

## **Anatomic Shoulder Arthroplasty in Walch C Glenoid Deformity: Mid-to-Long Term Outcomes**

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**INTRODUCTION:** Hypoplastic glenoid morphology, retroversion and posterior humeral subluxation in the setting of glenohumeral osteoarthritis is a rare, yet complex surgical problem. Treatment of this patient population with an anatomic total shoulder arthroplasty (aTSA) remains controversial. Furthermore, there is no gold standard approach with limited guidance for surgeons on the need for glenoid version correction in the setting of a dysplastic glenoid. The purpose of this study was to evaluate mid-to-long term outcomes and reoperation rates of aTSA for treatment of primary glenohumeral osteoarthritis with Walch C glenoid deformity.

**METHODS:** This observational cohort study reviewed patients with a Walch C glenoid undergoing aTSA at two institutions between 2007 and 2016. Patients were contacted to complete updated patient-reported outcome measures at a minimum of 5.5 years postoperatively. Outcome measures collected included the American Shoulder and Elbow Surgeon (ASES) score and Single Alpha Numeric Evaluation (SANE) score. Secondary outcomes included any additional surgery on the operative shoulder, patient satisfaction, and willingness to undergo aTSA again.

**RESULTS:** Thirty patients met inclusion criteria, and 26 (86.7%) were able to be contacted for final outcomes evaluation. Mean age at time of surgery was 61.3 (range, 40.9 to 75.5) and 20 patients (76.9%) were male. Mean follow up was 8.5 years (range 5.5 to 11.3) after surgery. Nine patients were treated with an augmented component and 17 with a standard component. Of the 17 non-augmented components, 9 were partially corrected with asymmetric reaming, 3 cases utilized a mini inset glenoid, and 2 cases anteriorly offset the humeral component. At final follow up, patients had a mean ASES score of 83.6 +/- 16.7, ASES pain score of 24.7 +/- 20.8, SANE score of 80.4 +/- 20.9, and percent patient satisfaction of 84.1%. There were no statistically significant differences in any outcome measure between those with augmented and non-augmented glenoid components. There was one revision to reverse for instability at 7 years postoperatively after a traumatic dislocation. All patients reported that they would want to undergo the same surgery again.

### **DISCUSSION AND CONCLUSION:**

Despite variance in glenoid reconstructive approach, aTSA provides satisfactory and sustained improvements in patient-reported outcomes in patients with glenoid dysplasia and primary glenohumeral osteoarthritis with a low revision rate at mean 8.5 years. Anatomic shoulder arthroplasty should remain a surgical option in patients with Walch C glenoid deformity.