Two-Stage Reconstruction of Infected Total Knee Arthroplasty using Antibiotics-Impregnated Cement Spacer and Beads

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Summary:
The two-stage reconstruction using antibiotics-impregnated cement spacer and beads is still in use and recommended as a reproducible option.

Abstract:
Objective:
This study aimed to evaluate the clinical and radiological outcomes of the two-stage reconstruction of infected total knee arthroplasty using antibiotics-impregnated cement spacer and beads.

Materials and Methods:
Total 75 knees operated between 1993 and 2010 were included in this study with the mean follow-up of 50.3 (range, 48-205) months. The reconstructive procedure consisted of the first stage of removal of the prostheses, radical débridement and implantation of 49 static and 26 mobile antibiotics-impregnated cement spacers and beads, followed by the second stage reimplantation. The intervening period was 11.3 (range, 4-49) weeks in average. Three antibiotics (vancomycin, gentamicin and cephazolin) were mixed to the cement with the volumetric ratio of 3 vs 1 (monomer cement vs antibiotic powder) to make spacer and beads. Extra procedures of medial gastrocnemius flap and change of the cement beads/spacer were added during the intervening period in 21 cases (28%).

Results:
The final outcomes were evaluated according to the eradication of infection and restoration of joint function related to the causative organisms, spacer type and host immunity. The final range of motion showed the superiority of mobile spacer (5.7°-99.2°) to static spacer (7.6°-80.8°) (p<0.05) and the recurrence of infection occurred in three cases in the static and six cases in the mobile spacer group respectively (p>0.005). The two-stage procedure was successful in 66/75 cases (88%) with the final HSS score of 81.9 in average.

Conclusion:
The two-stage reconstruction using antibiotics-impregnated cement spacer and beads is still in use and recommended as a reproducible option.