The Fate of Bone Graft for Periprosthetic Osteolysis in Total Ankle Arthroplasty
Yoo Jung Park, MD, Dong-Woo Shim, MD, Yeokgu Hwang, MD, Jin Woo Lee, MD, PhD

Category: Ankle Arthritis

Keywords: bone graft; osteolysis; total ankle arthroplasty

Introduction/Purpose: Periprosthetic osteolysis in total ankle arthroplasty (TAA) is a substantial problem. It may cause implant failure and has potential to affect long-term implant survival. To prevent major revisional arthroplasty, it is important to make an early diagnosis of osteolysis and decide an appropriate timing of surgical intervention such as bone graft. We report our experience of bone graft for osteolysis after TAA associated with clinical and radiologic outcome.

Methods: Between May 2004 and Oct. 2013, 238 primary TAA were performed on 219 patients. We excluded 37 ankles with follow-up less than 24 months; thus, 201 ankles in 185 patients with mean follow-up of 61.9 (range, 24-130) months were included in the study. Nineteen patients were treated with a total of 21 bone graft procedures for periprosthetic osteolysis after TAA. Of these patients, 12 (57.1%) were males with mean follow-up length after bone graft 35.0 months. Location of osteolysis, bone grafting method and clinical outcome parameters using visual analog scale (VAS), American Orthopaedic Foot and Ankle Society (AOFAS) score were recorded.

Results: Radiographs revealed total of 62 osteolysis lesions in 19 patients; 35 (56.5%) distal tibial lesions, 23 (37.0%) talar lesions. Autogenous iliac bone graft was used in 18 procedures (85.7%). The mean scores (and standard deviation) improved for the VAS from 4.8 ± 1.23 points before bone graft to 3.0 ± 0.94 points at the last follow-up (p<0.05); and for the AOFAS score from 76.8 ± 5.9 before bone graft to 84.3 ± 4.5 at the last follow-up (p<0.05). After 21 bone graft procedures, 6 demonstrated detection of newly developed osteolysis. One patient needed a repeat bone graft procedure with cementation after the primary bone grafting due to large cyst on distal tibia. There was no implant failure or major revisions after the bone graft.

Conclusion: Bone graft for periprosthetic osteolysis may improve patient’s clinical outcome and give support to the structures surrounding the implant. Bone grafting in optimal timing may also improve implant survivorship. However, further study is needed for the etiology of newly developed painless osteolysis even after the bone graft.

Foot & Ankle Orthopaedics, 2(3)
DOI: 10.1177/2473011417S000070
©The Author(s) 2017