

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

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Background: 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 a single institution between 2007 and 2016. Patients were contacted to complete updated patient-reported outcome measures at a minimum of 6 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: Twenty-one patients met inclusion criteria, and 17 (81%) were able to be contacted for final outcomes evaluation. Mean follow up was 9.05 years (range 6.4 to 11.3) after surgery. Nine patients were treated with an augmented component and 8 with a standard component. Of the 8 non-augmented components, four were partially corrected with asymmetric reaming and 2 cases utilized a mini inset glenoid. At final follow up, patients had a mean ASES score of 88.3, ASES pain score of 26.6, SANE score of 90.2, and percent patient satisfaction of 95.6%. 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: 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 9 years. Anatomic shoulder arthroplasty should remain a surgical option in patients with Walch C glenoid deformity.

Keywords: Glenohumeral osteoarthritis; shoulder arthroplasty; Walch C; glenoid dysplasia

Level of Evidence: Treatment Level III