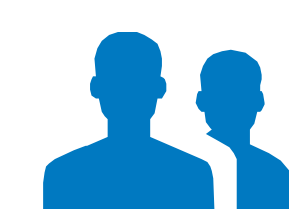




Case Report: Treatment of Diabetic Ulceration with Compounded Medicines



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Objective

To report the successful treatment of a chronic ulcer in a diabetic patient with the topical application of two compounded medicines.

Background

Diabetes currently affects 8.3% of the population in the United States and the annual incidence of ulceration is reported to be approximately 2.2% in diabetic patients. Chronic ulcers of the lower extremities are a frequent medical complication in diabetic patients as a result of several factors, including peripheral neuropathy, decreased blood flow, and local trauma. The successful treatment of diabetic ulceration is of utmost importance in order to reduce the risk of infection and amputation, as well as to lessen the socioeconomic burden of these outcomes on the healthcare system.

Case Report

A 61-year-old Caucasian male with Type 2 Diabetes (T2D) presented with an ulcer on the inner right leg caused by impact with a bucket. The patient's ulcer was 4 mm in diameter and was located approximately 8 to 10 mm above the right ankle (Figure 1). He led a sedentary lifestyle and had an occupation in which he was seated for the majority of the day. The patient reported that the wound was present for approximately 30 days and that other therapies prescribed by his physician, including oral antibiotics and scrubbing the wound daily with soap and water, were unsuccessful in healing the ulcer. The patient also reported that the ulcer was painful and continued to worsen in severity over time.

The patient was prescribed a compounded medicine containing the antibacterial agent mupirocin (2%) in a silicone base containing Pracaxi oil, applied topically directly to the ulcer three times daily. Additionally, because diminished peripheral blood flow and decreased angiogenesis impair wound healing in diabetic patients, a second compounded medicine containing 3% nifedipine, and 3% pentoxifylline in a transdermal base was applied topically to the marginal area of the ulcer three times daily in order to increase blood flow to the ulcerated area. The patient was also advised to exercise every hour with an elastic band while sedentary to improve blood flow to the ulcerated area.

The patient applied compounded medicine to the ulcer for 63 days, and at the conclusion of the application period, the ulcer was completely closed (Figure 2) and the patient reported a significant reduction in pain. The patient did not report any adverse reactions during the use of the compounded medicines.

Discussion

Diabetic ulceration and infection are the largest causes of non-traumatic lower limb amputation in the United States. Therefore, the development of successful treatments for diabetic ulcers is of utmost importance.

Compounded medicines are indicated for treatment of diabetic patients as these medicines can be tailored to the location, size, and nature of the wound, as well as to the underlying diabetic complications and comorbidities of a specific patient. The formulation of topical compounding bases allows for the delivery of compounded medication to all areas of the wound, promoting the healing of chronic wounds like ulcers.

In this case report, a patient with a diabetic leg ulcer safely and successfully used 2% mupirocin in a topical, anhydrous silicone compounding base containing Pracaxi oil.

Pracaxi oil is extracted from the seeds of *Pentaclethra macroloba*, a tree native to the Amazon, and has several medicinal applications, including its use in the treatment of ulcers, stretch marks, and snake bites. Pracaxi oil contains high amounts of oleic, linoleic, and behenic acids, which have beneficial effects on skin structure and permeability, and are also used as targeted delivery vehicles in topical preparations. These fatty acids have also been shown to enhance wound closure and improve healing in rodent wounding models.

Therefore, a compounding base containing high levels of these beneficial fatty acids has the potential to positively influence wound healing and lessen scar formation. Moreover, the ability to add active ingredients to this base allows for the treatment of more severe and more complex lesions, such as diabetic ulcers, as demonstrated in the case presented here.

Conclusions

Compounded medicines are a valuable alternative in the treatment of diabetic ulceration since these may be tailored to the location, size and nature of the wound, as well as to the underlying diabetic complications and comorbidities of a specific patient.

The authors suggest that compounded medicines using a topical, anhydrous silicone base containing fatty acids from Pracaxi oil may be valuable in the treatment of diabetic ulcers.



01



A 4-mm diabetic ulcer approximately 8 to 10 mm from the right ankle in a 61-year-old male patient with T2D.

02



After 63 days of compounded medicine application, the diabetic ulcer was fully closed and the patient reported a significant decrease in pain associated with the ulcer.

Banov D, Banov F and Bassani AS (2014) 'Case Series: The Effectiveness of Fatty Acids from Pracaxi Oil in a Topical Silicone Base for Scar and Wound Therapy', *Dermatology and Therapy*, 4 (2), p. 259-269.

Banov D, Banov F, Bassani G and Carvalho M (2013) 'Advances in Scar Therapy Treatment: Case Studies'. *28th Annual Clinical Symposium on Advances in Skin & Wound Care*. Florida, USA 24-27 October.