Management of Latent Septic Ankle Arthritis Through Staged Arthroscopic Ankle Arthrodesis Utilizing External Fixation

Management of septic arthritis is a surgical emergency requiring a protocol-driven approach including high-volume joint lavage, extensive débridement, deep culture procurement and prolonged sensitivity-driven parenteral antibiotics.1,4 With concomitant osteomyelitis, in addition to the above, a staged approach utilizing antibiotic loaded polymethylmethacrylate cement beads (AL-PMMA) and definitive management with joint arthrodesis is recommended.1

LITERATURE REVIEW
No standardized approach to the management of septic ankle arthritis exists.1,4

CASE STUDY
A 66-year old uncontrolled diabetic woman was referred 11-days after initial presentation with a known right septic ankle. One year prior, she underwent trimalleolar ankle fracture ORIF performed elsewhere, complicated by five-months of delayed incisional healing (Figure 1). Prior to referral, she underwent two ankle joint aspirations which yielded multi-drug resistant Staphylococcus epidermidis. Additionally, radiographs, CT scan, WBC-labeled bone scintigraphy and laboratory work-up demonstrated an incisional wound infection. Distant findings confirmed as osteomyelitis via deep culture procurement with swab; (C) grasper employed to obtain tissue sample for pathologic and microbiologic analysis; (D) shaver utilized for joint preparation; (E) marial fixation that was removed 10-weeks later (Figure 3). Eight-weeks following the index procedures, she underwent removal of AL-PMMA and hardware removal with bone biopsy procurement that confirmed septic arthritis and acute osteomyelitis (Figure 2). We performed the protocol-driven approach, as stated in the purpose section, to treat the septic ankle and hardware removal with bone biopsy procurement that confirmed septic arthritis and acute osteomyelitis.

PURPOSE
Management of septic arthritis is a surgical emergency requiring a protocol-driven approach including high-volume joint lavage, extensive débridement, deep culture procurement and prolonged sensitivity-driven parenteral antibiotics.1,4 With concomitant osteomyelitis, in addition to the above, a staged approach utilizing antibiotic loaded polymethylmethacrylate cement beads (AL-PMMA) and definitive management with joint arthrodesis is recommended.1

RESULTS
We performed the protocol-driven approach, as stated in the purpose section, to treat the septic ankle and hardware removal with bone biopsy procurement that confirmed septic arthritis and acute osteomyelitis (Figure 2). Eight-weeks following the index procedures, she underwent removal of AL-PMMA and arthroscopic ankle arthrodesis utilizing external fixation that was removed 10-weeks later (Figure 3). Clinical surveillance with serial radiographs demonstrated successful arthrodesis. She ambulates with an AFO and remains infection-free on suppressive antibiotics 17-months postoperatively (Figure 4).

ANALYSIS and DISCUSSION
A positive outcome was achieved, despite treatment delays with known septic arthritis. Clinical acumen and appropriate use of diagnostic tests should be utilized to initiate prompt treatment for this surgical emergency. Protocol-driven staged treatment for septic ankle arthritis followed by arthroscopic arthrodesis utilizing external fixation offers a viable limb-salvage approach.1

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