

Osteochondral Autologous Graft in the Treatment of an Open Talar Fracture: A Case Report

Jorge Bowakim, MD,¹ Javier López-Goenaga, MD,¹ Javier Mayo, MD,¹ and Julián del Río, MD²

We present the case of a 39-year-old man who sustained an open talar fracture of the right lower extremity and a supracondylar traumatic amputation of the left lower extremity. We used osteochondral chips from the femoral condyles of the amputated extremity as an autologous graft to reconstruct the talus and fixated these with Barouk screws. Two years postsurgery, the patient was pain free and without functional limitations, and his American Orthopaedic Foot and Ankle Society Scale score was 92, despite showing radiographic evidence of ankle joint space narrowing. Level of Clinical Evidence: 4 (The Journal of Foot & Ankle Surgery 48(5):585–588, 2009)

Key Words: amputation, Barouk screw, Gustilo classification, motorcycle

Open fractures can be difficult to manage, and this is particularly true when the talus is involved. In this case report, we describe our experience with a patient who had an open fracture of the talus and a traumatic amputation of the contralateral lower extremity. Despite the morbidity, we were able to procure autogenous bone graft from the amputated portion of the contralateral lower extremity and use this to repair the talus on the remaining limb, in conjunction with standard methods of open fracture management. We feel that the extent of injury and extensive reconstruction of the remaining talus was unusual enough to warrant publication.

Case Report

In April 2006, a 39-year-old man presented to the emergency department of our hospital after being involved in a motorcycle collision. At that time, examination of the patient revealed the following orthopedic injuries: 1) supracondylar femoral amputation of the left lower extremity; 2) suprasyndesmotic and medial malleolar fractures of the right ankle; 3) comminuted, open right talar fracture, categorized as Gustilo type IIIA (1); 4) left clavicular fracture; and 5) proximal interphalangeal luxation of the fifth finger of the left hand. Having been stabilized before presentation to the emergency department, the

patient was taken to the operating theater approximately 10 minutes after he had arrived at the hospital. We administered 2 g of cefazolin and 240 mg of gentamicin, intravenously, and proceeded to cleanse and remodel the left lower extremity amputation. Thereafter, attention was directed to the right lower extremity, the wounds of which were cleansed and debrided. After irrigation and debridement of the talar fracture, we used osteochondral chips procured from the femoral condyles of the contralateral amputated limb as autograft to reconstruct the talus, having obtained the osteochondral chips with the use of a chisel and mallet. The osteochondral grafts were preserved in a mixture of saline solution and the patient's own blood until implantation into the right talus.

The dome of the right talus was subsequently reconstructed by orienting the articular cartilage of the osteochondral donor segments so that they formed a reasonable approximation of the mirror image of the distal-bearing surface of the tibia, after which the segments were impacted into the remaining portion of the body and neck of the talus. We fixed the chips with 7 Barouk interfragmental compression screws (FRS Screw; DePuy Orthopaedics, Inc., Warsaw, IN) (Figures 1 and 2). Because of technical difficulties related to the poor quality of the residual talus, we could not achieve perfect articular surface congruity (Figure 2). Next, we osteosynthesized the ankle fracture with a limited contact-dynamic compression plate (LD-DCP) plate and screws on the fibula and partially threaded, cannulated interfragmental compression screws in the medial malleolus. We covered the wound with a full-thickness skin graft procured from the ipsilateral buttock. The clavicular fracture and the interphalangeal luxation were treated nonsurgically, and the patient remained hospitalized for 11 days.

After the surgery, the patient underwent a gradual course of rehabilitation and physical therapy. He did not develop

Address correspondence to: Jorge Bowakim, Avenida Betanzos 85, 2°C. 28034, Madrid, Spain. E-mail: jorgebowakim@yahoo.es.

¹Orthopaedic Surgeon, 12 de Octubre University Hospital, Madrid, Spain.

²Orthopaedic Surgeon, Infanta Sofía Hospital, San Sebastián de los Reyes, Madrid, Spain.

Financial Disclosure: None reported.

Conflict of Interest: None reported.

Copyright © 2009 by the American College of Foot and Ankle Surgeons 1067-2516/09/4805-0013\$36.00/0

doi:10.1053/j.jfas.2009.06.011



FIGURE 1 Intraoperative lateral radiograph showing the talar fracture.



FIGURE 3 Anteroposterior radiographic view 3 months after surgery.



FIGURE 2 Lateral radiograph depicting the talus after osteochondral autograft and fixation.

any decubitus wounds and displayed no complications related to his trauma and the subsequent operation. We applied a plaster splint to his right leg for 3 weeks and then allowed progressive partial weight bearing until 8

weeks postoperative. At 12 weeks postoperative, he was ambulating without pain with a prosthesis on the amputated left lower extremity. Moreover, at 12 weeks postoperative, radiographs of the right ankle showed no sign of osteomyelitis, collapse, or avascular necrosis of the talus (Figures 3 and 4).

We reviewed the patient's status every 3 months during the first postoperative year. By 6 months postoperative, his right ankle passive range of motion displayed 20° of dorsiflexion, 25° of plantarflexion, 10° of varus, and 5° of valgus, all of which were nontender. The tibiotalar alignment was clinically satisfactory and the patient's American Orthopaedic Foot and Ankle Society (AOFAS) (2) hindfoot-ankle score was 92, which was considered normal. Although he reported having slight difficulty walking on irregular surfaces, which may have been related to right ankle overloading related to the use of a left lower extremity above-the-knee amputation prosthesis, he noted that overall he was satisfied with the results of the lower extremity interventions after the motorcycle accident. He related no limitations of the activities of daily living, and he denied any right ankle pain. Radiographs showed satisfactory preservation of ankle joint space without collapse or necrosis, and good ankle alignment. We used the

Download English Version:

<https://daneshyari.com/en/article/2720499>

Download Persian Version:

<https://daneshyari.com/article/2720499>

[Daneshyari.com](https://daneshyari.com)