Salvage of Septic Ankle Nonunion via Retrograde Intramedullary Compression Nail Fixation: A Case Report

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PURPOSE

Septic nonunion of ankle arthrodesis is a complex problem with potentially limb-threatening consequences. This process requires a prompt, protocol-driven approach that includes resection of all infected soft tissue and bone, high-volume pulsed irrigation and implantation of antibiotic-loaded polymethylmethacrylate cement beads. This often results in massive bone loss in the tibia and talus, making revision arthrodesis difficult. Salvage arthrodesis may ultimately be achieved by a retrograde intramedullary compression nail and augmentation of the fusion site with metallic screw reinforced antibiotic-loaded polymethylmethacrylate cement for added stability.

CASE STUDY

The authors present a 55-year old hepatitis C positive, tobacco dependent man who had a pantalar arthrodesis with severely compromised anterior soft tissues who underwent revision ankle arthrodesis from a posterior approach to treat a plantarflexion malunion by another provider. This procedure resulted in an anterior ankle wound requiring negative pressure wound therapy. One year later he presented to the senior author with continued pain, recurrent plantarflexion and augmentation of the fusion site with metallic screw reinforced antibiotic-loaded polymethylmethacrylate cement in place.

RESULTS

Following complete resection of the infected bone, the second surgery involved a retrograde intramedullary compression nail supplemented with metallic screw reinforced polymethylmethacrylate cement for added stability. The patient went on to stable, well aligned arthrodesis without recurrence of wound or infection at 18 months follow-up.

ANALYSIS and DISCUSSION

When performing limb salvage in an immunocompromised host with an infected, malaligned nonunion and compromised soft tissues envelope, the use of a protocol-driven approach is critical. High volume pulsed irrigation, complete resection of all infected tissues and implantation of antibiotic-loaded polymethylmethacrylate cement beads will prepare the operative site for reconstruction. Salvage arthrodesis with a retrograde intramedullary compression nail offers a reliable, reproducible option once the infection is eradicated. The use of metallic screw reinforced antibiotic-loaded polymethylmethacrylate cement provides immediate stability to this construct.

References