

Total Operative Time of Two-Stage Compared to One-Stage Exchanges in Contemporary Treatment for PJI

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INTRODUCTION: Recent reports on the treatment success of the one-stage exchange treatment for chronic periprosthetic joint infection (PJI) has challenged the “gold standard” two-stage exchange. However, some relevant outcome metrics have not been considered, such as extended time under anesthesia for the one-stage exchange in these immune and medically compromised patients. This study evaluated the total operative time of two-stage revisions for PJI (resection + reimplantation) and compared operative times to currently available data on the one-stage revisions.

METHODS: From 2015 to 2024, a total of 79 two-stage exchange arthroplasties (32 hips, 47 knees) for PJI were retrospectively reviewed. Cases requiring extensor mechanism repair, gastrocnemius muscle flaps, or pre-existing fractures were excluded. All cases underwent strict standardized clinical protocols. Operative and anesthesia times for the resection and reimplantation procedures were documented in the health system electronic health record. *P*-values of <0.05 were considered statistically significant.

RESULTS: The median procedure time for the resection and reimplantation procedures was 139 (range, 86-318) and 117 (range, 72-328) minutes for hips; and 116 (range, 75-216) and 116 (range, 81-328) minutes for knees, respectively. For two-stage exchanges, the median total operative time was significantly shorter by an average of 51 minutes for hips (260 vs 311 mins, $P<0.001$) and shorter by an average of 25 minutes for knees (234 vs 259 mins, $P=0.448$) compared to available data on one-stage exchanges.

DISCUSSION AND CONCLUSION: Study results demonstrate that two-stage revisions for PJI had significantly shorter operative times in total for both surgeries compared to available data on one-stage revisions. Given the medical complications and morbidity associated with longer operative times, this study provides support that the two-stage exchange remain the “gold standard” treatment on behalf of patient safety until robust long-term data are available on the one-stage revision for PJI.