 24 months (P = 0.005). Discussion and Conclusion: SCR-R prevented postoperative retear of the repaired rotator cuff tendon even in severely degenerated tendon tears. During the 2-year follow-up after SCR-R, the MRI appearance of repaired tendons and grafts continued to mature. Furthermore, the rate of high-intensity areas between the repaired tendons and grafts continued to decrease. These results suggest that graft-to-tendon healing may occur following SCR-R.

Category: Shoulder - Rotator Cuff

New Bioactive Spatially-Embedded Growth Factor (SEGF) Scaffold Promotes Bone-To-Tendon Interface Healing After Chronic Rotator Cuff Repair

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Summary:
This new bioactive spatially-embedded growth factor (SEGF) Scaffold effectively accelerated BTT healing in chronic rotator cuff tear model of rabbits.