Novel Management of Chronic Diabetic Foot Ulcers
Using Dehydrated Human Amnion/Chorion Membrane Allograft

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CELLUTION BIOLOGICS

INTRODUCTION

Diabetic foot ulcers (DFUs) is a persistent, challenging complication for individuals with diabetes, which burdens both patients and healthcare systems. The multifaceted nature of DFUs, marked by impaired wound healing, neuropathy, and vascular compromise places diabetic individuals at high risk of chronic and non-healing ulcers, because this can often lead to severe complications such as infections and amputations.

Despite advances in conventional wound care, the management of DFUs remains complex. Thus, the need arises for a meticulous, urgent, and innovative therapeutic approach to address the multifactorial nature of the condition.

In this scenario, amniotic membrane therapy emerges as a compelling solution, harnessing regenerative potential to enhance diabetic wound healing. This concise case study aims to explore the impact and efficacy of amniotic membrane therapy on DFUs. Through a detailed analysis of specific cases, it also seeks to substantially contribute to the discussion on advanced interventions for diabetic foot ulcer treatment and provide insights into improving treatment outcomes.

METHODS

The study involved a case series of four patients with DFUs treated with Dehydrated Human Amnion Intermediate Chorion Membrane (DHAICM) allografts. The treatment protocol included debridement accompanied by regular wound irrigation and application of DHAICM every five days, with each application secured by an appropriate moisture-retaining dressing to prevent allograft displacement.

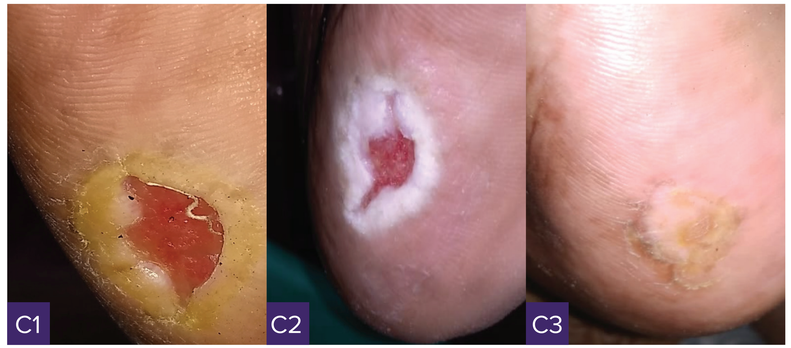
RESULTS

All wounds were noted as completely closed a week after the final application of DHAICM. The number of required applications ranged between three to eight, with an average of six applications respectively. Changes noticed over the ulcer area during healing consisted of reduced erythema, increased granulation tissue formation, patchy re-epithelialization and finally complete coverage of the wound with a thin layer of friable, pink-colored skin. Further, reductions in pain and discharge were also noted. No adverse events or severe side effects from DHAICM were reported in the patients besides no recurrence for six months.

CASE REPORT

Case 1 (Fig : A) : A 62-year-old male patient presented with chronic diabetic foot ulcer (7.5cm × 5 cm in size) on the dorsal surface of the left foot, which persisted for the past 9 weeks, despite treatment with conventional wound care measures. Following this, he received an application of DHAICM every 5 days till complete closure of the ulcer was achieved. A total of 8 DHAICM applications were utilized.

Case 2 (Fig : B) : A 52-year-old male patient presented with chronic diabetic foot ulcer (8cm ×7cm in size) on the dorsal surface of the right foot, which persisted for the past 10 weeks, despite treatment with conventional wound care measures. Following this, he received an application of DHAICM every 5 days till complete closure of the ulcer was achieved. A total of 8 DHAICM applications were utilized.



Case 3 (Fig : C) : A 54-year-old female patient presented chronic diabetic foot ulcer (2.2cm×1.5cm in size) on the heel of her right foot which persisted for 16 weeks, despite previous conventional wound care measures. Following this, she received an application of DHAICM every 5 days till complete closure of the ulcer was achieved. A total of 5 DHAICM applications were utilized.

Case 4 (Fig : D) : A 70-year-old male patient presented with chronic diabetic foot ulcer (1.5cm×1cm in size) on the plantar surface of the hallux of left foot that persisted for the past 16 weeks, despite conventional wound care measures. Following this, he received an application of DHAICM every 5 days till complete closure of the ulcer was achieved. A total of 3 DHAICM applications were utilized.

DISCUSSION

This case series exhibits that implementing DHAICM alongside standard care practices can enhance the body's natural response in closing diabetic related wounds and avoiding further complications. The time of wound closure using DHAICM was significantly less than that of traditional standard of care, as the patients' wounds had been persisting between 9-16 weeks, with no progress prior to DHAICM application. The use of DHAICM could prevent prolonged wound closure time and excessive health care costs.

Further studies utilizing randomized controlled trials are required for a more comprehensive evaluation of its effectiveness compared to conventional practices.

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*DHAICM=AmchoPlast (Cellution Biologics, Roswell, GA)

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