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# COMPARISON OF CLINICAL OUTCOMES OF REVISION REVERSE TOTAL SHOULDER ARTHROPLASTY FOR FAILED PRIMARY ANATOMIC VERSUS REVERSE SHOULDER ARTHROPLASTY

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**Background:** Both anatomic and reverse total shoulder arthroplasty (aTSA and RTSA) are being increasingly performed. In the revision setting, RTSA is more commonly performed in both scenarios. The purpose of this study was to compare clinical outcomes between patients undergoing revision RTSA for failed primary ATSA versus RTSA.

**Methods:** We performed a retrospective review of a prospective single-institution shoulder arthroplasty database. All revision RTSAs between 2007 and 2019 with minimum two-year clinical follow-up were initially included. After excluding patients with a preoperative diagnosis of infection, an oncologic indication, or incomplete outcomes assessment, we included 45 revision RTSAs performed for failed primary aTSA and 15 for failed primary RTSA. Demographics, surgical characteristics, active range of motion (external rotation [ER], internal rotation [IR], forward elevation [FE], abduction), outcome scores (ASES score, Constant score, SPADI, SST, and UCLA score), and the incidence of postoperative complications was compared between groups.

**Results:** Primary aTSA was most often indicated for degenerative joint disease (DJD) (82%), whereas primary RTSA was more often indicated for rotator cuff arthropathy (60%). On bivariate analysis, no statistically significant differences in any range of motion or clinical outcome measure were found between revision RTSA performed for failed aTSA vs. RTSA. On multivariate analysis, revision RTSA performed for failed aTSA vs. RTSA was not found to significantly influence any outcome measure. Humeral loosening as an indication for revision surgery was associated with more favorable outcomes for all range of motion measures and all outcome scores assessed. In contrast, an indication for revision of peri-prosthetic fracture was associated with poorer outcomes for three of four range of motion measures (ER, FE, abduction) and four of five outcome scores (Constant, SPADI, SST, UCLA). Complication and re-revision rates after revision RTSA for failed primary aTSA and RTSA were 31% and 11% vs. 20% and 0% ( $P = .520$  and  $P = .318$ ), respectively.

**Conclusions:** Clinical outcomes of patients undergoing revision RTSA did not significantly differ based on whether aTSA or RTSA was initially performed. However, larger studies are needed to definitively ascertain the influence of the primary construct on outcomes of revision RTSA.