Teres Minor Hypertrophy is a Common and Negative Predictor in Outcomes After Rotator Cuff Repair

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### INTRODUCTION

The teres minor has received increased attention in its role as a rotator cuff muscle, particularly in the setting of large infraspinatus tears. Studies have shown that it plays an important beneficial role after total (TSA) and reverse (RSA) shoulder arthroplasty, as well as in maintenance of function in the setting of infraspinatus wasting in patients with large rotator cuff tears (RCTs). No study, however, has investigated how often teres minor hypertrophy (TMH) occurs in a population of RCTs, whether it occurs in the absence of infraspinatus tearing, or whether it is a positive or negative prognostic indicator on outcomes after rotator cuff repair. The purpose of this study was to determine the prevalence of TMH in a cohort of patients undergoing rotator cuff repair, and to determine its prognostic effect, if any, on outcomes after surgical repair.

### METHODS

Over a 3 year period, all rotator cuff repairs performed in a single practice by 3 surgeons were collected. 144 patients who had preoperative and postoperative ASES outcomes (> 2 year), and preoperative MRI were included in the study. All MRIs were evaluated for RCT tendon involvement, tear size, and Goutallier changes of each muscle. In addition, occupational ratios were determined for the supraspinatus, infraspinatus, and teres minor muscles. Patients were divided into 2 groups, based upon whether they had teres minor hypertrophy or not. A 2-way univariate ANOVA was used to determine the effect of teres minor hypertrophy (tear size by hypertrophy) and Goutallier changes (tear size by fatty infiltration) on ASES change scores ($\alpha=0.05$).

### RESULTS

Teres minor hypertrophy was a relatively common finding in this cohort of rotator cuff patients, with 51% of all shoulders demonstrating hypertrophy. Interestingly, in patients without an infraspinatus tear, TMH was still present in 19/40 (48%) of patients. TMH had a significant, negative effect on ASES scores after rotator cuff repair in patients with and without infraspinatus tearing, infraspinatus atrophy, and fatty infiltrative changes ($P<0.05$).

![Graph showing ASES Score change over time](image)

In general, the presence of TMH demonstrated a 15% lower score (Figure 1) than when no hypertrophy was present, and this was consistent across all tear sizes, independent of Goutallier changes.

### CONCLUSIONS

Teres minor hypertrophy is a common finding in the setting of rotator cuff tearing, including in the absence of infraspinatus tearing. Contrary to previous publications, the presence of TMH in patients with rotator cuff repair does not appear to be protective as a compensatory mechanism. While further study is necessary to determine the mechanism or implication of TMH in setting of rotator cuff repair, our results show it is not a positive predictor of outcomes following rotator cuff repair.