## Reverse Shoulder Arthroplasty After Prior Distal Clavicle Excision: A Matched Cohort Study

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INTRODUCTION: While reverse total shoulder arthroplasty (rTSA) has increased in incidence in recent years, little is known about how various acromioclavicular joint (ACJ) factors such as prior distal clavicle excision (DCE) can impact clinical outcomes of rTSA. The purpose of this study was to compare the clinical outcomes in shoulders with a prior DCE undergoing rTSA with a matched control group.

METHODS: We conducted a retrospective review of a prospectively collected shoulder arthroplasty database of patients who underwent primary rTSA with a minimum 2-year clinical follow-up. Preoperative imaging studies taken within 6 months of surgery were assessed for a DCE. Forty-seven shoulders with prior DCE were identified and were matched 1:5 to a control group (n=616) based on age, sex, a preoperative diagnosis of rotator cuff tear arthropathy, and preoperative forward elevation and ASES score. Clinical outcome scores, shoulder strength, and active range of motion were assessed preoperatively and at latest follow-up as well as the incidence of complications were compared between cohorts.

RESULTS: The incidence of prior DCE was 6.9% (46/663). Among these, 41.3% (n=19) were partial excisions of the inferior distal clavicle, and 58.7% (n=27) were complete excisions. Preoperatively, shoulders with prior DCE and matched controls had similar outcome scores, shoulder ROM, and shoulder strength for all measures (P=.975). Postoperatively, shoulders with prior DCE had poorer outcome scores compared to matched controls for all measures (P $\leq$ .031). Compared to matched controls, shoulders with prior DCE achieved the MCID at lower rates for the ASES score (75% vs. 89%, P=.032) and SPADI (68% vs. 85%, P=.032), and achieved the SCB at lower rates for the ASES score (55% vs. 76%, P=.032), Constant score (68% vs. 86%, P=.032), SPADI (32% vs. 56%, P=.032), and UCLA score (60% vs. 80%, P=.032). Shoulders with prior DCE had a higher overall complication rate compared to matched controls (23% vs. 9%, P=.009). Specifically, we noted shoulders with prior DCE had higher rates of acromial stress fractures (6.4% vs. 0.9%, P=.034) and unexplained pain (6.4% vs. 0%, P=.004).

DISCUSSION AND CONCLUSION: Patients with prior DCE undergoing rTSA attain poorer pain and functional outcomes and have a greater risk of postoperative acromial fractures compared to matched controls.

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