Outcomes Following Aseptic Revision Shoulder Arthroplasty: Repeat Revision and Indications

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INTRODUCTION: As the incidence of anatomic shoulder arthroplasty (TSA) and reverse total shoulder arthroplasty (RSA) increases, revision procedures will also increase along with a corresponding need for counseling patients and setting expectations regarding outcomes. These cases can result in a complex post-operative course, sometimes requiring multiple revisions, and we hypothesized that different revision categories would have different complication profiles depending on both the indication as well as the nature of the prior hardware.

METHODS: A retrospective review of 1773 cases performed at a single tertiary health system utilized case postings and diagnoses to identify revision cases in which prior shoulder arthroplasty hardware was present. Infection cases were removed and analyzed separately. Revisions were classified based on the prior hardware present (TSA, RSA, hemiarthroplasty [hemi]), with basic demographics, indication for surgery, and perioperative outcomes (discharge location, 90-day readmissions) recorded. The subsequent post-revision clinical course for each patient was tracked within the limits of available follow-up, including need for subsequent repeat revision.

RESULTS: 166 surgical cases involving revision of prior shoulder arthroplasty metal hardware were identified, including 30 TSA->TSA, 43 TSA->RSA, 47 RSA->RSA, 26 Hemi->TSA, and 20 Hemi->RSA. Average follow-up was 1.0 years, with 61 patients (37%) having a minimum 1-year follow-up. Perioperative outcomes of revision cases were similar relative to the companion cohort of 1607 primary cases, with similar inpatient length of stay (2.1 vs 2.2 days), rates of discharge to skilled nursing/rehab facilities (11.2% vs 9.0%, p = 0.43), and unplanned 90-day readmission rates (3.6% vs 3.3%, p = 0.82). 137 cases (83%) required no further revision surgery, while 19 cases (11%) underwent aseptic revision, and 10 cases (6%) were revised for periprosthetic infection. RSA hardware revised to another RSA had the highest repeat revision rate relative to the other revision categories (32% vs <14%) and was similarly at higher risk for repeat revision due to infection specifically (12% vs <5%).

DISCUSSION AND CONCLUSION: Revision of reverse shoulder arthroplasty to a repeat reverse has the highest rate of subsequent all-cause revision, and these repeat revisions often occurred for periprosthetic infection. Despite a relatively high long-term complication rate following revision shoulder arthroplasty, immediate perioperative outcomes remain similar to primary cases, providing some preliminary evidence for policymakers considering inclusion in future value-based care models.