POLYMERIC MEMBRANE DRESSINGS PROMOTE STEADY CLOSURE OF WOUNDS COMPROMISED BY UNDERLYING SCAR TISSUE

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Background: Areas of the body with old scar (cicatrix) have decreased circulation, and as a result, oxygenation and nutrition are compromised. In addition, such scarred areas are often chronically inflamed, further slowing wound healing. Wounds in these areas may not be expected to close at all. An effective, simple, inexpensive way to manage wounds in heavily scarred areas is needed.

Three women are described. Patient one had a non-healing pseudomonas-infected 10x2cmx2cm failed breast reconstruction incision complicated by radiation scars. Hyperbaric oxygen therapy was recommended, but was cost-prohibitive. Patient two, an ambulatory 94-yr-old, had an ~8.0x5.2 x1.0cm mixed venous/arterial insufficiency leg ulcer on a site with extensive radiation scarring from successful eradication of a squamous cell carcinoma decades earlier. The leg ulcer had been enlarging for 8 months. Even though she was still ambulatory, given her advanced age and the extensive scar tissue, the steady enlargement was deemed inevitable by her wound clinicians. Patient three had a gastric sleeve, polyarthralgia, Hashimoto's Thyroiditis, and Crohn's Disease with a colostomy. She was sent home from rehab 5 weeks post-op with an 8.5x4.5 x4.5cm deep wound post MRSA-infected abdominal abscess incision and drainage in an area scarred by over a dozen previous surgeries. The deep wound had a 1.5x0.5 x1.0cm deep tunnel and small areas of necrosis and induration. Negative pressure wound therapy was destroying patient three's quality of life due to the stress of trying to keep from losing the seal, and because the dense foam in her abdominal cavity limited her ability to bend over to care for her children, drive, or do simple household chores.

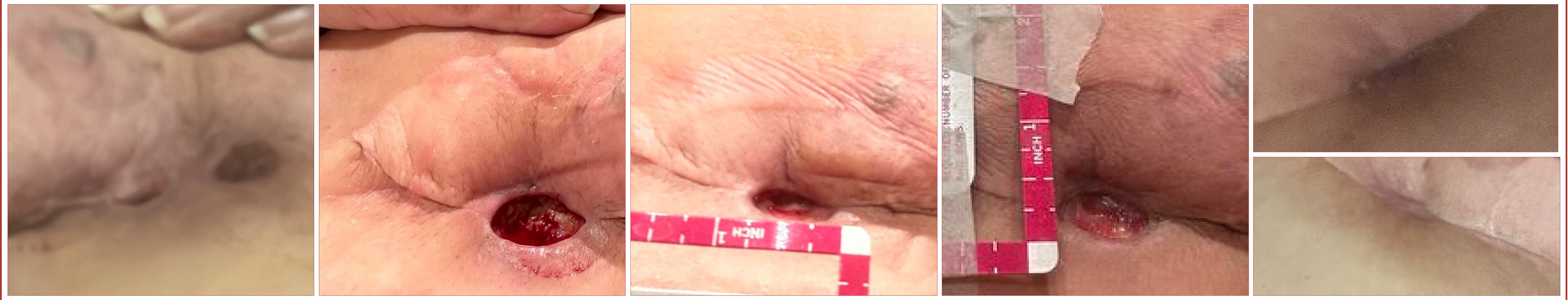
Methods: Each patient/family reached out to the author for guidance in managing their wound with pain-relieving polymeric membrane dressings (PMDs; brand names of specific PMD products used in footnote below).* PMDs control inflammation and help eliminate the resultant edema, improving circulation. In addition, glycerol in the dressings makes removal atraumatic and provides nutrients directly to cells. PMDs should not be changed on a schedule. Rather, they are changed when saturated, as indicated by the color change visible through the dressing backing crossing any wound border. They must also be changed if the PMD pad becomes wet due to losing the seal when bathing, or if they are severely damaged by patient activity. PMDs' built-in wound debriding system completely eliminated the need for wound cleansing or even rinsing at dressing changes. All of this makes it easy to teach patients and families how to use PMDs, so the burden of the slow-healing wounds can be reduced to weekly guidance by health care professionals. All three patients used an assortment of PMD variants, with and without silver. Prayer was integral to the treatment for all three patients. Patient one was instructed to drench gauze in 0.33% household vinegar and soak her wound twice a day for 5 minutes for two days to eradicate the pseudomonas (this was successful).

Results: Patient one experienced immediate improvement in wound drainage, gradual completely atraumatic wound debriding, and durable closure in just over 2 months of PMD use. Patient two experienced a rapid decrease in inflammation, slough, pain, and odor; despite her advanced age, her wound closed in 29 months. Patient three's switch to PMDs provided immediate freedom due to increased mobility and dramatically decreased pain and stress; wound closure took less than 4½ months.

Conclusion: Wound healing often stalls in patients with extensive scar tissue, leading to chronic wounds. This is especially true for cancer survivors with radiation damage, and for individuals who have had multiple surgeries. Wound specialists may be reluctant to add patients whose wounds are unlikely to close quickly to their already overburdened practices. PMDs provided an easy-to-use, affordable solution for all three patients that immediately improved quality of life and led to steady wound closure without overburdening the wound specialist.

THE FIRST PATIENT: Radiation scars, years of failed breast reconstruction attempts, pseudomonas, non-healing

(wound care provided, and photos taken, by the patient; all guidance via the patient's preferred messaging system)



27 Feb - Two days before PMD management began. Dehisced breast reconstruction wound is ~1.3cm deep x ~2.5cm wide with recalcitrant pseudomonas. Periwound skin is "tough" from radiation. Patient, who lives in a rural area, requests help.

10 March - A clinic performed sharp debridement, but did not resolve epibole as requested. Noted pseudomonas resolved with two days of household vinegar. Patient inserted PMD silver-containing rope into deep area, covered with PMD oval.

25 Mar - PMD rope is now applied on its side to fill shallow cavity. Wound is 2.0cm across. Patient reports she has had no discomfort, even at dressing changes, since beginning PMD management. Wound remains clean without any rinsing.

5 Apr - Steady wound closure continues. Discontinued PMD rope as depth is superficial. Width is 1.5cm. At 13 Apr appt, the plastic surgeon said, "This works pretty well! Sure beats barometric pressure tanks!"

Top: 5 May - almost closed. PMDs have been used for just over 9 weeks. The copay just for HBO was $250US/day. The total retail cost of the PMDs used was less than $1000US. Bottom - 22 June - the resultant scar was smooth and durable.

THE SECOND PATIENT: Radiation scars, mixed venous/arterial insufficiency, frail nonagenarian, exposed tendons

(photos taken by the patient's daughter; all guidance via the daughter's preferred messaging system)

2015.05.27 Daughter initiated PMDs on the 8-month-old deep and very inflamed ulcer.

2015.06.01 After only 4 days, wound is already cleaner, less swollen, and more moist.

2015.09.09 Wound is significantly less deep and is gradually filling in from the edges.

2015.12.09 Wound is now 4x3.5cm, filling in from the distal edge, especially.

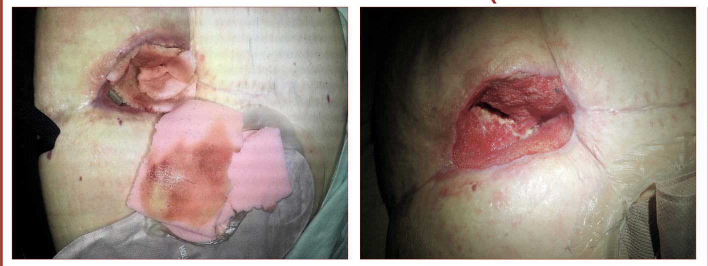
2017.04.14 Few photos because the now 96-yr-old patient can change her own dressings.

2017.05.24 Continuing to close steadily, was 1.25x2.25cm on 05.04. Now very superficial.

Upper photo 2017.08.12 - almost closed. Lower on 2017.10.20 - declared completely closed.

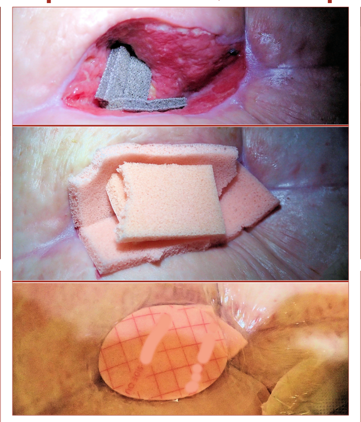
THE THIRD PATIENT: Crohn's Disease, Hashimoto's Thyroiditis, >25 abdominal and failed fistula repair surgeries

(wound care provided, and photos taken, by either the author or the patient)



May31pm First PMD dressing change after NPWT seal was lost at midnight on a weekend and home health could not come. Patient refused to use NPWT again (see R column).

Jun3 Immediately after sharp debridement at MD's office. 8.5x4.5cm 4.5cm deep; tunnel 0.5 high x 1.5 wide x1.0 deep at 7 o'clock near wound base. Hard eschar deep in tunnel.



Jun8 Tunnel filled with silver rope filler; pink filler in cavity; topped with waterproof oval.

Jun17 Exudate is now minimal. Still has no wound pain. Cavity is 6.8x2.7cm,3.5cm deep & tunnel is 0.3cm high x 1.5cm wide x 1.5cm deep; eschar being atraumatically removed.

Jul23 Only changing dressings every other day now. Cavity is 3.8x 1.3 cm,1.6 cm deep; tunnel is 0.5 x 1.0 cm. Indurated area is 4.5x 3.5cm and enlarging. Periwound skin fragile.

Aug4 Still closing well. Moderate drainage. No tunnel. Cavity is now 3.8x1.0cm,0.8cm deep but scar at superior end of wound is thin, red - ostomy leakage & sweat promote yeast.

Oct4 yeast infection led to hypergranulation 0.2 x 0.2cm - no depth. Closed on Oct14 (no photo) Bottom photo is Nov29 - inflammation from yeast along scar.

*PolyMem®, PolyMem Silver, PolyMem Cloth Border, PolyMem WIC™ Silver Rope, Shapes® by PolyMem, PolyMem Silicone Border, PolyMem MAX® Film Adhesive, PolyMem WIC, & PolyMem WIC Silver are all made by Ferris Mfg. Corp. in Fort Worth, Texas, USA. Ferris Mfg. Corp. donated dressings for patients one and three and sponsored this poster presentation.

Testimonial (patient three):

"The difference in quality of life between [PMDs] and [NPWT] is huge. I don't have a tube with yucky stuff in it coming out from under my clothes. I don't have to carry a machine everywhere I go, worry about battery life or the seal breaking, worrying about rolling over wrong when I sleep or getting tangled in the tubing. With [PMDs] I can just walk around as if I did not even have a wound.

It is stressful to know that if the [NPWT] seal breaks the dressing has to be changed in 2 hours – or what? They did not say. But the reservoir seal broke at 2:30am and the home health agency said they couldn't send anyone until morning, which was going to be at least 6 hours. They told me I would have to go to the emergency room. With the [PMDs] it is easy for me to put [film adhesive] over the edge if the seal comes undone, and because it is cleaning the wound all the time, I don't have to worry about anything bad happening inside my wound.

Also, my abdomen is so much more flexible with [PMDs]. I can sit up straight and even lean forward. With [NPWT] they pack the sponge in there so tight that I can't really move around well, and it hurts when they jam it in. It doesn't hurt at all when you put the [PMDs] in the wound. It hurts a little when you press the outer dressing in place on the sore muscles surrounding the wound to seal it, but the wound itself doesn't hurt at all."

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