Purpose

The initial surgery removed the tibial and talus components with little resistance, the syndesmosis and ankle were then stabilized with three partially threaded 4.0 mm cannulated screws (Fig. 2). A pin to bar external fixator was applied to maintain the length and alignment of extremity. Additionally a cadaveric femoral head allograft was secured and placed into the posterior of the arthrodial site to augment the talar graft. The medial femoral condyle flap was then harvested by the plastic surgery team. Dissection of saphenous branch off the descending genicular artery was identified, and traced back to its origin off the superficial femoral artery. The artery was traced onto the medial femoral condyle. The peroneal cuff (Fig. 2) and skin paddle (Fig. 3) were both defined and dissected.

Case Study (cont.)

Bone cuts were made with an osteotome (Fig. 4). The MFC graft was released (Fig. 5) and transplanted to the defect and anastomosed to the dorsalis pedis artery and venae communicantes. Additional cancellous bone graft was harvested from the patient’s donor site and packed into the defect behind the vascularized cortical peritalar flap. An additional cancellous bone graft was taken from the iliac tuberosity. The MFC flap was then inset by press fitting the cancellous segment into the defect and then layering the peritalar flap over the soft tissue. The skin paddle was secured with interrupted 3-0 Vicryl sutures. A Jackson-Pratt drain was placed at the arthrodesis site and at the site of MFC harvest. The patient was strict non weight bearing post operatively, and was discharged to a skilled nursing facility after a 6 day hospital admission.

Reference


Chandhok, DPM; D. Scot Malay, DPM, MSCE, FACFAS. “Use of Medial Femoral Condyle Osteo-periosteal-cutaneous Flap For Ankle Arthrodesis After Failed Total Ankle Arthroplasty.” Penn Presbyterian Medical Center, Philadelphia, Pennsylvania

Fig. 1 AP and lateral radiographs, lateral CT scan

Fig. 2 Elevating periosteal cuff

Fig. 3 Dissection of MFC graft with saphenous branch

Fig. 4 Resection of MFC graft with osteotome

Fig. 5 Harvesting the composite MFC graft

Fig. 6 Elevating the composite MFC graft

Fig. 7 Dissection of bone flaps

Fig. 8 Implanting limited internal fixation.

Fig. 9 Images and radiographs for additional scan

Analysis and Discussion

Radiographic union was assessed via plain film radiography and was found to occur at 16 weeks postoperatively. Pain scores were measured pre-operatively and post-operatively. The patient experienced significant decrease in pain scale (initial score 9/10 at 15/10) and 24/10 weeks post operatively, the use of a MFC contributed the added benefit of incorporating a fasciocutaneous flap to the anterior ankle which may have prevented surgical dehiscence. The limitations of the procedure include the overall length of the surgery (9 hours 42 minutes), the limitation of initial fixation due to being unable to use anterior plating or fixation through the bone graft, and the need for a secondary surgery to remove the external fixator and apply additional internal fixation. Given the relative success of this case, further evaluation of this technique is warranted to further refine the fixation and streamline the surgical procedure.