Single Stage Treatment of Osteomyelitis in Charcot Foot with Resection of Infection, Correction of Deformity and Maintenance with Static Circular Fixation

Michael S. Pinzur, MD (Maywood, Illinois)
Joseph A. Gil, MD; Jaime Belmares, MD

Summary:
Seventy-three of 178 patients undergoing surgical reconstruction for had chronic osteomyelitis at the time of surgery. Surgery involved resection of infected bone, correction of deformity, parenteral antibiotic therapy, and maintenance of the correction with a static external fixator. Excluding one patient who died in the early postoperative period, sixty-eight of seventy-one patients (95.7%) achieved limb salvage and were able to ambulate with commercially available therapeutic footwear.

Introduction:
The current treatment of Charcot foot deformity generally involves surgical correction of the deformity to enable use of commercially available therapeutic footwear. In patients with chronic osteomyelitis associated with Charcot foot deformity, controversy exists whether correction of the deformity should be accomplished at the same time as resection of the chronically infected bone.

Methods:
During a seventy-eight month period, 178 patients underwent surgical reconstruction for diabetes associated Charcot foot arthropathy by a single surgeon. Seventy-three of the patients had chronic osteomyelitis at the time of surgery. There were forty-one males and thirty-two females. Their average age was 57.9 (range 31-76) years, and BMI was 36.9.(range 21.8-60.9) The diagnosis of osteomyelitis was made by: (1) presence of an open wound overlying the deformity with exposed bone and chronic drainage, (2) closed wound with a history of biopsy diagnosed osteomyelitis and clinical and pathologic evidence of abnormal bone in the region of the previous infection, or (3) history of previous wound overlying bony deformity with abnormal bone observed at the time of surgery. Surgery involved: (1) radical resection of the clinically infected bone, (2) acute surgical correction of the deformity, (3) treatment with culture-specific parenteral antibiotic therapy, and (4) maintenance of the correction with a static circular external fixator.

Results:
One patient died shortly after removal of the external fixator, from unrelated causes. Three patients required amputation. Two patients have non-infected wounds that have been resistant to treatment. Two non-infected wounds were resolved following plastic surgery local flaps. Resolution of infection and wound closure was achieved in five patients following a second debridement. Excluding the patient who died in the early postoperative period, sixty-eight of seventy-one patients (95.7%) achieved limb salvage and were able to ambulate with commercially available therapeutic footwear.

Conclusion:
A plantigrade non-infected foot can be achieved in chronic osteomyelitis associated with diabetic Charcot foot deformity with single-stage radical resection of osteomyelitis, correction of the deformity combined with culture-specific antibiotic therapy.