

## **Six-Week Protocol for Two-Stage Exchange Arthroplasty in a High-Risk Population**

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**INTRODUCTION:** Periprosthetic joint infection (PJI) remains a devastating and serious complication following total joint arthroplasty (TJA), often necessitating a two-stage exchange arthroplasty for infection eradication. Although this method is the gold standard, there remains no consensus with optimal timing, antibiotics treatment, holidays, or aspirations between stages. This especially true for high-risk individuals with mega-prostheses and osteomyelitis. This study aims to evaluate the effectiveness of a shortened six-week two-stage exchange protocol in treating PJI for hip and knee arthroplasty in a high-risk population.

### **METHODS:**

A retrospective review of patients who underwent two-stage exchange arthroplasty for PJI between January 1, 2018 and December 31, 2022 was conducted. Inclusion criteria were based on MSIS criteria and who underwent a standardized 6-week two-stage revision protocol for chronic PJI. To achieve a 6-week protocol, the antibiotic holiday and aspiration were removed from the interval period. The main outcome assessed was infection eradication defined as the absence of re-operation. Secondary outcomes included infecting organisms, culture positivity rates, and outcomes in patients with mega-prostheses.

### **RESULTS:**

Seventy-five patients (77 joints) of which forty-two joints (55%) were mega-prostheses met criteria and 42% demonstrated pathology proven osteomyelitis. Infection eradication was achieved in 88% of cases following two-stage exchange at a minimum of 1 year. Nine patients (12%) required re-operation and of whom eight had a mega-prosthesis. Of those without mega-prostheses, there was a 97% success rate with one individual requiring another surgery. The culture positivity rate was 69% with *Staphylococcus aureus* and coagulase-negative *Staphylococcus* species being the most common pathogens. Thirty-one (40%) remained on suppressive antibiotic therapy for 1-year (27/31 were mega-prostheses). The majority of patients were unchanged at 2-year follow-up.

**DISCUSSION AND CONCLUSION:** With no current consensus regarding the most effective procedure to eradicate PJIs, a shortened multidisciplinary 6-week protocol for two-stage exchange revisions is a viable, reliable, and effective strategy for managing PJI. This includes its use in a high-risk population with osteomyelitis and mega-prostheses with outcomes that are similar or better than traditional approaches. A dedicated shortened protocol means surgeons can follow a reliable pattern with predictable outcomes. This shortened protocol demonstrated high eradication rates while potentially reducing resource utilization, costs, and patient's burden.