

Quick Healing of Deep Neuropathic Foot Ulcers Using Polymeric Membrane Dressings* and Cavity Filler*

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BACKGROUND

The patient was a middle-aged male in Ghana, West Africa, with multiple foot ulcers, who stated the cause was “boils” bursting only one week prior and the only treatment was to wrap the foot in cloth. Co-morbidities included neuropathy secondary to Hansen’s disease (leprosy) and significant malnutrition. The major wound (10.5 cm x 4 cm x 2 cm deep) was heavily exudating. Sharp debridement, then daily EUSOL-soaked gauze x 7 days left the wounds clean, but macerated, and revealed two fully exposed tendons, one of which was suspended 1.5 cm above the base of the wound. High humidity and temperatures consistently between 80°F and 100°F (27°- 38°C) promoted bacterial and fungal growth.

PURPOSE

We needed a cavity filler that would keep the wound-bed infection-free and the tendons viably moist while absorbing the pool of exudate in the wound base of the wound, 1.5 cm beneath a tendon, in this ambulatory patient. We used samples of polymeric membrane products to test manufacturer claims that they would atraumatically clean wounds and provide ideal wound moisture conditions for rapid healing without periwound maceration on both heavily exudating wounds (the deep wound base) and dry wounds (the suspended tendon) while reducing dressing change frequency.

METHODOLOGY

Treatment included nutritional counseling and supplements, prayer and direct wound care. Polymeric membrane cavity filler and dressings arrived on site after one week of treatment, the day the wounds were well debrided. The deepest wound was lightly filled and the suspended tendon was cradled in Polymeric membrane cavity filler. Standard polymeric membrane dressings covered all of the wound areas. No wound cleansing was performed at dressing changes. When polymeric membrane dressings were initiated, dressing changes were immediately reduced from daily to four times per week, then, as healing progressed and exudate levels diminished, to twice a week. Polymeric membrane cavity filler and polymeric membrane dressings were the only dressings used to complete wound closure.

OBJECTIVES

1. Recognize that polymeric membrane dressings and cavity filler, usually categorized as foam dressings, are able to donate moisture as well as absorbing it, extending their applicability to far more wound situations than one would expect of a conventional modern wound dressing.
2. Note that polymeric membrane dressings and cavity filler can be initiated at any stage of healing and can be used to complete wound closure.
3. Review evidence for polymeric membrane dressings and polymeric membrane cavity filler’s ability to continuously cleansing the wound bed, which should help inhibit infection.

This case study was unsponsored. The clinic receives donated supplies from many sources, including Ferris Mfg. Corp., who contributed to this poster presentation.

RESULTS

The wounds healed completely only 38 days after initiation of the use of Polymeric membrane cavity filler and dressings. The wounds were continuously cleansed by the dressings so well that they did not become heavily re-infected in this severely immunocompromised patient despite the hot, humid “incubator-like” weather conditions. The tendon, which was exposed on all sides, was kept moist enough to remain viable, so the patient retained foot mobility.

DISCUSSION

Polymeric membrane dressings were able to maintain excellent wound moisture conditions for both the heavily exudating deep wounds and the dry tendon. They kept the wounds infection-free to complete wound closure. Reduced dressing change frequency was an additional benefit.

BIBLIOGRAPHY

1. Enoch S, Harding K. Wound bed preparation: The science behind the removal of barriers to healing. *Wounds*. 2003;15(7): 213-229.
2. Hess CT. Clinical Guide: Skin and Wound Care. Lippincott Williams & Wilkins. Ambler, PA. 2007;228-231,234-5,343-350.
3. Blackman JD, Senseng D, Quinn L, Mazzone T. Clinical evaluation of a semipermeable polymeric membrane dressing for the treatment of chronic diabetic foot ulcers. *Diabetes Care*. 1994;17(4):322-5.
4. Markel H. Should Physicians Be Prescribing Prayer? *Medscape Pediatrics* 2004;6(2).
5. Cutting KF, White RJ. Criteria for identifying wound infection: Revisited. *Ostomy/Wound Management*, 2005;51(1): 28-34.

*PolyMem® and PolyMem Wic® cavity filler are made by Ferris Mfg. Corp., Burr Ridge, IL 60527 USA · www.polymem.com



June 30 – Initial visit, after the abscess was drained and the main wound was rinsed. Amputation of the exposed bone of the small toe and significant sharp debridement of necrotic tissue was then performed.



July 7 – The wounds are clean, but the periwound area is macerated from moist debridement procedures. Polymeric membrane cavity filler and dressings arrived on site, so treatment with these products began.



July 7 – Polymeric membrane cavity filler lightly fills the cavity inferior to the tendon. Polymeric membrane dressings will be used to cover the entire wound site. (Gauze secures dressings temporarily for the photo)



July 23 – After only 16 days of treatment with polymeric membrane dressings, the wound is fully granulating and significant healing has occurred. The suspended tendon is now securely surrounded by new tissue.



August 14 - Closed after only 38 days of polymeric membrane cavity filler and dressing treatment, despite his neuropathy, malnutrition and immunocompromised state. No re-infection, despite the harsh environment.