Surgical Treatment of Long Bone Osteomyelitis Without Long-Term IV Antibiotics in an Under-Resourced Country

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Purpose: Our objective was to report the outcomes of patients with long bone osteomyelitis treated with wide surgical debridement, bone and soft-tissue stability, and antibiotic spacers in a developing country.

Methods: In this retrospective case series from a surgery center in rural Central America, 56 patients (63 long bones) with diaphyseal osteomyelitis of the femur or tibia were analyzed. Sequential wide surgical debridements at the site(s) of osteomyelitis, bony stabilization of nonunions, placement of temporary antibiotic spacers in bone defects, meticulous soft-tissue closures including rotational muscle flaps over exposed bone, and empiric oral antibiotics were employed. No microbiology and no long-term IV antibiotics were used or available. The process was repeated for each patient until soft tissues showed no clinical signs of infection, at which time spacers and implants were exchanged for additional rigid fixation and autologous bone grafting, where indicated.

Results: The main outcome measurement was fracture healing without evidence of recurrent infection. Treatment successes were defined as at least 12 months of a healed wound without sign of infection, the ability to ambulate or use the affected extremity, and radiographic healing without signs of ongoing osteomyelitis. 56 patients with chronic lower extremity long bone osteomyelitis (63 long bones) were treated between 2015 and 2020 with an average 54-month follow-up. 81% had infection resolution and 92% had clinical fracture union with an average of 23 weeks of oral antibiotics and 3.5 surgical debridements performed at a single surgery center. Flap patients (n = 16) had infection resolution and fracture union rates of 88% and 94%, respectively.

Conclusion: Long bone osteomyelitis can be treated with a reasonable success rate using serial wide debridements, meticulous soft-tissue coverage, bone stability, and empiric oral antibiotics in an austere medical environment. Long-term IV antibiotics and microbiology were not requirements for this level of success.