

Use of a Novel Regenerative Dermal Matrix* Leads to Successful Closure of Chronic, Non Healing DFU with a Charcot Foot Deformity, Positively Impacting Patient's Quality of Life

Anne Savage, RN, PA-C; Christopher A Griggs, DO, MBA; Mary Mason, RN, CWCA

ABSTRACT

Introduction: Diabetic Foot Ulcers (DFU) are the most prevalent type of lower extremity wound. Peripheral neuropathy is the key factor leading to DFUs. The most serious life and limb complication of peripheral neuropathy is Charcot. A patient who presents with a DFU and a Charcot foot deformity is 12 times more likely to need an amputation in the future. Immediate immobilization is crucial. Total contact cast (TCC) application is the standard for immobilization. Surgical interventions may correct deformity, reposition misaligned joints and remove ulcer-inducing bony prominences.

DFU patients that have a Charcot deformity represent significant challenges for the healthcare professional. Several national organizations have established evidence-based guidelines including the Guideline for Management of Wounds in Patients with Lower-Extremity Neuropathic Disease created by the Wound Ostomy Continence Nurse Society (WOCN®).

The patient in this case study has had a recurrent mid foot DFU for several years. She has a history of Charcot and osteomyelitis. She has demonstrated compliance with offloading utilizing custom molded diabetic shoes. Previously the DFU responded well to Total Contact Cast application and moist wound management. She has had surgery to shave the protuberant bone at the 5th metatarsal bases with subsequent breakdown of the ulcer site post surgery and again re-healed with TCC only to breakdown again. In addition to TCC, wound treatments have included hydrofiber plus Ag dressings and serial debridements.

The Regenerative Dermal Matrix* was placed after she experienced worsening of the DFU. On the day of application of the Regenerative Dermal Matrix* the DFU measured 6 sq cm. At week 3, there was 62.5% reduction in surface area and at 10 weeks 100% healing. The wound remains healed at the time of abstract writing which was 5 weeks post closure. This response is not unlike the findings in a multicenter case series in which 100% of the patients healed in 15 weeks with 90% of those exhibiting healing at 12 weeks or sooner.

This Regenerative Dermal Matrix* comprises a patented process which removes cells gently, rendering a decellularized dermal matrix with tissue that maintains the native structural and biomechanical properties. The Regenerative Dermal Matrix* fully integrates into the wound bed after application. It provides a scaffold into which the recipient's cells can proliferate, becoming vascularized and ultimately regenerate into normal skin providing a visible dermal difference. With many options available to the healthcare provider, the Regenerative Dermal Matrix* provides a positive economic and clinical solution, creating a significant impact to the quality of life of the patient.

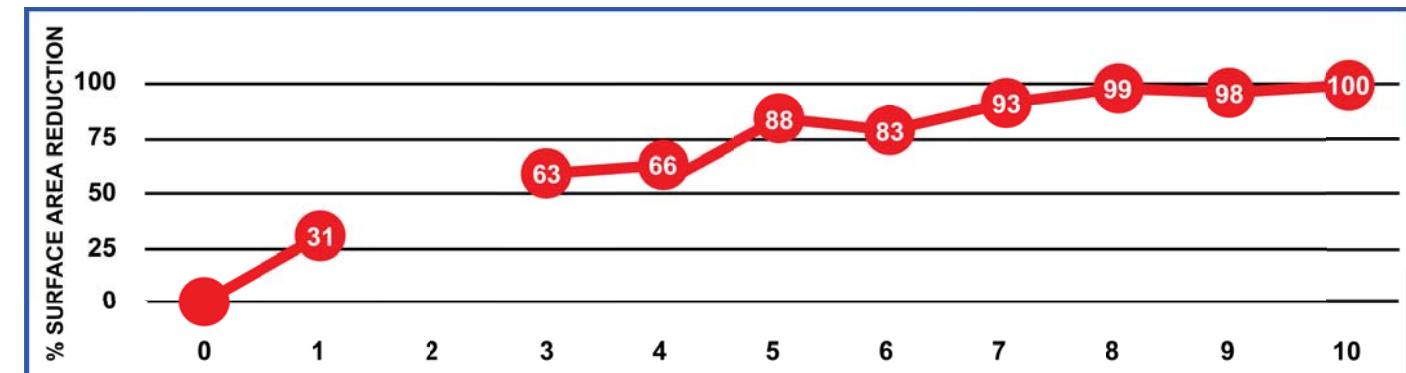
METHODS

Treatment consisted of sharp debridement followed by placement of Regenerative Dermal Matrix*. A non adherent contact layer, bolster and cover dressing were then placed. Subsequent dressings were standard dressings to provide a moist wound healing environment. The patient was assessed at least one time a week. Weekly surface area change from baseline was calculated weekly.

DermaPure *DermaPure® and dCELL® are trademarks and/or registered trademarks of Tissue Regenix PLC or an affiliate.
©Copyright 2014, Tissue Regenix PLC. All rights reserved.

References
1. Wound, Ostomy, and Continence Nurses Society (WOCN). Guideline for management of wounds in patients with lower-extremity neuropathic disease. Mount Laurel (NJ): Wound, Ostomy, and Continence Nurses Society (WOCN); 2012 Jun 1. 100 p. (WOCN clinical practice guideline series; no. 3). [216 references]
2. Varma AK. Charcot neuroarthropathy of the foot and ankle: a review. J Foot Ankle Surg. 2013;52(6):740-749.
3. Sonn MW, Stuck RM, Pinzur M, Lee TA, Budman-Mak E. Lower-extremity amputation risk after Charcot arthropathy and diabetic foot ulcer. Diabetes Care. 2010;33(1):98-100.
4. Greaves NS, Benatar B, Bagaudin M, Bayat A. Single-stage application of a novel decellularized dermis for treatment-resistant lower limb ulcers: Positive outcomes assessed by STAscopy, laser perfusion, and 3D imaging, with sequential timed histological analysis. Wound Repair Regen. 2013;21(6): 812-822.
5. Greaves NS,2, Morris JZ, Benatar B, Bagaudin M, Alonso-Rasgado TA, Bayat A. (2015) Acute Cutaneous Wounds Treated with Human Decellularized Dermis Show Enhanced Angiogenesis during Healing. PLOS ONE 10 (1): e0113209. doi: 10.1371/journal.pone.0113209

RESULTS



CONCLUSION

- The Regenerative Dermal Matrix* exhibited clinical effectiveness with 100% closure at week 10,
- At 6 weeks post closure the wound remains closed.
- The regenerative tissue matrix* is an effective option for healthcare providers to expedite wound healing / closure and provide a positive economic and clinical outcome.