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Correction of Varus Heel Pad in Patients with Syme's Amputations

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ABSTRACT

Syme's amputations can provide a reliable alternative to more proximal amputations, but they are not without their occasional complication. Varus heel pad migration has been well documented as a complication following Syme's amputations. We describe a technique of resection of soft tissue and bone combined with anchoring of the lateral band of the plantar fascia in order to treat patients with the complication of varus heel pad migration.

Syme's amputation, initially described by James Syme in 1843 (1) and later popularized by Wagner (2), has been used for the treatment of forefoot gangrene and nonsalvageable diabetic foot infections. The Syme's amputation preserves physiologic load-bearing characteristics of the heel pad, resulting in advantages in the areas of prosthetic fit, weight-bearing, mechanical efficiency, and energy cost of walking (3). Although multiple studies show long-term success of this procedure, it is not without occasional complications. Heel pad migration can occur in 7.5% to 45% of patients (4). This complication interferes with prosthetic fit and can lead to lateral ankle ulceration, infection, and the possibility of a more proximal amputation. Multiple techniques have been described to correct and prevent this complication; these techniques include: suturing the plantar fascia to the anterior ankle capsule (5), suturing the Achilles tendon to the posterior aspect of the tibia (4), or performing a wedge resection of excessive soft tissue or bone on the affected side (6).

The purpose of this review is to present a technique consisting of medial and lateral soft tissue and bone resection combined with anchoring of the lateral band of the plantar fascia to the lateral aspect of the fibula/tibia in order to treat patients with the complication of heel pad migration.

Surgical Technique

After induction of anesthesia, the affected lower extremity is prepped, and a pneumatic calf tourniquet is applied to achieve hemostasis. Because of the varus deformity of the residual heel pad, attention is directed to the lateral aspect of the heel pad and ankle (Fig. 1). A large, full-thickness ellipse of soft tissue is excised from the lateral margin (Fig. 2), with the apices of the ellipse being anterior and posterior along the old incision. A power saw is then used to resect any identified fibular prominence. A smaller, full-thickness ellipse of tissue is then excised from the medial aspect of the heel pad and ankle. In a similar fashion, the irregular margin of the medial malleolus is resected, if necessary. The heel pad is then mobilized and displaced laterally to a corrected position. After thorough irrigation, 2 drill holes should be made laterally from the distal tibia through the fibula to allow passage of 0-Ethibond suture with a Keith needle (Fig. 3). Using the suture, the lateral fascial band of the plantar fascia is secured to the lateral aspect of the tibia while noting improved alignment of the heel pad underneath the tibia (Figs. 4–6). Standard deep tissue and skin closure is then performed, followed by a sterile dressing and a non-weight-bearing short leg cast. The extremity is immobilized for 4 weeks before return to a new temporary Syme's prosthesis.

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Fig. 1. Varus deformity of Syme's heel pad.

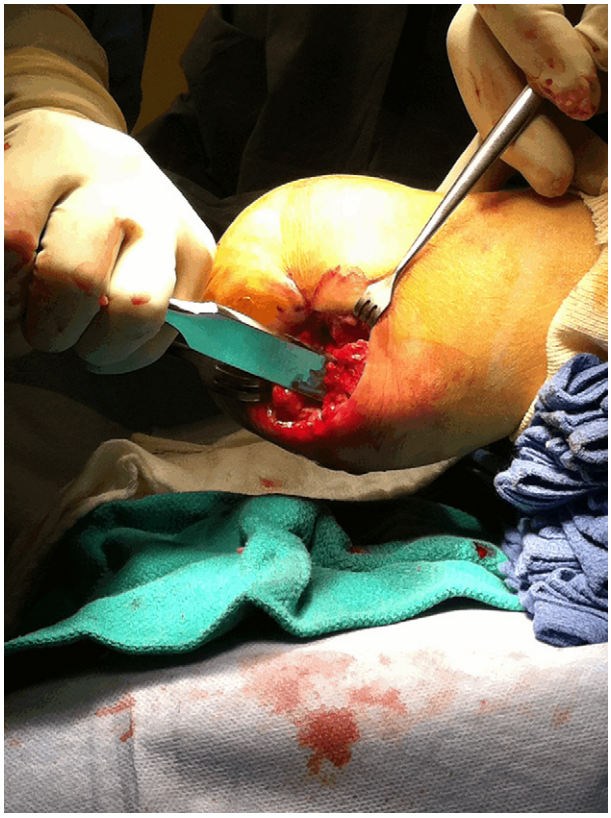

Fig. 2. Large full-thickness wedge removed laterally.

Fig. 3. Suturing of the lateral plantar fascial band to lateral aspect of tibia.

Fig. 4. Securing of the lateral plantar fascial band to the lateral aspect of the tibia.