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Outcomes of Reverse Total Shoulder Arthroplasty With Lateralized Implant in a Patient With High Grade of Fatty Infiltration of Infraspinatus and Teres Minor Muscle

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Introduction and Background

Reverse total shoulder arthroplasty (RTSA) has emerged as a highly effective treatment for patients with cuff tear arthropathy and massive irreparable rotator cuff tears. The purpose of this study is to evaluate the influence of fatty infiltration of the rotator cuff muscles on the outcomes of RTSA. We hypothesize that fatty infiltration of posterior rotator cuff will have minimal influence when lateralized implants are used.

Material and Method

This study was a retrospective review of patients who underwent primary RTSA with single lateralized humerus implant from January 2016 to June 2022 with at least 2-years of follow-up. Preoperative diagnosis of irreparable massive rotator cuff tears or cuff tear arthropathy was included. According to fatty infiltration (FI) grade of infraspinatus from preoperative MRI, patients were divided into high FI groups and low FI group. Clinical outcomes were compared between the two groups.

Results

51 patients (36.7%) had low infraspinatus FI and 88 patients (63.3%) had high infraspinatus FI. At final follow-up, there was no significant difference in range of motion (ROM) of forward elevation ($p = .282$), external rotation ($p = .467$), and Constant score ($p = .252$). Muscle strength of forward elevation ($p = .049$) and external rotation ($p = .007$) was significantly lower in high FI group at final follow-up, but mean improvement of muscle strength in forward elevation and external rotation showed no significant difference between two groups ($p = .559$, $.675$, respectively). Subgroup analysis comparing patients with high FI and low FI of teres minor showed that there was no significant differences in ROM, pain, functional scores, and muscle strength between two groups at final follow-up.

Conclusions

Clinical outcomes after RTSA with lateralized humerus design in patients with high grade FI of the infraspinatus was comparable to those in patients with low grade FI of the infraspinatus.

