Bariatric Surgery Results in Increased Failure Rates and Inferior Patient Reported Outcomes After Arthroscopic Rotator Cuff Repair

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INTRODUCTION: Despite advancements in rotator cuff repair (RCR) surgical technique, failure rates remain high. Obesity is a known risk factor for complications after orthopaedic procedures. Bariatric surgery (BS) has emerged as a popular option for achieving sustained weight loss and for reducing obesity-related comorbidities when exercise and calorie restriction cannot achieve sustained results. However, the effect of BS on outcomes after orthopedic surgery is still largely unknown. The purpose of this study was to compare failure rates and patient reported outcomes after RCR between patients with and without a previous history of BS. Our hypothesis was that patients with a history of BS would have greater failure rates and inferior outcome measures after RCR.

METHODS:

Patients with a history of BS who underwent arthroscopic RCR for full-thickness tears of the supraspinatus tendon between March 2013 and March 2023 were identified. Phone call surveys were completed to collect postoperative outcome data. These patients were matched in a 1:3 ratio by age, sex, and body mass index (BMI) to patients without a history of BS who underwent RCR. Revision procedures were excluded. The minimum follow-up was 24 months. Primary outcome was surgical failure, defined as symptomatic retear confirmed on magnetic resonance imaging (MRI) and/or need for revision surgery. Secondary outcome assessed included range of motion (ROM) in forward flexion (FF) and external rotation (ER), visual analog scale (VAS) for pain, subjective shoulder value (SSV), American Shoulder and Elbow Surgeons Shoulder Score (ASES), need for manipulation under anesthesia (MUA), and conversion to reverse total shoulder arthroplasty (rTSA).

RESULTS: A total of 34 RCR patients with a history of BS (24 female, 10 male; age 56.4 ± 8.5 years; BMI 33.5 ± 7.2) were matched to 102 RCR patients without BS (72 female, 30 male; age 57.0 ± 8.1 years; BMI 32.9 ± 7.0). Average follow-up was significantly different (52.7 months in BS group, 72.3 months without BS group; $p = 0.00$). The BS group had significantly higher overall failure rates (20.6% vs. 6.9%; $p = 0.04$) than patients without history of BS. The BS group had significantly higher post-operative VAS pain scores (3.9 vs 1.3; $p = 0.00$), lower SSV (77.7 vs. 87.7, $p = 0.04$), lower ASES (72.6 vs. 90.4, $p = 0.00$), worse FF ROM (149 vs 159 degrees; $p = 0.03$), and worse ER ROM (47.9 vs. 52.8, $p = 0.02$). Need for Revision RCR, MUA, and conversion to rTSA rates did not reach significance.

DISCUSSION AND CONCLUSION: Previous BS resulted in significantly increased surgical failure rates, as well as inferior subjective outcome scores across all metrics assessed and inferior ROM after arthroscopic RCR. Prior bariatric surgery or other nutritional deficiencies may represent an underappreciated, yet modifiable, risk factor for RCR failure. A prior history of bariatric surgery should be noted preoperatively when indicating patients for RCR, and these patients should be counseled regarding the risks for inferior outcomes after surgery. These patients may also benefit from nutritional supplementation or operative biologic adjuvants to increase their healing potential after repair.