Reporting on the Success of Two-Stage Revision in Eradicating Periprosthetic Joint Infection of Reverse Total Shoulder Arthroplasties
Megan Badejo¹, Eddie Y Lo, Alvin Ouseph, Christopher Bettacchi², Sumant G Krishnan³
¹Texas A&M College of Medicine, ²Infectious Disease, ³The Shoulder Center

INTRODUCTION:
Management of periprosthetic joint infection (PJI) in reverse total shoulder arthroplasty (RTSA) remains a challenge. Multiple treatment options for PJI include debridement with component retention, single stage revision, and two stage revision.¹⁻³ At the current time, no gold-standard has been established. In this study, the authors present the unique experience of a high volume, single institution-surgeon approach on two-stage revision as a treatment for PJI involving RTSA.

METHODS: Between 2013 to 2018, 38 patients underwent a two-stage RTSA for periprosthetic shoulder infection by the senior surgeon with minimum 2-year follow up. Chart information was collected on patient age, sex, comorbidities, PJI infection history, surgical history, surgical complications, and PJI culture results. Periprosthetic infection was defined according to the 2018 International Consensus Meeting on Orthopaedic Infections guidelines.⁴ All patients underwent first stage with implant removal, debridement, and antibiotic spacer placement. Intravenous antibiotics were administered by infectious disease doctors for minimum of 6 weeks. Second stage revision, which included spacer removal and revision RTSA placement, ensued when follow-up laboratory evaluation and CT guided aspiration revealed normal indices.

RESULTS: The median age of the cohort was 73 years (Range, 46-87 years) and median follow up was 28 months (Range, 7-68 months). Patients underwent median of 2 surgeries (Range, 1-5) prior to 2-stage revision. Standard two-stage revision was successful in 33 of 38 (86.8%) patients for management of PJI. There were five patients (13.2%) who had recurrent infections: three patients required a repeat debridement and antibiotic course; one patient required extended intravenous antibiotics treatment; one patient required implant removal and permanent antibiotic spacer placement. There were no treatment associated mortalities; however, there were 8 complications (21%), including 3 cases of instability and 5 periprosthetic fractures. Most common cultured microorganisms were Cutibacterium acnes (21.0%), Methicillin-sensitive Staphylococcus Aureus (7.9%), and Coagulase-negative Staphylococcus (2.6%).

DISCUSSION AND CONCLUSION: While there are multiple treatment options for PJI management, two-stage revision remains an effective means of treatment. Although there were several patients who required an additional stage of treatment, there is a high eradication rate of the infection.