

LONG-TERM OUTCOME OF ROTATIONAL INFRASPINATUS MUSCLE TRANSFER

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We performed a rotational infraspinatus muscle transfer in 5 patients, and subsequently investigated the supraspinatus muscle volume share (SMV) by MRI, once six months after the surgery and another more recently. The supraspinatus and infraspinatus tendon stamp was detached from the rim of the glenoid with an arthroscope. The infraspinatus muscle was detached from the scapula with another incision on the spine of the scapula. The posteroinferior stamp of the infraspinatus tendon was moved to the superior facet of the greater tubercle of the humerus on the supraspinatus tendon rotationally. A surgical procedure involved a rotational infraspinatus muscle transfer with a supraspinatus muscle tendon stamp to avoid suprascapular nerve injury.

Case 1: The patient was a 73-year-old female, with a JOA score of 42.5 before her surgery which improved to 84, eleven years later; her SMV share also improved from 36.7% to 50.1%.

Case 2: The patient was a 75-year-old male, with a JOA score of 18 before surgery which improved to 86, eleven years later; his SMV share also improved from 17.1% to 32.4%.

Case 3: The patient was a 72-year-old man, with a JOA score of 49.5 before surgery which improved to 89, ten years later. His SMV share, however, decreased from 63.8% to 45%.

Case 4: The patient was a 73-year-old man, with a JOA score of 71 before surgery which improved to 84, ten years later. His SMV share decreased from 63.2% to 50.1%.

Case 5: The last patient was a 75-year-old female, with a JOA score of 53 before surgery, which improved to 74, nine years later. Her SMV share decreased from 43.3% to 41.8%.

Conclusion: The elongation of the supraspinatus muscle by rotational infraspinatus muscle transfer resulted in supraspinatus muscle function recovery for a significant amount of time.



though degeneration of the torn tendons was higher in patients who underwent ARCR with SCR.

SYMPTOMATIC ROTATOR CUFF TEARS FREQUENTLY ASSOCIATED WITH ABDUCTION CONTRACTURE

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Background and Purpose: Why some rotator cuff tears are asymptomatic is not well-understood. We measured the glenohumeral adduction angle (GAA) with scapular fixation and proved that patients with shoulder stiffness and/or rotator cuff tear usually had abduction contracture. Our study aimed to (1) check the frequency of abduction contracture, (2) measure GAA, and (3) evaluate the result of adduction manipulation among patients with symptomatic rotator cuff tear.

Materials and Methods: 54 patients (55 shoulders) with symptomatic rotator cuff tear were examined in this study. The scapula was fixed manually, the lateral epicondyle was pushed with a force of 5 kg, and GAA was measured fluoroscopically. We performed adduction manipulation for the patients with abduction contracture. GAA, passive range of motion, visual analog scale (VAS), and JOA scores were evaluated before and after adduction manipulation.

Results: 75% of the subjects had abduction contracture. Average GAA on the affected side was significantly smaller than that on the unaffected side. 31 shoulders were in excellent condition and 4 shoulders were in good condition. GAA, VAS scores, and JOA scores significantly improved after the adduction manipulation.

Conclusion: Symptomatic rotator cuff tears usually have abduction contracture. The symptom is improved with adduction manipulation.



SUPERIOR CAPSULE RECONSTRUCTION FOR REINFORCEMENT BEFORE ARTHROSCOPIC ROTATOR CUFF REPAIR IMPROVES CUFF INTEGRITY

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Objective: The objective of this study was to evaluate whether superior capsule reconstruction (SCR) for reinforcement before arthroscopic rotator cuff repair (ARCR) improves cuff integrity.

Methods: Thirty-four consecutive patients with severely degenerated but reparable rotator cuff tears underwent SCR using fascia lata autografts for reinforcement before ARCR. All tears were medium (1-3 cm) or large (3-5 cm), and the number of torn tendons was two (supraspinatus and infraspinatus) in 29 shoulders and three (supraspinatus, infraspinatus, subscapularis) in five shoulders. To assess the benefits of SCR for reinforcement, the Japanese Orthopaedic Association (JOA) score, active shoulder range of motion (ROM), and cuff integrity (Sugaya MRI classification) were compared with those after ARCR alone in 91 consecutive patients with medium or large rotator cuff tears.

Results: All 34 patients who underwent SCR before ARCR had no postoperative re-tear (cuff integrity: type I, 97%; type II, 3%), whereas those treated only with ARCR had a 4% incidence of re-tear (4 of 91). JOA scores, active elevation, active external rotation, and active internal rotation increased in both treatment groups. Postoperative ASES scores and active ROM did not differ between groups, although the Goutallier grade of the supraspinatus was higher for ARCR with SCR (mean, 2.8) than ARCR alone (mean, 2.1).

Conclusions: Performing SCR for reinforcement prevented re-tear after ARCR and improved the quality of the repaired tendon on MRI. Functional outcomes were similar between groups, even



CHARACTERISTICS OF SCAPULAR MUSCLE ACTIVITY IN MASSIVE ROTATOR CUFF TEAR CASES WITHOUT ELEVATING THE UPPER LIMBS

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Introduction: The scapular and deltoid muscles training has been introduced as an effective exercise to recover from shoulder dysfunction of the massive rotator cuff tear (MRCT). However, the difference in muscle activity in cases where the elevation of upper limbs is possible or impossible remains unclear. In this study, muscle activity was compared using surface electromyogram (EMG).

Materials and methods: The subjects were 36 patients suffering from MRCT, among which we studied 25 shoulders in which upper limb elevation was possible (P-group) and 16 shoulders in which upper limb elevation was impossible (I-group). The healthy group was composed of 12 healthy volunteers, from which we studied 12 shoulders. The activity in the muscle each of the fibers of trapezius, deltoid, and the serratus anterior were examined by EMG.



Measurement tasks were held at 0 degree and 30 degrees of shoulder flexion for 5 seconds. R-muscle value (the ratio of muscle activity to the change of the moment load) between 0 and 30 degrees was calculated. For statistical tests, one-way ANOVA and Tukey-HSD multiple comparison tests were performed.

Results: The R-muscle value of the upper trapezius was significantly higher in the I-group than in the healthy group ($p<0.05$). The R-muscle value of middle trapezius was significantly higher in the I-group than in the P-group ($p<0.01$).

Conclusion: Muscle activity of the upper and middle trapezius in the I-group was higher from the initial stage of elevation of the upper limbs.

COMPARISON OF CLINICAL OUTCOMES AFTER BRISTOW AND LATARJET PROCEDURES FOR ANTERIOR SHOULDER INSTABILITY IN COLLISION ATHLETES

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The coracoid procedure is a reliable method for the management of recurrent anterior instability in collision athletes. This study



compares the rate of bone integrity and bone resorption of the coracoid process, and the clinical outcomes after the Bristow procedure in 61 shoulders and the Latarjet procedure in 44 shoulders with at least one year of follow-up. CT scans showed 98% of bone union of the coracoid process within 3 months after the Latarjet procedure, but only 78% of bone union, 15% of delayed union, and 7% of fracture of the coracoid in the Bristow procedure, 6 months after surgery. Bone resorption of the coracoid process occurred in 6.3% of shoulders that underwent the Bristow procedure and the degree of bone resorption was mild. However, 100% of shoulders subjected to the Latarjet procedure showed bone resorption, and 62% of bone resorption was a severe degree. In the Bristow procedure, one out of 4 cases with coracoid fracture showed recurrent subluxation and required revision surgery. In the Latarjet procedures, one case with bone union showed recurrent subluxation and required revision surgery, and 4 patients showed apprehension, although they were able to continue playing rugby. Persistent pain after return to sports, which required the injection of corticosteroid, was recognized in 2 shoulders (3%) which had been subjected to the Bristow procedure and 10 shoulders (23%) subjected to the Latarjet procedure. The apprehension and pain after returning to sports were recognized more frequently in patients who underwent the Latarjet procedure.