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BILATERAL TSA OUTCOMES IN PATIENTS THAT UNDERWENT BILATERAL ANATOMIC VERSUS ANATOMIC AND REVERSE TOTAL SHOULDER ARTHROPLASTY FOR PRIMARY OSTEOARTHRITIS WITH INTACT ROTATOR CUFF

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Background: Total shoulder arthroplasty (TSA) for primary osteoarthritis has exponentially grown with bilateral anatomic and/or reverse TSA (aTSA or rTSA) similarly increasing. We aimed to compare outcomes in patients that underwent aTSA/aTSA versus aTSA/rTSA for primary osteoarthritis with an intact rotator cuff.

Methods: A single-institution prospectively-collected shoulder arthroplasty database was reviewed. Patients undergoing bilateral TSA with a primary aTSA and subsequent aTSA or rTSA since January 2000 for primary osteoarthritis with an intact rotator cuff and with minimum 2-year follow-up on both shoulders were identified. Outcomes scores (SPADI, SST, ASES, UCLA, Constant), active range of motion (abduction, forward elevation [FE], external and internal rotation [ER and IR]), and shoulder strength (ER and FE) were evaluated. Clinically-relevant benchmarks were adopted from prior literature and included minimal clinically important difference (MCID), substantial clinical benefit (SCB), and patient acceptable symptomatic state (PASS). Incidence of surgical complications and revision rates were examined.

Results: Of the 73 bilateral TSA patients with intact rotator cuff, 62(85%) underwent aTSA/aTSA and 11(15%) underwent aTSA/rTSA. At time of 2nd TSA, patients undergoing aTSA/rTSA were older (72.5 ± 4.9 vs. 67.1 ± 7.0 , $P=0.005$). Overall, 44% were female and 14% had prior surgery ($P>0.05$ between groups); patients who underwent aTSA/rTSA more commonly had inflammatory arthritis (46% vs. 10%, $P=0.009$). Mean time to 2nd TSA was shorter for aTSA/aTSA (2.2 ± 2.6 vs. 4.8 ± 3.3 years, $P=0.031$). Postoperative outcomes were similar after 1st aTSAs between groups with similar proportions achieving the MCID, SCB, and PASS (All $P>0.05$). Comparing 2nd TSAs, aTSA/aTSA had greater improvement in ER ($21 \pm 27^\circ$ vs. $3 \pm 18^\circ$, $P=0.016$) and a higher proportion of patients achieving the MCID (80% vs. 46%, $P=0.029$) and SCB (65% vs. 28%, $P=0.042$) for SPADI. Rates of surgical complications and revision were similar.

Conclusions: Patients with osteoarthritis and an intact rotator cuff have excellent clinical outcomes after either aTSA/aTSA or aTSA/rTSA, with a shorter time between surgeries in aTSA/aTSA. Patients with bilateral aTSA had significantly greater improvement in ER and greater improvement in pain after 2nd TSA.