A Comparison of Central Screw versus Post for Glenoid Baseplate Fixation in Reverse Shoulder Arthroplasty Using a Lateralized Glenoid Design

Michael J Bercik, Brian C Werner, Benjamin William Sears, Reuben Gobezie, Evan Scott Lederman[1], Patrick J Denard[2]
[1]Banner Univ Medical Ctr, [2]Oregon Shoulder Institute

INTRODUCTION: There is currently a lack of clinical literature that compares outcomes of reverse total shoulder arthroplasty (RSA) based on central glenoid baseplate fixation. The purpose of this study was to compare the short-term clinical and radiographic outcomes of a lateralized glenoid construct with either a central screw or post.

METHODS: A multicenter retrospective study was conducted of RSAs with minimum 2-year clinical follow-up. All RSAs implanted had the same inlay humeral component with a 135° neck shaft angle (NSA) and a modular circular baseplate. Patients were divided into two cohorts based on the type of central fixation for their glenoid baseplates (central post (CP) vs. central screw (CS)). Clinical outcomes included both patient reported outcomes (PROs) and objective clinical measurements, as well as rates of revisions. Available radiographs were evaluated for signs of loosening, defined as component migration or the presence of radiolucent lines ≥ 2 mm.

RESULTS: 212 patients met the study criteria. 125 patients underwent fixation with a central screw and 87 patients underwent fixation with a central post. The majority of patients (75%) utilized 6 mm or 8 mm of glenoid lateralization. The most frequently utilized screw length was 25 mm and the most frequently utilized post length was 20 mm. Postoperatively, both groups improved over their preoperative baseline. There were no significant differences between cohorts in any PROs at 2 years postoperatively. Objective findings revealed increased active forward flexion (FF) ($p = 0.003$) and increased internal rotation (IR) ($p < 0.001$) in the CP group as compared to the CS at 2 years. No findings of gross loosening were identified in either cohort. Implant survival was 98.6% at 2 years.

DISCUSSION AND CONCLUSION: When using a lateralized glenoid implant with a 135° NSA inlay humeral component, both central post and central screw baseplate fixation provide good clinical outcomes, survivorship, and improvements in ROM at 2 years. There is no difference in loosening or revision rates between the types of baseplate fixation at a minimum of 2 years postoperatively.