A Newly Approved Piscine Acellular Dermal Xenograft Used for the Treatment of Diabetic Foot Wounds: A Case Series
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Abstract
PURPOSE: The purpose is to present and demonstrate the efficacy of a piscine acellular dermal xenograft that is newly approved for the treatment of diabetic foot wounds.

BACKGROUND: Over the past few years, the piscine dermal xenograft has been evaluated in several studies for efficacy and safety in treating patients with acute and chronic wounds. This product is currently approved by the FDA for use in the United States.

This piscine acellular dermal xenograft differs from other available products in the market. Since there is no known risk to human disease transmission risk, it requires only minimal processing thus allowing it to retain the Omega-3 fatty acid and collagen scaffolding. This is thought to aid in healing by maintaining moisture balance, providing mechanical protection and strength to the dermal matrix, and by acting as a barrier to bacterial contamination.

METHODS: Participants consisted of diabetic men/women with foot wounds of varying etiologies. Prior to initial graft application, each patient had a foot wound of greater than 6 weeks in duration. After sharp wound debridement and wound bed preparation, each participant received an application of piscine acellular dermal xenograft. Graft reapplication was performed as needed. All participants were followed weekly.

CONCLUSIONS: Initial results illustrate favorable outcomes with all wounds showing a rapid reduction in ulcer dimensions allowing for standard wound care to be performed early.

The authors recommend further investigation to achieve approval for further alternative treatment indications.

Analysis & Discussion

Currently, this scientific community is left with an understanding of the complete mechanism by which biological membranes can be used. Research has demonstrated clear benefits of the use of biological membranes in the field of wound healing.

Applicable literature for the use of the biological membranes has demonstrated an increased healing rate, particularly in chronic wounds that failed to respond to traditional treatments. This use of biological membranes can reduce overall treatment costs.

Due to the limited number of cases, the authors cannot formulate any definitive conclusions, however favorable outcomes and favorable patient satisfaction was noted.

In all the presented cases, complete wound closure was achieved in an average of 6 weeks. None of the patients had any adverse reactions. The use of piscine acellular dermal xenograft is noted to be a safe and viable adjunctive tool for achieving wound healing which used in conjunction with standard wound care, including offloading, infection control and frequent débridement.

Further studies are suggested to evaluate the effectiveness of its use and to establish further treatment indications.

Case Study
A 40 year old diabetic male with third degree burns to both feet. The right foot was used as a control and was treated with standard wound care. The left foot, which received piscine acellular dermal xenograft treatment, was treated to heal 2 months faster as compared to the control.

Case Study
A 64 year old diabetic male status post resection of verrucose carcinoma, who had failed to heal with standard wound care, was treated with piscine acellular dermal xenograft.

Case Study
A 68 year old diabetic male presented to the wound care clinic with a non-healing chronic plantar diabetic foot ulcer.

Materials and Method

Three patients with a history of chronic diabetic foot ulcers were randomly selected for application of piscine acellular dermal xenograft. Prior to application, all patients received standard wound care for at least 6 weeks. Wound bed preparation was performed via sharp débridement utilizing a #15 surgical blade and a dermal curette. The recipient sites were copiously cleansed with sterile normal saline and fenestrated with a #15 surgical blade. Following direct application to the wound, graft margins were secured with Steri-Strips. The preparations were achieved using the xenograft in the outpatient wound care center setting.

References
5. Chu K, Yang MD, Thao P, Palmarina MD and Laco JI. Kerecis FACS, A Promising Adjuvant, Prospective, Comparative Clinical Evaluation of A Novel Biological Polymeric Wound Contact Membrane. Analysis & Discussion

References