Suture Anchor Glenohumeral Cerclage for Instability in High-Risk Reverse Total Shoulder Arthroplasty

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Introduction: Post-operative instability is one of the most common early complications following reverse total shoulder arthroplasty (rTSA). This risk is further increased in cases of previous instability, revision arthroplasty, or complex reconstructions with allograft prosthetic composites (APC) and proximal humeral replacements (PHR). Glenohumeral cerclage sutures have previously been reported as a successful adjunct in the prevention of instability following rTSA. Previously described techniques have utilized transosseous tunnels drilled medial to the baseplate from anterior to posterior or transacromial drill holes to secure the cerclage sutures. We report the outcomes of a novel technique using readily accessible suture anchors for glenohumeral cerclage augmentation in the prevention of early instability following rTSA in high-risk patients.

Methods: This study was approved by our local Institutional Review Board. In this case series, we evaluated all patients treated from 2022 to 2024 utilizing a glenohumeral cerclage suture technique for the prevention of early instability in high-risk patients undergoing primary or revision rTSA. The technique is based on a suture anchor placed superior to the glenoid baseplate and tied to itself in a cerclage fashion around the proximal humerus implant. We collected patient demographics and post-operative clinical outcomes. Continuous variables are reported using descriptive statistics.

Results: A total of six high-risk patients were evaluated including one primary arthroplasty and five revision arthroplasties. Four out the six patients had pre-operative instability of a previous rTSA with at least one dislocation, and the other two underwent complex primary and revision rTSA using either an APC or a PHR implant. Length of follow-up ranged from 6 weeks up to a year (average 22 months, +/- 22), and none of the patients had a post-operative dislocation during this time. At final follow-up, the average forward flexion was 112 degrees (+/- 38), abduction was 97 degrees (+/- 38), and external rotation was 10 degrees (+/- 14).

Conclusion: Most post-operative instability following rTSA occurs in the early post-operative period (<6 weeks), and in this case series, none of our high-risk patients experienced instability during this time. The addition of a suture anchor glenohumeral cerclage in high-risk rTSA is a practical and promising adjunct in the prevention of early post-operative instability. Additionally, this technique is easy to use compared to traditional transosseous tunnels drilled behind the baseplate, and it does not place undue stress on the acromion compared to the transcacromial drill hole technique. Further comparative studies with higher number of patients are needed to determine the true added benefit of this technique and to determine its best indications.