

# Polymeric Membrane Dressings\* for Skin Graft Donor Sites: 6 Years Experience on 1200 Cases

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## PROBLEM

Traditionally, donor sites are dressed with paraffin-soaked gauze or scarlet red covered by a secondary gauze dressing. However, paraffin gauze and scarlet red frequently dry out and stick to the wound surface, causing significant discomfort and pain to the patient. Due to the open weave structure of gauze, wound infections are common, leading to more pain and unacceptable cosmetic results.

## RATIONALE

Multifunctional, drug-free polymeric membrane dressings (PMD's) contain components that work together to help create an ideal moist wound healing environment. The combined actions of the components usually eliminate the need for wound bed cleansing during dressing changes, allowing for less disruption and cooling of the new growth in the wound bed. The dressings also allow virtually pain free dressing changes.

Polymeric membrane dressings have also demonstrated the ability to help reduce wound pain by inhibiting nociceptor activity at the wound site and inhibit infection, important properties when dealing with graft donor sites.

## METHOD

Paraffin gauze is usually left on the wound until epithelialization is complete, which generally takes 10 – 14 days. The secondary absorbent dressings often need to be changed on a daily basis.

In contrast, a polymeric membrane dressing was applied directly after the surgery and was changed whenever it was saturated, generally every 2 – 3 days depending on the amount of bleeding and which thickness of polymeric membrane dressing was used. We prefer the extra-thick version that can absorb 60% more than the standard version of the polymeric membrane dressing. The dressings were affixed with an adhesive film or cloth dressing.

We compared the ease of application, pain reduction and donor site epithelialization between this new choice, polymeric membrane dressings, and data from many years of using paraffin-soaked gauze.

## RESULTS

We used polymeric membrane dressings to cover skin graft donor sites on more than 1200 patients. 1008 (84%) of the patients were adults and 192 (16%) were children. The primary wounds were burns, penetrating trauma and chronic wounds. Our experience showed that paraffin-soaked gauze dressings were extremely painful for the patient during both wear time and at dressing changes. Compared to traditional paraffin-soaked gauze, we observed a dramatic reduction in pain on donor sites covered with polymeric membrane dressings. Dressing changes performed on the children became far less traumatic. The nurses reported that the use of pain medication in the ward was significantly reduced after polymeric membrane dressings were introduced. An additional benefit was faster mobilization of our patients.

The epithelialization time was reduced also. Donor sites often closed within a week, rather than the 10 – 14 days with the paraffin gauze dressings. So, the donor sites usually closed after only 2 – 3 dressing changes, rather than the 10 – 14 dressing changes required with the paraffin gauze.

We also observed a reduction in the infection rate of the donor sites, which was evidenced by a reduction of antibiotics used on the ward.

## CONCLUSION

Our clinical experience after 1200 cases using the polymeric membrane dressing proved to us that these dressings have many advantages over paraffin-soaked gauze on donor sites. The dramatic reduction in pain impressed us the most. The dressing changes were fast and easy to perform as the dressing did not adhere to the wound surface and no additional wound bed cleansing was needed.

Based on our own experience, together with our nurses' and patients' perceptions, we feel it would be valuable if further prospective and comparative studies are performed. In the meantime, we will continue using polymeric membrane dressings as our first choice for covering skin graft donor sites.

## Our Procedure:

*The non-adherent nature of the polymeric membrane dressings makes removal gentle. Due to the built-in wound cleanser in the dressings, no additional wound cleansing is needed at dressing changes, making them very fast and easy to perform. If the donor site is large, as in this case, several dressings can be used with a slight overlap.*



## Typical Skin Graft Donor Site Case: Closed in one week with only two dressings



Appearance of the donor site immediately after harvesting the split skin graft. The amount of bleeding varies between patients. Local anesthesia containing adrenalin has been used to minimize the bleeding.



The wound is immediately covered with an extra-thick polymeric membrane dressing, secured with adhesive film. Later dressings were sometimes affixed with cloth tape. PMD's without borders should ideally be affixed with a "window-pane" technique to allow the patient to benefit fully from the dressing's ability to create the ideal moisture balance in the wound bed.



The first dressing change. The PMD comes off easily without causing any pain to the patient. No wound cleansing is needed – the dressing has continuously removed contaminants. The time to change the dressing is determined by the amount of exudate; saturation level is visible through the dressing backing. In donor sites, the first change is generally after 2 – 3 days; the second change after 3 – 5 days.



Epithelialized skin graft donor site. The wound required only two dressing changes and one week to close. The patient was pain free the entire time.

## Bibliography

1. Terrill PJ, Goh RC, Bailey MJ. Split-thickness skin graft donor sites: a comparative study of two absorbent dressings. J Wound Care. 2007 Nov;16(10):433-8.
2. 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.
3. 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. J Pain. 2004 Feb;5(1):38-47.
4. Cutting KF, White RJ. Criteria for identifying wound infection: Revisited. Ostomy/Wound Management, 2005;51(1): 28-34.
5. European Wound Management Association (EWMA). Position Document: Pain at wound dressing changes. London:MEP Ltd, 2002.

**\*PolyMem® wound dressings** are made by Ferris Mfg. Corp., Burr Ridge, IL 60527 USA  
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