

Crush Injury Treated with Extra-Thick Polymeric Membrane Dressings* Until Complete Wound Closure

Linda Benskin, BSN, RN, SRN (Ghana), Church of Christ Mission Clinic, PO Box 137, Yendi, Northern Region, GHANA, West Africa

PROBLEM

A middle-aged woman in northern Ghana, West Africa suffered a large wound when a concrete stone fell, crushing her right foot. Several weeks of treatment with local herbal poultices failed to produce any healing or halt the increasing infection. She arrived at the clinic with an avascular, eschar and slough filled, heavily-exudating 7 cm x 7 cm x 0.3 cm, full-thickness wound, plus acute malaria. The patient's wound pain was constant and severe. She also had chronic severe fungal infections to the plantar aspects of both feet. Since she was from a distant village, she made arrangements to stay in a village only six miles from the clinic during her treatment. Grafting was not an option in this remote setting.

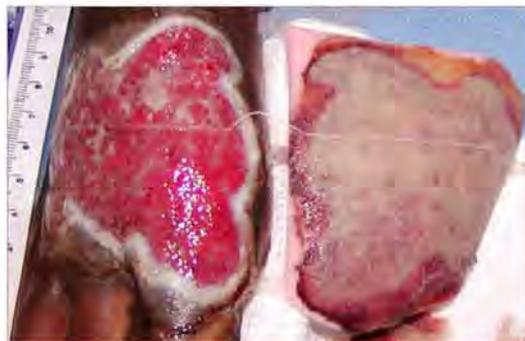
RATIONALE

The patient's dressing needed to reduce the pain and be elastic enough to stay in place as she walked the six miles to and from the clinic for treatment. Quick healing was especially important because the woman was living away from home during the treatment. This clinician had observed immediate granulation tissue formation in wounds through the use of polymeric membrane dressings in the past. These flexible dressings also have demonstrated ability to help reduce wound pain and aid in preventing infection, and they donate moisture to dry wounds while absorbing excess drainage. Since a high level of absorption was needed, extra-thick polymeric membrane dressings were chosen.

This case study was unsponsored. The clinic receives donated supplies from many sources, including Ferris Mfg. Corp., who contributed to this poster presentation. Gloves were in short supply when this patient was being treated.



Oct 2: 7 cm x 7 cm x 0.3 cm
Third day: Light debridement was done to hasten the healing process.



Oct 6: Still 7 cm x 7 cm, but only 0.2 cm deep
Seventh day: Manual wound bed cleansing no longer needed at dressing changes – granulation is beginning.



Oct 17: 6.7 cm x 5.8 cm
Only one week later: The wound is filling in quickly; at day 18 it is too shallow to measure and fully granulating.



Oct 31: 4.4 cm x 4.3 cm
The wound bled during the patient's six-mile walk to the clinic, but the extra-thick dressing absorbed the exudate.



Nov 17: 1.3 cm x 2 cm
Walking to the clinic only every three days now – wound is filling in.



Dec 8: Closed
The patient returned to her village after nine weeks of treatment -- Success.

METHODOLOGY

Treatment included vitamin C supplements plus teaching on nutrition, chloroquine for the malaria, prayer, an initial IM antibiotic followed by a course of oral antibiotics and direct wound care. The patient was instructed to elevate her right foot as much as possible. After initial debridement (including sharp), extra-thick polymeric membrane dressings were applied directly to the wound and changed every-other-day. Later the wound-care frequency was decreased to twice per week. Wound cleansing was not necessary after the first week. The left foot was soaked in a strong salt solution to treat the fungal infection, but the injured right foot was not treated for the fungal infection until the wound was completely closed.

PURPOSE and OBJECTIVES

1. Consider the advantages of using polymeric membrane dressings on ambulatory patients in terms of dressing flexibility/elasticity, wound pain reduction and quick healing.
2. Note how polymeric membrane dressings separates the slough from the wound bed and absorbs it so that it is discarded with the dressing, often completely eliminating the need for painful and disruptive manual wound cleansing or even rinsing at dressing changes.
3. Consider the advantages in terms of patient confidence and cost of using the same dressing modality from initiation of treatment to closure.
4. Formulate a treatment plan for a large full-thickness wound without the use of grafting.

RESULTS

Pain was greatly reduced and the wound infection resolved within a week. The wound moisture became appropriate and granulation tissue formed quickly. The wound closed and the patient was able to return to her home in nine weeks.

CONCLUSION

Extra-thick polymeric membrane dressings provided effective wound management for a full-thickness crush wound from initiation of treatment to complete wound closure. The use of polymeric membrane dressings controlled pain and infection and completely eliminated the necessity of wound cleansing at dressing changes.

BIBLIOGRAPHY

1. Beitz AJ, Newman A, Kahn AR, Ruggles T, Eikmeier L. A polymeric membrane dressing with antinociceptive properties: analysis with a rodent model of stab wound secondary hyperalgesia. *Journal of Pain*. 2004 Feb; 5(1):38-47.
2. Worley CA. So, what do I put on this wound? Making sense of the wound dressing puzzle: Part II. *Dermatological Nursing* 2005;17(3):203-5.
3. Hess CT. *Clinical Guide: Skin & Wound Care*. 6th ed. Ambler, PA: Lippincott Williams & Wilkins; 2008;345-6.
4. Fowler E, Papen JC. Clinical evaluation of a polymeric membrane dressing in the treatment of dermal ulcers. *Ostomy Wound Management*. 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. Coppi C. I dressed your wounds, God healed you – a wounded person's psychology according to Ambrose Pare. *Ostomy Wound Management*. 2005 Aug; 51(8):62-4.

*PolyMem Max® Dressings are made by
Ferris Mfg. Corp., Burr Ridge, IL 60527 USA · www.polymem.com