Repair Integrity and Functional Outcomes after Arthroscopic Suture Bridge Subscapularis Tendon Repair

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Summary:
Re-tear rate was 5% after arthroscopic suture bridge subscapularis tendon repair, and shoulders with thinning cuff and re-tear cuff demonstrated significantly inferior clinical scores compared to no-tear shoulders.

Abstract:
Introduction: Reported re-tear rates following rotator cuff repair have a wide range. Recent biomechanical studies have demonstrated that the suture bridge technique excels in initial fixation strength and footprint coverage compared with double-row fixation. Many articles have reported improved repair integrity after supero-posterior rotator cuff repair using the suture bridge technique; however, there have been no studies that evaluated repair integrity after arthroscopic subscapularis tendon repair using this technique. The purpose of this retrospective study was to report repair integrity and clinical outcomes following arthroscopic suture bridge subscapularis tendon repair.

Material and Methods:
From September 2010 to August 2014, a consecutive series of 179 patients (182 shoulders) with full-thickness rotator cuff tear including subscapularis tendon tear underwent arthroscopic rotator cuff repairs. Forty-nine shoulders that lacked complete follow-up data or were lost to follow-up, thirty-eight shoulders that were classified as Lafosse type 1, and seven revision cases were excluded from this study. Thus, 88 shoulders (50 men and 38 women) with a mean age of 66 years (range, 32-85) were included in this study. All patients were assessed with use of Japanese Orthopaedic Association (JOA) score, University of California, Los Angeles (UCLA) score, and American shoulder and Elbow Surgeons (ASES) score preoperatively and at final follow-up, which was at a mean of 31 months (range, 24-67 months) after surgery. Repair integrity was evaluated with magnetic resonance imaging (MRI), which was performed at a mean of 14 months (range, 12-58) postoperatively, and was graded using Sugaya classification. Types 1 and 2 were regarded as no tear, type 3 as thinning cuff, and types 4 and 5 as re-tear. Paired t test was used to compare pre- and post-operative scores. Mann-Whitney's U test was used for comparison of scores based on repair integrity.

Results: All clinical scores showed significant improvement at the final follow-up compared to preoperative scores. Repair integrity was judged as no tear in 74 shoulders (85%), thinning cuff in 9 shoulders (10%), and re-tear in 5 shoulders (5%). The shoulders with thinning cuff or re-tear demonstrated significantly inferior functional outcomes compared to no-tear shoulders: JOA score, 89 (range, 81-98) and 93 (range, 72-100), P=0.01; UCLA score, 30 (range, 21-33) and 33 (range, 18-35), P<0.001; ASES score, 85 (range, 73.3-100) and 93 (range, 63.3-100) P<0.001.

Discussion & Conclusion: Reported re-tear rates after arthroscopic single- or double-row subscapularis tendon repair are 13-25%. Outcomes of arthroscopic subscapularis tendon repair using suture bridge technique were excellent with low re-tear rate. Moreover, repair integrity of the subscapularis tendon may be associated with postoperative functional outcomes.