Management of Infected Total Ankle Replacements

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Background: The treatment of deep infections following total hip or knee arthroplasty is dependent upon timely diagnosis. Acute infections are managed with surgical debridement and retention of the prosthesis, while the standard of care for late chronic infections requires two-stage revision arthroplasty. However, little is published on the management of infected total ankle prostheses. The purpose of this study is to review our experience treating infected total ankle replacements.

Methods: From 2002 to 2010, all patients requiring removal of the prosthesis for deep infection following primary or revision total ankle arthroplasty were identified. These infections were classified as acute post-operative, late chronic, or remote hematogenous. We retrospectively evaluated the treatment course and outcome of 21 infected total ankle replacements managed at our institution over this 8-year period.

Results: A total of 374 primary and revision total ankle replacements were performed at our institution during the same period of time. Fifteen (3.8%) deep infections were identified at our institution as well as an additional 6 deep infections from outside hospitals. Seventeen (81%) of the 21 deep infections were diagnosed as late chronic infections and treated with immediate removal of hardware. Prosthesis retention was attempted in 4 (19%) patients diagnosed as either an acute postoperative infection or remote hematogenous infection. All 21 patients eventually required removal of the prosthesis, insertion of an antibiotic-impregnated cement spacer, and extended antibiotic therapy. Median prosthesis retention time was 13 months (range, 1 – 96 months) and the mean time to revision arthroplasty or arthrodesis was 7.5 months (range, 3 weeks to 25 months). Prior to any reconstructive surgery, intra-operative tissue and fluid analysis was performed, and surgery performed only if the cell count was <5 per high power field and no organisms were present. Following resolution of the infection, successful revision arthroplasty was performed in 3 (14%) patients and arthrodesis in 6 (29%) patients; 3 (14%) patients required below-knee amputation and 9 (43%) patients retained the cement spacer. Revision arthroplasty failed in 2 patients and 1 patient failed subsequent tibiotalocalcaneal fusion, all due to recurrent infection. Cement spacer instability was identified in 2 patients.

Conclusions: Our data suggests that only a limited number of patients who develop an infection following primary or revision total ankle replacement can expect to undergo successful staged revision ankle arthroplasty.