#1680 - Posters

Outcomes Of Antibiotic Cement-Coated Intramedullary Rods In Treating Infected Nonunions Of The Lower Extremity: A Case Series Of 38 Patients

Orthopaedics / Knee & Lower Leg / Miscellaneous

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Background
Managing infected nonunions of long bones is a challenging and complex process. Effective infection clearance often requires multiple debridements and prolonged systemic antibiotic therapy, while achieving bone union necessitates stabilization, which may increase the risk of implant colonization. This study aims to present outcomes from a large cohort of patients with infected diaphyseal nonunions of the lower extremity treated with antibiotic cement-coated intramedullary (ACCIM) rods and to examine associated complications.

Objectives
The purpose of this study is to investigate the efficacy and practicality of using ACCIM rods as a dual-purpose treatment modality to clear infection and to stabilize bone healing.

Study Design & Methods
We conducted a review of 38 patients with infected nonunion of the lower extremity treated with an ACCIM rod from 2004 to 2019 at a level 1 academic trauma center. Collected data included demographics, laboratory values, microbial organisms, types and numbers of procedures, antibiotics administered, and clinical indicators of infection eradication. Radiographic analysis assessed defect size and evidence of bone union. The primary outcome was the infection eradication rate, with secondary outcomes including: (1) bony union rate, (2) union achieved without additional procedures, and (3) the number and types of additional procedures required.

Results
Of the 38 patients, infection clearance was achieved in 36 (94.7%), with an average clearance time of 7 months (range: 1–29 months). Complete bone union was observed in 30 patients (79.0%), requiring an average of 13.7 months (range: 4–38 months) to achieve union. Seven patients (18.4%) reached union without the need for additional procedures, while 23 patients (60.5%) required further intervention, with a mean of 1.2 subsequent procedures (range: 1–2) post-infection clearance to obtain union. The most commonly performed additional procedure was exchange interlocking nailing, with or without bone grafting, utilized in 19 of the 23 patients who needed extra procedures. Cement debonding from the rod was observed in only one case (2.6%) during insertion or removal, and no ACCIM rods broke following insertion.

Conclusions
The ACCIM rod is an effective treatment option for managing infected nonunion of the lower extremity, offering ease of implementation with a low complication rate. Customizable for each patient using widely available materials, ACCIM rods provide a dependable method for managing dead space, eradicating infection, and ensuring intramedullary stabilization of nonunions. This stabilization supports the progression of union and facilitates subsequent aseptic nonunion repair when necessary.