Revision Reverse Shoulder Arthroplasty for the Management of Baseplate Failure: An Analysis of 676 Revision RSA Procedures

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INTRODUCTION:

Baseplate failure in reverse shoulder arthroplasty is a rare but potentially catastrophic complication due to poor patient outcomes and significant glenoid bone loss. The purpose of this study was to identify and describe patients who underwent reverse shoulder arthroplasty and were revised (rRSA) for baseplate failure or loosening. Mode of baseplate failure and surgical indication for rRSA (failure of a primary or revision RSA) were evaluated for their impact on complications and patient outcomes.

METHODS:

A retrospective chart review from 2006-2021 was performed to identify all patients who received an RSA or rRSA by a single surgeon. A total of 676 rRSA procedures were identified and stratified based on indication for surgery. Further analysis identified 46 patients were who underwent rRSA for baseplate failure and had a confirmed loose or failed baseplate at the time of rRSA. The primary outcome was repeat failure of the reimplanted baseplate following rRSA by the senior author, and those meeting the primary outcome were excluded from the secondary analysis. The mode of baseplate failure was stratified into 3 groups: aseptic, septic, or traumatic. 24 patients underwent primary revision, and 22 had undergone >1 previous arthroplasty undergoing re-revision. 5 patients had a previous rRSA for baseplate failure by an outside surgeon. 34 patients and 24 patients met criteria for secondary outcome analysis of final ASES, SST, and ROM scores at 1- and 2- year follow up, respectively. Average follow up was for the 2-year cohort was 48.5 months (21-112 months).

RESULTS:

Three patients met the primary outcome with repeat baseplate failure requiring revision (6.5%), two patients failed in <1 year due to septic failure with a loose baseplate and were converted to hemiarthroplasty. The third patient suffered traumatic failure at 10 years and underwent successful rRSA. ASES, SST, and ROM improved significantly at 1- and 2-years (final mean scores at 1-year: ASES 63.1, SST 6.1, VAS Pain 2.9; and 2-years: ASES 62.5, SST 5.4, VAS Pain 2.9). There were 13 total complications in 11 patients, 5 of which required reoperation for reasons other than baseplate failure, including a single deep infection that underwent revision with a stable baseplate. There was no significant difference in outcomes or risk for repeat failure based on mode of baseplate failure (final mean ASES: septic 69.6, aseptic 64.3, traumatic 43.7) or rRSA of a primary or revision prosthesis (final mean ASES: primary 59.1; secondary 67.7) for the 2-year follow-up cohort. None of the collected patient demographic, comorbidity, or surgical specific data was found to be predictive of repeat failure or worse outcomes.

DISCUSSION AND CONCLUSION:

rRSA is rare in modern reverse shoulder arthroplasty. In our cohort, the overall prevalence of revision for baseplate failure is 6.8% distributed similarly between primary RSAs and rRSAs. 3 of 46 (6.5%) required additional revision for repeat baseplate loosening following our rRSA. rRSA for baseplate failure provides modest improvement in outcomes and shoulder function with a low incidence of repeat failure. Complication and reoperation rates are higher than that for primary RSA, and comparable to rRSA for all causes.