

Introduction

Diabetic foot ulcers (DFU) are a serious complication of diabetes that can result in morbidity and mortality. (3) Mortality rates associated with DFU are estimated to be about 5 % in the first year. (3) Diabetic foot ulcers are often difficult to treat particularly when healing has stalled in the inflammatory phase. A myriad of advanced wound care products, biologics, and skin substitutes are available today to improve the healing process of diabetic foot ulcers. In comparison to other xenografts such as Primatrix and Oasis; Kerecis, an emerging omega 3 fish skin graft, has shown promising results thus far on diabetic foot ulcerations. Kerecis, a new technology incorporating intact fish skin graft full of rich omega 3 polyunsaturated fatty acids, is a FDA approved graft that has been shown to aid in wounds healing. Advantages of Kerecis compared to other xenografts include non-allergenic, biocompatible, no need for multilayer graft, enhanced cell proliferation, vascularization, and no cultural or religious barriers. Fish skin is also favorably comparable to mammalian skin products without the risk of disease transfer. Average application is 3-5 grafts with complete healing of the wounds within 5 weeks.

In this study, the purpose was to evaluate the effectiveness of an acellular xenograft, Kerecis, on Diabetic transmetatarsal amputations (TMA).

Methodology & Procedures

Two clinical case studies of Diabetic TMAs will be presented all utilizing Kerecis, Omega 3 fish skin graft. Patients had all undergone either primary or revisional TMA. We evaluated time to closure as well as number of applications.

Case #1:

73-year-old African American female with a past medical history of uncontrolled type 2 diabetes (A1C 10.0%), Peripheral Neuropathy, HTN, PVD, and HLD presented with a full thickness ulcer to the 4th interspace of the left foot secondary to blunt trauma. Patient underwent initial incision and drainage, partial resection of 3rd and 4th metatarsals. Surgical pathology revealed osteomyelitis at resection margin 3rd and 4th metatarsals. The patient subsequently underwent an open transmetatarsal amputation with an application of Kerecis wound graft. With continued standard wound care, wound closure was obtained in 2.71 weeks. The patient is currently 5 months post op with no signs of dehiscence or adverse events.



Results

Kerecis, an acellular omega-3 fish skin graft, was successful in assisting with wound closure in both primary and revisional diabetic transmetatarsal amputations. Diabetic foot ulcerations are a challenging condition that affects about 15 % of DM patients (1). Due to medical comorbidities as well as these chronic ulcerations, these patients are at an increased risk for amputation. As physicians who provide wound care, we should be striving to provide our patients with the best outcomes possible. In our case series, we had all patients reach closure with an average of 1.6 applications and in 13.03 weeks. In addition to healing, no patients in our case series have had wound dehiscence to date.

Case #2:

61 year old male with past medical history of hypertension, coronary arterial disease, cerebrovascular accident, uncontrolled diabetes mellitus (A1c: 10%) presented with soft tissue emphysema in the first interspace of the right foot with underlying wound to right hallux tracking 12cm proximally. Patient underwent open transmetatarsal amputation (TMA) with delayed closure and wound vac application after initial incision and drainage revealed extensive infection involving all the toes. Initial TMA led to dehiscence of at the surgical site. Patient received 6 weeks of intravenous antibiotics after surgical pathology revealed residual osteomyelitis at the clearance fragments. During this time, additional wound debridement and revisional TMA was performed with application of Kerecis. which lead to some healing but the incision site dehiscid.7 weeks later patient underwent a surgical wound debridement with application of 2nd Kerecis graft for TMA dehiscence. Total wound closure after two application was obtained in 21.5weeks.



References

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