Articulating Antibiotic Spacers for Two-Stage Exchange Arthroplasty: Report of Over 300 Hips

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INTRODUCTION:
Two-stage exchange arthroplasty remains the standard management of periprosthetic joint infection (PJI) around total hip arthroplasty (THA) in the U.S. and is typically performed with some form of antibiotic-eluting spacer. This study evaluated outcomes of a specific intraoperatively fabricated articulating high-dose antibiotic cement spacer, focusing on survivorship, clinical outcomes, and complications in a large cohort.
METHODS: A total of 302 hips (298 patients) underwent two-stage exchange arthroplasty for PJI using a specific articulating antibiotic spacer between 2005-2022. Patients with prior two-stage exchange were excluded, although 40% had previous PJI-related procedures. Mean age was 65 years, mean BMI was 32 kg/m^2, and 38% were female. Most patients were McPherson host B (52%) and extremity grade 2 (55%). At resection, 87% met 2011 MSIS criteria. Mean follow-up was 6 years.
RESULTS: At 5 years after reimplantation, survivorships free of reinfection, aseptic re-revision, any re-revision, or any reoperation were 89%, 93%, 85%, and 79%, respectively. Aseptic re-revision was mostly for dislocation (n=15). McPherson host C and extremity grade 3 were associated with a >3-fold increased risk of reinfection (HR 3.8, p=0.007; HR 3.4, p=0.044). Mean Harris hip score was 79 at 5 years post-reimplantation. While the spacer was in place, 19 patients underwent spacer revision, mostly spacer exchanges for infection, and 8 underwent reoperation, mostly debridements for postoperative drainage. There were 16 periprosthetic fractures around the spacer. Spacer dislocation was associated with a 6-fold increased post-reimplantation dislocation risk (HR 6.2, p<0.001).
DISCUSSION AND CONCLUSION: This intraoperatively fabricated antibiotic-eluting articulating spacer was associated with excellent 5-year survivorships free of reinfection (89%) and aseptic re-revision (93%) after reimplantation. Nearly 20% of patients experienced spacer-related complications. Spacer dislocation was associated with a 6-fold higher post-reimplantation dislocation risk, highlighting the potential role for extra high stability bearings, such as dual-mobility or constrained implants, at reimplantation.