

Outcome of Treatment of Polymicrobial Periprosthetic Joint Infection: A Multi-Institutional Study

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INTRODUCTION:

Two-stage exchange arthroplasty remains the preferred surgical treatment for chronic periprosthetic joint infection (PJI). Despite its well-established limitations, culture remains the primary method for microbial identification in patients with PJI. In some patients with PJI, culture may identify multiple organisms (Polymicrobial). This study evaluates the outcome of two-stage exchange in patients with polymicrobial PJI.

METHODS:

This retrospective study from three institutions included 83 patients with chronic polymicrobial PJI (as detected by culture) who underwent two-stage exchange arthroplasty from 2000 to 2019. Manual review of electronic medical records was performed in order to scrutinize available microbiological data from initial as well as subsequent procedures. Data was reported in a descriptive fashion.

RESULTS:

A total of 83 polymicrobial PJI cases treated with two-stage exchange were included. Despite a prolonged course of targeted antimicrobial therapy, 15 of 83 patients (18.07%) had positive cultures at reimplantation. Of these, 8 (53%) patients isolated at least one of the organisms found at the time of their resection arthroplasty. Additionally, 24 (28.91%) underwent either spacer exchange or washout between their resection and reimplantation procedures. A subgroup analysis of the 59 did not have subsequent procedures found that 11 (18%) had a positive culture at the time of reimplantation. Of these, 7 (63%) were due to the same organisms cultured at resection.

DISCUSSION AND CONCLUSION:

It appears that patients with polymicrobial PJI undergoing two-stage exchange arthroplasty have a more protracted and suboptimal outcome. In addition to this, spacer exchange and washout are commonly utilized to help reduce the bioburden in these patients, with unclear effect on the overall success rate.