Long-Term Results of 331 Two-stage Exchanges for PJI Following THA: Very Low Reinfection and Mechanical Failure Rates at 10 Years

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INTRODUCTION:

Recent data has suggested similar reinfection rates between two-stage and one-stage exchange arthroplasties for infected total hip arthroplasties (THAs). However, those data are limited in length of follow-up and analysis of aseptic mechanical failures. The purpose of this study was to assess the long-term results of two-stage exchange arthroplasty for THAs in the largest series to date.

METHODS:

We identified 331 infected THAs treated with a two-stage exchange arthroplasty between 1993 and 2021 at a single institution. Mean age at reimplantation was 66 years, 38% were female, and mean BMI was 30 kg/m^2. PJI diagnosis was based on the 2011 MSIS criteria. A competing risk model accounting for death was utilized. Mean follow up was 8 years.

RESULTS:

The cumulative incidence of reinfection was 6.8% at 1 year and 10.7% at 5 and 10 years. Of the 19% treated with suppression, the 10-year PJI recurrence rate was 21%. Factors predictive of reinfection included BMI>30 kg/m^2 (HR 2;p=0.049), need for additional spacer exchange (HR 3.2;p=0.006), and suppression (HR 2.8;p=0.004). The cumulative incidence for any revision was 11.4% at 5 years, and 12% at 10 years. The cumulative incidence of revision for aseptic loosening was 0% at 1 year, 2.1% at 5 years, and 2.7% at 10 years. Dislocation occurred in 31 hips (12% at 10 years; 55% required revision). Factors predictive of dislocation were female sex (HR 2;p=0.046) and BMI<30 kg/m^2 (HR 2.6;p=0.02). The mean HHS improved from 54 to 75 at 10 years.

DISCUSSION AND CONCLUSION:

In this large series of 331 two-stage exchange arthroplasties performed for infected hips, we found a very low mechanical failure rate at 10 years (<3%) and a low rate of reinfection (10%). These long-term mechanical and infection data must be kept in mind when considering a paradigm shift to the use of one-stage exchange.

Cumulative Incidence of Reinfection Accounting for Death as a Competing Risk