

Example of a Simple, Time-Saving, Cost-Effective, “High Tech” Wound Management



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INTRODUCTION

The patient, a 69 years old male, underwent a femoral by-pass surgery and developed a compartment syndrome needing an acute fasciotomy. After the fasciotomy surgery he was prescribed topical negative pressure wound therapy to reduce the swelling and help contract the wound in preparation for a split-thickness skin graft. However, the patient, who was traumatised by the previous surgeries, refused a skin graft. Large, open areas like this wound usually take several months to close when left to heal by secondary intention. Our challenge was to find a method that would facilitate healing in a shorter amount of time.

Aim

To describe a simple cost effective way of managing an extremely challenging fasciotomy wound necessitated by compartment syndrome after a femoral by-pass surgery.

METHOD

Negative Pressure Wound Therapy (NPWT) was used initially to reduce the pressure caused by edema of the leg; this was achieved in 10 days. A skin graft was proposed but was refused by the patient.

We decided to use polymeric membrane dressings* as our previous experience with these dressings have shown that they facilitate faster healing and help reduce pain.

We started treatment with the cavity version of the polymeric membrane dressings. The dressings were initially changed three times a week, but, as healing progressed, we gradually reduced the frequency of change to once a week.

RESULTS

Within a day after application of the first polymeric membrane dressing, the dry wound surface was clean and moist; there was no pain during the dressing changes. The wound had reduced in size by 50% in only two weeks. Within one month the uncomplicated wound healing accompanied by rapid epithelialisation resulting in full closure.

No signs of infection during the entire treatment.

DISCUSSION

With this type of tissue defect we normally apply a split-thickness skin graft as soon as the wound bed is clean and granulating. However, in this case, it was not an option. If left to heal by secondary intention the main risk would be infection and delayed healing, as well as risk for increased scarring.

By using polymeric membrane cavity dressings we could offer the patient a painless dressing solution whilst facilitating rapid granulation and epithelialisation with a minimal amount of dressing changes.



20th January

The appearance of the fasciotomy after 8 days of topical negative wound therapy. Deep, dry, painful wound bed with sharply defined edges. First application of polymeric membrane cavity dressings covered with an absorbent pad.



23rd January

After 3 days we have a well hydrated, clean and moist wound surface. The patient experienced no pain at all during the dressing change. The painful and irritating tension he had previously experienced over the wound whenever he repositioned his leg had also disappeared.



27th January

An impressive improvement with newly formed granulation tissue covering the entire wound surface. The wound edges are less prominent and the epithelialisation process is visible around all the edges. Depth reduced by 75% in one week.



4th February

Pain-free dressing changes every 4 days. The width of the wound has reduced significantly. The total wound surface has reduced by 50% in 14 days. (Note, nobody believed that the wound would close in a reasonable amount of time without a skin graft).



19th February

This is after one month with polymeric membrane dressings and the large wound is almost closed. The wound was totally closed 10 days later. The outcomes exceeded our expectations considering that the surgeon did not expect it to heal so fast without a skin graft.

Bibliography

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.

*PolyMem® and PolyMem® WIC Cavity Wound dressing
Manufactured by Ferris Mfg Corp, Burr Ridge, IL 60527 USA. This case study was unsponsored. Ferris Mfg. Corp. contributed to this poster design and presentation.