

Ultra-Thick Amniotic Membrane Allograft and Disposable Negative Pressure Wound Therapy in the Management of an Ischemic, Diabetic Ulcer

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Introduction

Lower extremity ulceration is an increasingly common and debilitating condition, affecting 1-2% of the world's population and up to 5% of the elderly population.¹ Peripheral vascular disease is a dominating causative factor of these ulcers, which can be especially difficult to heal in patients with multiple risk factors such as Diabetes, ischemia, and history of smoking.^{2,3} To aid the healing in such complex cases, adjunctive treatment measures may be warranted such as Negative Pressure Wound Therapy (NPWT) and Amniotic Membrane (AM) to help address the physiological deficiencies underlying the wound.⁴⁻⁷

Methods

A case report of a patient with a wound around the lateral malleolus complicated by multiple risk factors for healing that was successfully treated with cryopreserved, ultra-thick Amniotic Membrane (AM) allograft† derived from umbilical cord and disposable NPWT+.

† Neox® 1K; BioTissue, Miami, FL.

+ PICO; Smith & Nephew, London, UK.

Results

A 57-year-old female presented to the wound care clinic with a lateral malleolar wound on the right foot. The patient had a medical history of Diabetes, peripheral vascular disease, hypercholesterolemia, hypertension, neuropathy, and coronary artery disease and was a smoker for over 40 years. The patient received a number of prior treatments including wound debridements with hydrocolloids, right axillary and femoral popliteal bypass surgery for PVD, compression dressings for venous insufficiency, and systemic and topical antibiotics for multidrug-resistant *Achromobacter* infection of the wound.

After the infection was controlled, an ultra-thick, cryopreserved AM allograft and disposable NPWT was placed on the 2 x 1 x 0.2 cm wound to promote healing and reduce risk of underlying tissue exposure (Figure 1A). Increased blood perfusion and epithelialization were noted over the next five weeks, and the wound decreased in size to 1.4 x 0.8 x 0.2 cm (Figure 1B). Repeat AM allograft and NPWT application were performed at five and six weeks. The wound continued to epithelialize and completely healed nine weeks after the initial AM and NPWT treatment (Figure 1C).

Discussion

Wound care patients often present with multiple comorbidities and physiological deficiencies that contribute to lack of wound healing. Oftentimes physicians may use one primary dressing or treatment modality in such cases, but multiple treatments should be considered to address the multiple underlying condition in such complex cases, especially for limb salvage. This case highlights the unique application of ultra-thick AM along with disposable NPWT to support wound closure in an ischemic diabetic foot ulcer complicated by multiple risk factors.

References

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Figure 1

