



CASE SERIES

Stalled Infected Diabetic Foot Wounds Respond Rapidly to Various Polymeric Membrane Dressing* Types

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PURPOSE:

Infected diabetic foot wound patients are often referred to this WCC nurse after months of previous treatments, including appropriate antibiotics, result in no decrease in wound size. This case series demonstrates a consistently effective treatment method for such patients.

Three infected foot wounds in diabetic patients are included as examples. A plantar wound developed recurrent MRSA infections. A transmetatarsal amputation site was necrotic and also MRSA infected. An infected bunionectomy site was being considered for a \$3000/month treatment which the insurance company was questioning. All three patients needed a cost-effective treatment method that could achieve quick wound closure.

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PolyMem, PolyMem Silver, PolyMem Wic and PolyMem Wic Silver are made in the USA by Ferris Mfg. Corp., Burr Ridge, IL 60527 www.polymem.com or 1-800-POLYMEM

METHODOLOGY

After an initial saline flush, deep wound areas were lightly filled with silver polymeric membrane cavity filler, then covered with silver polymeric membrane dressings. Polymeric membrane dressings continuously cleanse, fill, moisten and absorb the entire time they are in contact with the wound. They can do this because they contain a surfactant, a super-absorbent starch and glycerol. These ingredients also work synergistically to draw and concentrate the body's natural healing substances into the wound bed to promote rapid healing. They also facilitate autolytic debridement by loosening bonds between slough and the wound bed. Liquefied slough is absorbed by the dressings. This often eliminates the need for disruptive wound cleansing or even cooling rinsing during dressing changes.

Silver polymeric membrane dressings have antimicrobial properties. Silver versions of the dressing products were used initially and intermittently to minimize bioburden. Dressings were changed when saturated: generally two-to-three times per week. The necrotic transmetatarsal amputation site was flushed with saline at dressing changes for the first two weeks. No other manual wound cleansing was needed.

RESULTS

The plantar wound closed in just over five weeks. The necrotic transmetatarsal site closed in only six weeks, and the bunionectomy site took just over three weeks to close. Since polymeric membrane dressings are cuttable and cleansing is seldom necessary at dressing changes, the patients used very few of these dressings in all and were able to do many of the dressing changes themselves.

OBJECTIVES

1. Recognize using polymeric membrane dressings as an innovation that can lead to quick healing with minimal clinician intervention, resulting in high patient satisfaction and very low overall treatment costs.
2. Note that in addition to the continuous cleansing benefits of the standard pink polymeric membrane dressings, the silver versions are directly effective against MRSA and other common wound organisms.

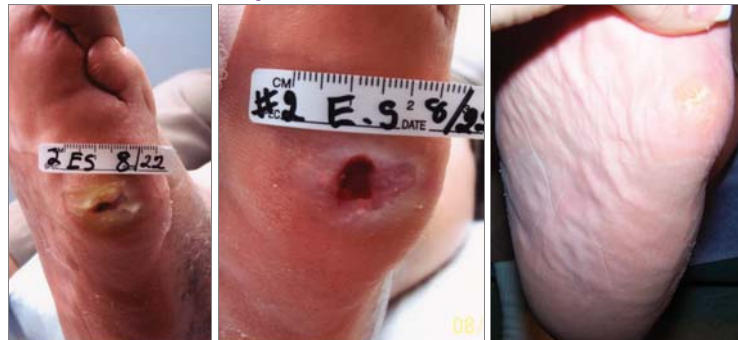
CONCLUSION

Switching to polymeric membrane cavity filler and dressings led to a complete turnaround for these discouraging, stalled wounds in only one week with minimal clinician intervention, completely closing them in six weeks or less. The polymeric membrane dressing treatment was extremely cost-effective.

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. Cutting KF, White RJ. Criteria for identifying wound infection: Revisited. *Ostomy/ Wound Management*, 2005;51(1): 28-34.
3. Hess CT. *Clinical Guide: Skin and Wound Care*. Lippincott Williams & Wilkins. Ambler, PA. 2007;228-231,234-5,343-350.
4. Fowler E, Papan JC. Clinical evaluation of a polymeric membrane dressing in the treatment of dermal ulcers. *Ostomy/Wound Manage*. 1991;35:35-38,40-44.
5. 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.
6. Driver VR. Silver dressings in clinical practice. *Ostomy Wound Manage*. 2004 Sept;50(9A Suppl):11S-15S
7. Burd A, Kwok CH, Hung SC, Chan HS, Gu H, Lam WK, Huang L. A comparative study of the cytotoxicity of silver-based dressings in monolayer cell, tissue explant, and animal models. *Wound Repair and Regeneration* 2007;15:94-104.
8. Kim Y, Lee S, Hong S, Lee H, Kim E. The effects of polymem on the wound healing. *J Korean Soc Plast Reconstr Surg* 1999;109:1165-1172.
9. Kahn AR. A Superficial Cutaneous Dressing Inhibits Pain, Inflammation and Swelling In Deep Tissues. Presented at the World Pain Conference, July 15-21, 2000. *Pain Medicine* 2000 June;1(2):187.
10. Wilson D. Stalled diabetic ulcer closed in six weeks using silver polymeric membrane dressings. Presented at Wound Ostomy Continence Nursing (WOCN) Society 39th Annual Conference. Poster #1219, June 10 - 13, 2007. Salt Lake City, UT USA.

Patient 1: A diabetic with a 14-month-old plantar wound was referred to a wound center, where the callous was removed. Antibiotics for a MRSA infection led to aplastic anemia, and the wound was not healing, so after 6 more weeks the wound nurse was consulted.



The first two photos are from the wound center, showing the initial presentation before and after callous removal. The patient's condition deteriorated until polymeric membrane cavity filler was used. Silver and pink polymeric membrane dressings were alternated. No additional wound cleansing was performed. The wound closed in only 5 weeks.

Patient 2: A retired diabetic man was given daily wound treatment with an enzymatic debriding ointment covered with wet gauze then a dry conforming wrap by a home health RN, and he went in weekly for sharp debridement by the podiatrist. But, his 2.0 cm x 4.0 cm x 0.3 cm MRSA infected necrotic transmetatarsal amputation site wound did not change in size. After seven weeks, he complained to his doctor, who referred him to the wound nurse.



At first, the wound was flushed with saline at dressing changes, but after two weeks even this amount of wound cleansing was no longer needed. Pink polymeric membrane cavity filler was used in the deep areas, and the entire wound area was covered with a standard polymeric membrane dressing. Protective ointment was applied to the periwound area and the entire forefoot was wrapped in stretch gauze. Dressings were changed daily for the first week, then three times weekly. Silver cavity filler was used during the second week to decrease bioburden. Initially the wound bed was 50% avascular and 50% fibrin with no granulation tissue and rolled discolored margins. After only one week, the edges were flat and the wound bed was 70% granulated with only 30% fibrin and no avascular tissue. The third and fourth weeks steri-strips were used to help pull the wound together. By the fourth week the wound was so shallow that the cavity filler was no longer needed – standard polymeric membrane dressings were used alone. The wound fully closed in only six weeks.

Patient 3: A diabetic man with chronic renal failure and peripheral arterial disease had three infected deep wounds post-bunionectomy. Conventional modern wound care and IV antibiotics were ineffective, and insurance refused to cover negative pressure wound therapy, so the wound nurse was consulted.



Silver polymeric membrane cavity filler in the great toe and bunion sites, and silver polymeric membrane dressings on the top of the foot were secured with dry sterile gauze and stretch wraps, changed twice weekly. The top of the foot closed in 10 days; the great toe area closed in 12 days; the bunion area was granulated to the surface at 16 days (pictured) and fully closed at 23 days. IV antibiotics were continued for 3 more weeks. Total: 1-4"x4" standard drsg, 1-4"x4" silver drsg, 1-3"x3" silver cavity filler and 8 stretch wraps used. 11 nursing visits including IV follow up.