Bipolar Fresh Osteochondral Allografting of the Tibiotalar Joint

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Author(s):
William D. Bugbee, MD
Gaurav Khanna, MD
Marco Cavallo, MD
Julie C. McCauley, MPHc
Simon Görtz, MD
Michael E. Brage, MD

Introduction
Tibiotalar arthritis in the young, active patient is a debilitating condition with limited treatment options. Bipolar tibiotalar fresh osteochondral allograft (OCA) transplantation was conceived as a possible alternative to arthrodesis and arthroplasty. We report our experience with bipolar ankle OCA for tibiotalar joint arthritis.

Methods
Between 1999 and 2008, we performed 88 bipolar ankle allografts in 84 patients. Eighty-six allografts (82 patients) had a minimum two year follow-up. The mean age was 44 years (range 18-71) and 52% were male. Evaluation included frequency and type of reoperations, an ankle assessment score, pain, function, and patient satisfaction. Radiographs were evaluated for graft healing, joint space narrowing, and graft collapse or fracture.

Results
Mean follow-up was 5.3 years (range, 2-11 years). Thirty-six of 86 (42%) allografts had further surgery since implantation. Of the reoperations, 25 (29%) were graft-related (10 revision OCA, seven arthrodeses, six total ankle arthroplasty conversions, two below knee amputations) and 11 (13%) were not necessarily related to the graft (e.g., hardware removal, debridement, synovectomy, distraction). Mean postoperative ankle assessment score was 64.1 (range, 10-100). The majority of patients reported less pain (85%) and improved function (80%) after OCA transplantation, and 92% reported satisfaction with the procedure. Radiographic evaluation was available for 55 allografts (51 patients) remaining in situ. Twenty-six allografts (47%) had >50% joint space narrowing.

Conclusion
Fresh bipolar ankle OCA for tibiotalar arthritis resulted in acceptable outcome in this difficult population, with most patients having improved objective and subjective outcome measures. The reoperation rate of 42% is a concern, but comparable to arthroplasty in a similar population. Subjective satisfaction was high in spite of the reoperation rate. Importantly, OCA failure did not limit further surgical options. We conclude that bipolar ankle allografting is a useful alternative in carefully selected patients with advanced tibiotalar arthritis.