

## Complications and Outcomes Associated with Two-Stage Treatment of Periprosthetic Total Hip Infection

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**Background and Hypothesis:** Periprosthetic joint infection (PJI) is treated with implant resection, debridement, and component reimplantation after infection eradication. Treatment consists of either a single surgery or two-stage surgery with intravenous antibiotic therapy between stages. We replicated a recent study which concluded two-stage treatment is associated with high morbidity, hypothesizing that complication rates would be similar, but that morbidity is not always conclusively a consequence of two-stage treatment for PJI

**Project Methods:** Prospectively documented data on all primary and revision hips undergoing two-stage treatment for PJI by a single surgeon were retrospectively reviewed. Surgical complications were quantified for the interstage and post-reimplantation periods. Chi-squared tests were used to compare current findings to published findings.

**Results:** Six of seven patient demographics and comorbidities were equivalent in the two studies ( $p \geq .278$ ). More complex infections characterized the current study as evidenced by significantly more polymicrobial infections ( $p < .001$ ). Spacer retention rather than component reimplantation did not occur in the current study but characterized 32 patients (16%) in the comparison study ( $p = .002$ ). There were no differences in the number of additional interstage septic procedures ( $p = .402$ ) and fewer post-reimplantation septic surgeries in the current study ( $p = .018$ ). Using a proposed system which penalizes additional operations required to eradicate infection, treatment success rates at minimum one year follow-up were 73% and 71%, respectively ( $p = .856$ ). Without these penalties, treatment success in the current study was 93% (equivalent proportion not available for comparison study). All-cause mortality was higher in the current study (18.2% versus 7.6%,  $p = .044$ ) but only two deaths were related to PJI (unknown for comparison study).

**Potential Impact:** Study findings suggest that morbidity attributed to two-stage treatment reflect the inherent complexity of this patient group, and not the two-stage treatment itself.