

Case Study

Treatment of Diabetic Foot Ulcer with Human Acellular Dermal Matrix (ADM)

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Diabetes is a group of metabolic disorders characterized by poor insulin secretion or impaired insulin function, both leading to hyperglycemia. One of the long-term complications of this disease process is neuropathy. Neuropathy, particularly in the extremities, leads to poor sensation, which contributes to the occurrence of ulcers typically observed on the feet of diabetic patients.¹ Current treatments for diabetic ulcers include wound dressing, hyperbaric oxygen therapy, negative pressure therapy²⁻⁴, and, in advanced cases, amputation of the limb.

An alternative treatment for venous leg or foot ulcers related to diabetes involves the use of an Acellular Dermal Matrix (ADM), which has demonstrated application in a variety of medical procedures. These include wound healing, soft tissue reconstruction, and sports medicine applications.⁵⁻⁸ Dermal matrix has also demonstrated support of cellular and vascular in-growth in vitro and in vivo.⁹⁻¹¹ One particular human allograft ADM, DermACELL[®], is uniquely prepared, resulting in at least 97% DNA removal, and provided sterile at room temperature, ready to use.

The following case presentation involves treatment of a diabetic foot ulcer with this human ADM, DermACELL.

PATIENT

- 52 year old, Male, Diabetes Mellitus
- History of necrosis at 1st and 2nd phalanges, metatarsus and cuboid: treated with amputation

DIAGNOSIS

- Chronic diabetic ulcer along medial side of right foot
- Also presented with necrotic right hallux

TREATMENT

- The necrotic hallux was amputated and the ulcer thoroughly debrided (**Fig. 1**)
- Non-meshed DermACELL (*LifeNet Health, Virginia Beach, VA, USA*) placed and fixed using staples (**Fig. 2**)
- A small incision was made to let the exudate drain
- A non-adherent dressing was placed, changed four days later, then changed weekly

OUTCOME

- Uneventful post-operative course with no swelling or major exudates (**Fig. 3**)
- Wound closed by three months post-operative (**Fig. 4**)
- Use of DermACELL was successful in treating chronic diabetic foot ulcer



Figure 1. Debridement of the necrotic tissue



Figure 2. DermACELL and healing wound at 2 weeks post-op



Figure 3. DermACELL and healing wound at 4 weeks post-op



Figure 4. DermACELL and almost fully healed wound at 10 weeks post-op

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