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The treatment of chronic diabetic heel ulcers with synthetic graft application

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Introduction: Heel ulceration is a recognized complication of diabetic peripheral neuropathy and is often resistant to current treatment strategies. Current surgical treatments have produced mixed results. We present the initial results of a treatment utilizing synthetic collagen based graft materials. **Methods:** 9 diabetic patients with a total of 11 chronic heel ulcers were selected based on a failure to improve with 24 months of standard management. These patients had surgical debridement with calcaneal resection as required to produce a healthy base for the graft. GraftJacket™ Regenerative Tissue Matrix (Wright Medical Technology Inc., USA) or Integra® Dermal Regeneration Template (Integra Life Sciences, USA) was applied to the ulcer using a standardized technique. Targeted antibiotics were given based on the organisms grown and their sensitivities. A post operative regimen involving negative pressure wound therapy, dressings and total contact casts was employed with non weight bearing mobilization. **Results:** 6 ulcers were treated with GraftJacket™ and 5 with Integra® grafts. The ulcers had been present for a mean of 52 months (range 24 to 108 months). 10 ulcers demonstrated some evidence of healing. 1 was completely healed at 3 months. 8 ulcers had become superficial (4 measuring less than 2cm in diameter and 4 measuring less than 1cm in diameter at 3 months). 1 patient developed an early haematoma under the graft that became infected and required surgical debridement with removal of the graft. **Conclusion:** Heel ulcer treatment is challenging for a number of reasons including the mechanical environment of the heel and biomechanical properties of the soft tissues in the region. Studies have shown changes in the biomechanical properties of the heel tissues in patients with diabetes. This may predispose them to ulceration and also explain the limited success of conventional grafting techniques. Our early results suggest there may be a role for adequate debridement, synthetic grafting and supervised post-operative care in the management of diabetic patients with chronic non-healing ulceration of the heel.