Nonoperative Treatment of Acromial Fractures Following Reverse Shoulder Arthroplasty: Clinical and Radiographic Outcomes

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INTRODUCTION: Acromion/scapular spine (ASF) fractures remain a challenging complication following reverse shoulder arthroplasty (RSA). Historically, nonoperative management has been the treatment of choice with variable results. The purpose of this study is to report on both clinical and radiographic outcomes of nonoperative treatment. A new subclassification of Levy type-II acromion fractures will be proposed, and outcomes will be evaluated in relation to the modified Levy classification.

METHODS: 44 patients diagnosed with ASF following RSA were matched 1:3 to a control group based upon gender, age, and preoperative function. All ASF patients were treated non-operatively. Patient reported outcome measures (PROMs), consisting of American Shoulder & Elbow Score (ASES), Simple Shoulder Test (SST), Single Assessment Numerical Evaluation (SANE), Visual Analog Scale (VAS) pain and function scores, satisfaction, and active range of motion (ROM) were gathered preoperatively and at the most recent follow-up. Outcomes were stratified based on fracture type. Radiographic findings including fracture union, scapular rotation, progressive notching, and osteolysis were reviewed from latest follow-up and compared with initial postoperative films.

RESULTS: ASF were identified at a median of 2 months following RSA (8 type-I; 22 type-II; 14 type-III), followed for a median of 37 months, and compared to 108 matched controls. Patients with ASF had inferior clinical outcomes with a higher rate of dissatisfaction (27.8%) when compared to controls. Lateral fracture subtypes (I and IIA) were similar to controls and had little impact on outcomes. However, medial fracture subtypes (Type-IIB, IIC, and III) demonstrated inferior outcomes when compared to controls, with Type-III fracture patients demonstrating no improvement from baseline. The overall non-union rate was 61.4%, with high rates of scapular rotation and osteolysis in medial fracture subtypes. Nonunion was associated with a higher incidence of secondary radiographic findings, including scapular rotation, progressive notching, and osteolysis.

DISCUSSION AND CONCLUSION: Results of nonoperative treatment of ASF following reverse shoulder arthroplasty differs based upon fracture location. Fractures which occur at or medial to the glenoid face (IIB, IIC, III) demonstrate high rates of unsatisfactory results and worse clinical outcomes. Concerning radiographic findings of scapular tilt, progressive scapular notching and osteolysis were seen at a higher rate with medial fracture types and fracture nonunions.