

PATIENTS WITH CHRONIC WOUND PAIN STOP HURTING, WHY?

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INTRODUCTION

Dressing changes represent only one type of wound-based pain within Krasner's model of chronic wound pain. Krasner calls this type of pain "cyclic acute wound pain," as it accompanies regular procedures performed by the health practitioner. The other two components of the chronic wound pain model are:

- non-cyclic acute wound pain, which occurs during intermittent manipulation of the wound, such as debridement;
- chronic wound pain, which is persistent pain that is experienced even when the wound is not being manipulated.

AIM

To share some observations I have made over the past 3 years on my patients with chronic wound pain when using polymeric membrane dressings* on their wounds.

METHOD

I often use polymeric membrane dressings on my patients, it's an easy product for the family to use as it's often the family that perform the dressing changes at home. They are instructed to change the dressing when the fluid reaches the wound edges. During dressing changes, no cleansing is needed which reduces the procedural pain; the components in the dressing help reduce the chronic pain.

RESULTS

I have seen more than 75 patients these past 3 years with a Visual Analogue Scale (VAS) of 8 or higher caused by chronic wound pain. These patients have all had prescriptions, sometimes several different ones, of strong analgesics to be able to cope. Most of these patients have been able to stop taking pain medications after being prescribed polymeric membrane dressings. As a bonus, the reduction in pain leads to faster wound healing. Sometimes the effect of reduced pain can be noted after a few hours, in some severe cases it can take a few days. The reduction in pain varies but they often end up with a score of 0-3 after having been on a level of 7-10.

DISCUSSION

There are studies that show that these dressings have an effect on the nociceptors leading to reduced pain and inflammation under the dressings, but is that the only reason for my results?

Nociceptors are often thought of as exclusively involved in pain messaging, but they do much more than just control the delivery of the pain message. These receptors also play central roles in the creation of the bruise after a contusion; the spread of inflammation into the surrounding undamaged tissues; and the swelling of the tissues after injury, which, in turn results in:

- 1) the reduction of delivery of oxygen and nutrients to injured tissues and
- 2) the inability of the body to efficiently remove damaged cellular debris and waste products from the injured tissues. The spreading zone of inflammation causes additional tissue destruction, which is so clearly seen when the swelling after a burn continues to result in additional tissue injury.

Multifunctional, drug-free polymeric membrane dressings have been shown to help reduce the spread of inflammation and swelling into surrounding undamaged tissues when applied over either open or closed injuries.^{1,2} The dressings help reduce both persistent and procedural injury pain and also help reduce and resolve bruising.² The reduction of swelling, bruising and pain after application of polymeric membrane dressings has been shown to occur without interfering with the localized inflammatory response required for healing injuries.

The studies show that these multifunctional dressings help reduce pain, swelling, bruising and inflammation in the tissues that are in contact with the dressings, and those tissues that are deeper to the tissue in contact with the dressings.^{1,2,3,4} For example, the dressings have been shown to help improve outcomes when placed on Grade I pressure ulcers.³ The anti-nociceptive actions of the dressings have also been shown to help reduce spasticity in spinal cord injury patients.⁴

Additionally, the dressings help to reduce the procedural pain associated with dressing changes. Polymeric membrane dressings do not stick to the wound bed so there is usually very little pain associated with the removal of these dressings. Additionally, the dressings usually eliminate the need to manually cleanse the wound bed during dressing changes because they continuously and atraumatically cleanse the wound bed. The manual cleansing process is recognized to be a major cause of wound bed pain during dressing changes.

Painful Venous Ulcer

A 72 year old man suffering from renal failure was referred to our clinic by his local GP due to painful infected wound that had been open for over a year. During our assessment we saw that the wound was greenish in colour with an

offensive odour, so a bacterial swab was performed. He also had lipodermatosclerosis with hemosiderin staining, varicose veins, oedema and severe pain. His pain was on a level of 10 out of 10 on a Visual Analogue Scale (VAS).



18 July
Previous treatment included zinc oxide paste, and hydrogels together with compression. The culture showed pseudomonas but his nephrologist did not want him to take any antibiotics due to elevated creatinine levels. I started with polymeric membrane silver dressings together with compression therapy.

29 July
After the first 5 days of treatment the patient's pain level dropped to a VAS score of 6 and by the time this photo was taken he was down to a VAS score of 2.

18 August
By now the patient had been functioning normally in his daily life for several weeks. No wound pain present at all and the wound is healing rapidly.

4 October
After an initial phase of daily dressing changes due to elevated exudates levels the patient continued with changes 3 times a week until full closure.

Painful wound with exposed tendon

An 85 year old man with both heart and renal failure was referred to our clinic by the angio-surgeon as a last hope to prevent amputation of his leg.

His Achilles tendon was exposed causing the patient a lot of difficulties; he could not walk or sleep due to excruciating pain. He spent most of his time sitting still on a chair.



16 February
Previous treatment included iodine solution and ointment. After gentle cleansing with warm saline we applied a polymeric membrane dressing. Due to the large amount of exudate the first 3 days we needed to change the dressings twice daily due to over-saturation. Dramatic pain reduction after 3 days.

9 April
The past two months dressings changes 4-6 times a week. The pain is now completely gone and the patient no longer has problems sleeping or walking.

30 September
Progress continues, slightly slower but without complications. The patient's relatives are changing the dressing at home.

14 January
Since starting to use polymeric membrane dressings the patient has not required any analgesics or antibiotics for his wound.

4 April
It took more than a year to close this wound, but, bear in mind this leg had a high risk of becoming amputated and the prognosis was very poor.

Painful shotgun injury

A 16 year old boy was accidentally shot under the back of his knee during hunting. He was operated by both an orthopedic and vascular surgeon in order to correct the blood flow and save the nerves of the leg.

He received a skin graft which failed 5 days after the operation. The wound was very painful and he needed regular pethidine injections. During this process he developed a pulmonary embolism and was put on anticoagulant therapy.



14 December
Polymeric membrane dressings were applied. Initially dressing changes were conducted in the OR after sedating the patient with pethidine as his pain scored 10 according to VAS.

20 December
After 5 days use of polymeric membrane dressings the patient no longer needed sedation, so, by the seventh day we could start performing the dressing changes at his bedside.

29 December
The wound continues to improve and the patient didn't experience any pain during wear time or at dressing changes. The patient is now ready to be sent home. His relatives will change his dressings.

4 January
No cleansing has been performed during the dressing changes at home. The wound continues to improve rapidly and the family continues to change the dressings every other day.

25 January
About 6 weeks after he started to use polymeric membrane dressings the wound is completely closed. What amazed the patient the most was his rapid pain relief.

References

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. *The Journal of Pain*. Feb 2004;5(1):38-47
2. Sessions RC. Can a drug-free dressing decrease inflammation and wound pain? What does the evidence say? Poster #R-09. Symposium on Advanced Wound Care (SAWC) Fall. September 16-19, 2009. Washington, DC. USA
3. Wilson, D. Application of Polymeric Membrane Dressings to Stage I Pressure Ulcers Speeds Resolution, Reduces Ulcer Site Discomfort and Reduces Staff Time Devoted to Management of Ulcers. Poster #CS-128. Symposium on Advanced Wound Care-Spring. April 17-20, 2010. Orlando, FL. USA
4. Stenius, M. Fast Healing of Pressure Ulcers in Spinal Cord Injured (SCI) People Through the Use of PolyMem Dressings. Poster #P37. 18th Conference of the European Wound Management Association. Lisbon, Portugal. 14-15 May, 2008.

*PolyMem® Wound Dressings with and without Silver. 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.