Is Inpatient Revision Shoulder Arthroplasty Always Necessary? A Case Series Establishing Safe Same-Day Revision Shoulder Arthroplasty

Asim Khan, Arden C Shen, Jennifer Kurowicki, Brian Forsythe, Brian J Cole, Nikhil N Verma, Gregory P Nicholson, Grant E Garrigues

INTRODUCTION:
Over the past decade primary shoulder arthroplasty has transitioned from a historically inpatient procedure to outpatient, driven by the proven safety and efficacy in the appropriate patient population. While shoulder arthroplasty is associated with low complication rates, revision is sometimes necessary due to infection, implant loosening, rotator cuff failure, instability, or other failure modes. However, revision shoulder arthroplasty is still performed nearly exclusively in an inpatient setting. Currently there is a limited understanding of the safety and efficacy of revision shoulder arthroplasty in an outpatient setting. This study aims to evaluate a cohort of outpatient revision shoulder arthroplasties (RevSA) and identify appropriate parameters for successful outpatient revision shoulder arthroplasty.
METHODS:
A retrospective review of patients who underwent RevSA performed at a single institute between 2015 and 2024 were reviewed. All outpatient outpatient RevSA with 3 month follow up were included and matched 1:1 with inpatient RevSAs. Outpatient status was defined as surgeries performed at ambulatory surgery centers (ASCs) or had admission times ≤ 24 hours. Surgeries were matched by the components explanted and implanted, age and gender. Demographic data, comorbidities, revision surgery subtype, implant details, major/minor complications, readmissions and patient-reported outcomes (PROs) were recorded. Descriptive statistics were used to analyze the cohort. 2-sided Exact McNemar's tests were used to evaluate binary outcomes and 2-tailed paired t-tests were used to compare continuous outcomes.
RESULTS: A total of 38 surgeries (19 inpatient and 19 outpatient) were included in the analysis. The outpatient cohort included 18 separate patients, mean age 61.84 ± 7.78 years. The inpatient cohort included 19 separate patients, mean age 61.0 ± 11.37 years. In the outpatient cohort 6 (32%) were revised due to glenoid loosening, 6 (32%) due to instability of cuff failure, 4 (21%) due to painful arthroplasty, 1 (5%) due to infection, 1 (5%) due to periprsothetic fracture, and 1 (5%) was a spacer removal and revision to reverse. Of the outpatient cohort, 9 (50%) were full exchanges (all components removed), 3 (17%) were anatomic/hemi prosthetic head exchanges only , 1 (0.1%) was a anatomic prosthetic head exchange and a glenoid component removal, 1 (0.1%) was a prosthetic head exchange and a glenoid component implantation, 2 (11%) were a combined glenosphere and poly swap, 2 (0.1%) were poly-only exchange, and 1 (0.1%) was the 2nd part of a 2-stage revision. Of the 18 single stage revisions, 3 involved stem extractions. No significant differenes in PROs were noted between cohorts in the most recent follow up ($p>0.05$). There was no significant difference between cohorts in the minor or major complication rate ($p=0.754$and 0.625 respectively). No difference in major/minor complications noted between inpatient and outpatient groups with inpatient having 7 minor complications and outpatient having 8 minor complications. There was no difference in reoperation rates ($p=0.625$). Smoking status and ASA scores were the only pre-operative comorbidity characteristics that showed significant difference between the cohorts ($p=0.021$ and 0.029 respectively).
DISCUSSION AND CONCLUSION: Revision shoulder arthroplasty performed in the outpatient setting is safe and efficacious procedure that provides improvements in clinical outcomes with low complication profile provided the cases are carefully chosen. Outpatient RevSA should be limited to cases with minimal expected blood loss such as implant/poly exchange, conversion of resurfacing HA/aTSA to rTSA, or second stage revision (removal of antibiotic spacer). We recommend against cases where removal of a standard or long, well-fixed or cemented stem is a possiblity. Patients with ASA >3, multiple comorbidities, or well-fixed implants requiring stem extraction should be approached with caution in the outpatient setting.