



ABSTRACT
BOOK

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One Stage Revision With Placement Of Local Antibiotic Carrier In The Treatment Of Modular Oncologic Joint Reconstruction

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Background: Infected megaprosthesis reconstructions remains a very challenging problem. While the gold standard in total joint arthroplasty is a 2-stage revision, this may not be practical for those patients with extensive bone loss and no joint stability. The concept of a 1 stage reconstruction is gaining popularity and with current bioabsorbable antibiotic delivery systems, this may be a viable option with significantly less morbidity. The long term outcome of 1 stage revisions for infected megaprosthesis has not been well reported.

Questions/Purposes: What is the long-term success of a 1 stage revision with local antibiotic carrier and is it comparable to a 2-stage revision in patients with infected megaprosthesis? Is the morbidity less for a 1 stage vs 2 stage reconstruction? Were there fewer complications associated with 1 stage vs 2 stage revision treatment? What is the surgical technique for a 1 stage revision with local antibiotics?

Patients and Methods: Data was collected prospectively for 31 patients treated for infected megaprosthesis hip or knee joints between March 2006- May 2016. Patients with a minimum follow of 1 year were included and the average follow up was 6.2 years. Seventeen (5 hips, 11 knees, 1 total femur) were treated with one stage revision with a local antibiotic carrier (Stimulan, Biocomposites) containing vancomycin 1-2 g and Tobramycin 1.2-2.4 g (Figure 1), whereas the other 14 (3 hips, 11 knees) were treated with a 2-stage revision procedure. Infections were diagnosed based on culture and inflammatory serum markers. Patients were not randomized. Those patients with organisms that were sensitive to Vancomycin or Tobramycin were treated with one stage and those patients with insensitive organisms, 2 stage. Patients infections were defined as being adequately treated if inflammatory markers remained normal for a minimum of 6 months off antibiotics. The MSTS outcome's measure was used in all patients. All statistical analysis was performed using SAS 9.4 (SAS Institute, Inc.) and level of significance was set at 0.05. (2-sided).

Results: Two of 17 patients treated with 1 stage revision were noted to have a recurrence of infection. A relapse of MRSA infection was seen in both patients with recurrent infection. One patient at 18 months' post treatment and the other at 21 months. In the 2-stage group, 4 of 14 patients had recurrence of their infection. They were noted to have recurrent infection at 4, 11,

15, and 52 months' post op. Of these 4, 2 were treated with an above knee amputation, one with washout and antibiotic suppression, and the fourth a repeat stage one revision. MSTTS scores for one stage treated patients were significantly higher than those in the 2-stage group at 6 months, 12 months and 2 years post op. Patients with one stage revisions also had shorter hospitalizations and less associated complications including DVT, pneumonia and UTIs; however, the numbers were too low to determine statistical significance.

Figure 1. Post op image of stage 1 revision proximal femur replacement & acetabular reconstruction with antibiotic impregnated beads. Beads are seen along the medial aspect of the implant and in the adjacent to the femoral head.



Conclusions: A 2 stage revision remains the gold standard for treated infected arthroplasties; however, in select patients with an infected megaprosthesis, a one stage revision with debridement and placement of local antibiotic carrier may have significant benefits. A 2-stage revision in this population can be highly morbid and is often associated with perioperative complications and prolonged hospitalizations. The 1 stage revision appears to be a viable option with potentially predictable long term success. More long term studies will be needed to determine if late relapses are significantly different between the two treatment options.