Proximal Femoral Replacement-Type Articulating Spacers for Treatment of Periprosthetic Joint Infection in the Setting of Massive Proximal Femoral Bone Loss

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INTRODUCTION:

Periprosthetic joint infection (PJI) of the hip with massive proximal femoral bone loss (PFBL) is a complex surgical problem. This case series reports our institutional experience using proximal femoral replacement (PFR) type articulating spacers for the treatment of PJI in the setting of massive PFBL.

METHODS:

A retrospective chart review was performed identifying patients >18 years old who received a PFR-type spacer for a hip PJI from 2013-2024. Demographics, surgical characteristics, and radiographic measurements were recorded. Outcomes included infection recurrence, dislocation, and construct loosening. Kaplan-Meier survival curves were generated using the beta product confidence procedure for outcomes.

RESULTS:

Sixteen patients were identified with an average age of 68.8±16 years and average follow-up of 29.2±33.9 months. The cohort had an average of 3.5 (range, 0-10) prior surgeries on the ipsilateral hip and an average PFBL of 15.6 ± 8.2 cm. All constructs utilized constrained acetabular liners, with a mean construct length of 28.5 ± 6.5 cm and mean femoral stem length of 13.2±4.5 cm. Five (31.3%) patients underwent second stage revision on average 23.0±32.6 months following the first stage. Of the 11 remaining patients, 7 (63.6%) had no complications at an average final follow-up of 16.1±18.1 months. Survivorship at 5 years from dislocation, infection, and construct loosening was 77.1% (95%-CI 0.14 - 0.97), 74.3% (95%-CI 0.14-0.94), and 85.1% (95%-CI 0.16 - 0.98), respectively. Spacer failures occurred in 3 (18.8%) instances. Of these, one was due to infection and one to dislocation, both requiring re-resection at 6.5 and 7.1 months, respectively. The third, caused by construct failure, underwent replantation at 5.5 months.

DISCUSSION AND CONCLUSION:

PFR-type spacers are a viable option to address extensive PFBL during the management of PJI.

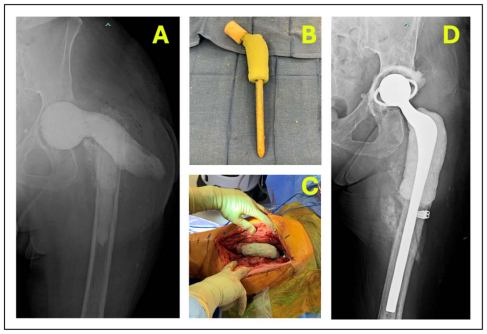

Figure 1: A 75-year old woman with a history of two antibiotic loaded spacers for periprosthetic joint infection (PJI). Preoperative anterior-posterior (AP) radiograph (A) shows obliquely oriented proximal spacer indicative of construct fracture. Patient underwent spacer removal with implantation of new spacer (B) pictured on operating table. Intraoperative photo (C) depicts spacer following placement in patient's hip. Postoperative AP radiographs at 1 year follow-up (D) demonstrate Prostalac type left hip spacer with unchanged alignment and without radiographic complications.