**A Novel Therapy for Potential of Continuous Local Antibiotic Perfusion Therapy for Fracture-Related Infections**

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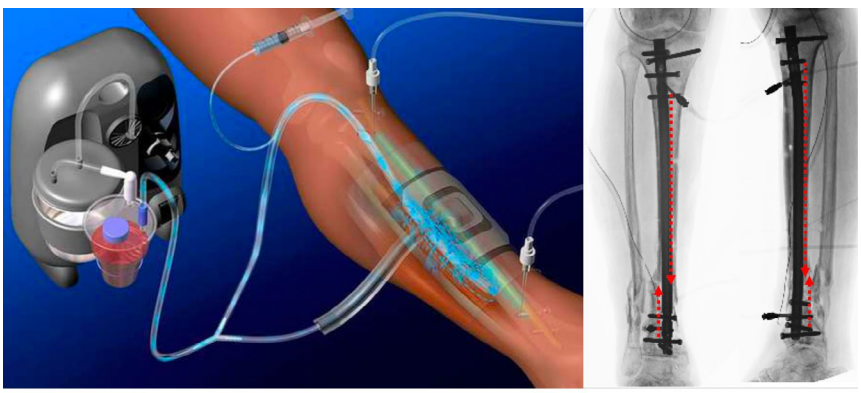
**Purpose**: Fracture-related infections (FRIs) are challenging for orthopedic surgeons, as conventional surgical treatment and systemic antimicrobial therapy cannot wholly control local infections. Continuous local antibiotic perfusion (CLAP) is a novel and innovative treatment for bone and soft-tissue infections. It is expected to eradicate biofilms by maintaining a sustained high concentration of antimicrobial agents at the infected site. If CLAP therapy can eradicate infection even in cases with implants while preserving the implants, it would be an ideal and effective treatment for local refractory infections. This study aimed to evaluate the usefulness of novel CLAP therapy for FRIs.

**Methods**: 14 patients treated with CLAP therapy were retrospectively analyzed. The mean age was 62.6 years (range, 25-85), and the mean follow-up period was 23.7 months (6-47). In all cases, the infected sites were related to the lower extremities (tibia: n = 11, fibula: n = 1, foot: n = 1, humerus: n = 1). All patients underwent similar procedures for this therapy combined with negative-pressure wound therapy after thorough irrigation and debridement of infected tissues.

**Results**: The pathogens identified were Staphylococcus aureus (methicillin-resistant S. aureus: n = 7; methicillin-susceptible S. aureus: n = 3), Pseudomonas aeruginosa (n = 4), Enterococcus faecalis (n = 2), Corynebacterium (n = 2), and Enterobacter (n = 1); pathogens were not detected in 1 case. The mean duration of CLAP was 22.4 days (6-39). In all cases, implants were preserved until the bone union was achieved. Five patients relapsed; however, infection was suppressed in all cases by repeating this method. No side effects were observed.

**Conclusion**: This novel case series presents treatment outcomes using CLAP therapy for FRIs. This method can control the infection without removing the implants because of the sustained high concentration of antimicrobial agents at the infected site. It could be a valuable treatment option for refractory FRIs with implants in which bone union has not been achieved.





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