Hydroconductive Dressings Used To Heal Dehisced Surgical Wounds: A Case Series

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In 2011, a novel class of dressings, hydroconductive dressings (HCD), was introduced at the Symposium on Advanced Wound Care.[1] The unique action of this dressing (Drawtex Hydroconductive Wound Dressing, SteadMed Medical, LLC, Fort Worth, TX) draws wound exudate both horizontally and vertically into the dressing,[2,3] draws debris and slough from the wound, and draws bacteria and deleterious cytokines from the wounds.[4-6] Although this topical therapy is most commonly associated with highly exudative wounds such as venous leg ulcers, we also have been utilizing it with great success in the treatment of acutely dehisced surgical wounds. We present our experiences with four dehisced surgical wounds that were treated with the HCD. In each case, the patient's wound had been treated for at least 2 weeks with an alternative product and did not progress within expected norms of wound healing.

Case 1

A 21-year-old male patient had a 7-month history of pilonidal disease. Following a wide excision of a pilonidal cyst, the cyst recurred with sinus tracts, requiring a second wide excision. He then was treated with negative pressure wound therapy (NPWT) for 3 weeks until he could no longer tolerate that treatment. Outpatient daily dressings with HCD were begun. The wound measured 14 cm x 2.5 cm x 5.0 cm. Within 5 days of treatment, the wound had healthy granulation tissue and measured 14 cm x 1.5 cm x 4.0 cm (see Figure 1a). After 5 weeks of HCD dressing changes, the wound measured 13 cm x 1.25 cm x 3.0 cm (see Figure 1b). Six weeks later, the wound measured 6.0 cm x 1.0 cm x 1.5 cm (see Figure 1c). The wound displayed a substantial reduction in exudate and an increase in wound contraction with the use of HCD.

Case 2

A 20-year-old man sustained gunshot wounds to the abdomen, resulting in T-10 paraplegia. He was transferred to our wound service with a Stage IV sacral pressure ulcer. After undergoing a diverting colostomy in preparation for a flap closure of the sacral wound, he developed an infected abdominal incision, requiring incision and drainage. Following a short period of 0.25% sodium hypochlorite soaks, HCD treatment was begun. At that time, the wound measured 14.0 cm x 5.0 cm x 3.5 cm (see Figure 2a). Six weeks later, the wound measured 5.0 cm x 3.0 cm x 0.1 cm and was fully granulated with epithelial advancement at edges (see Figure 2b). After an additional 3 weeks of HCD dressings, the wound measured 3.0 cm x 1.5 cm x 0.1 cm. At this time, we discontinued HCD and used hydrogel dressings until wound closure (see Figure 2c). Total wound closure occurred 1 week later.

Figure 1. Pilonidal cystectomy wound.

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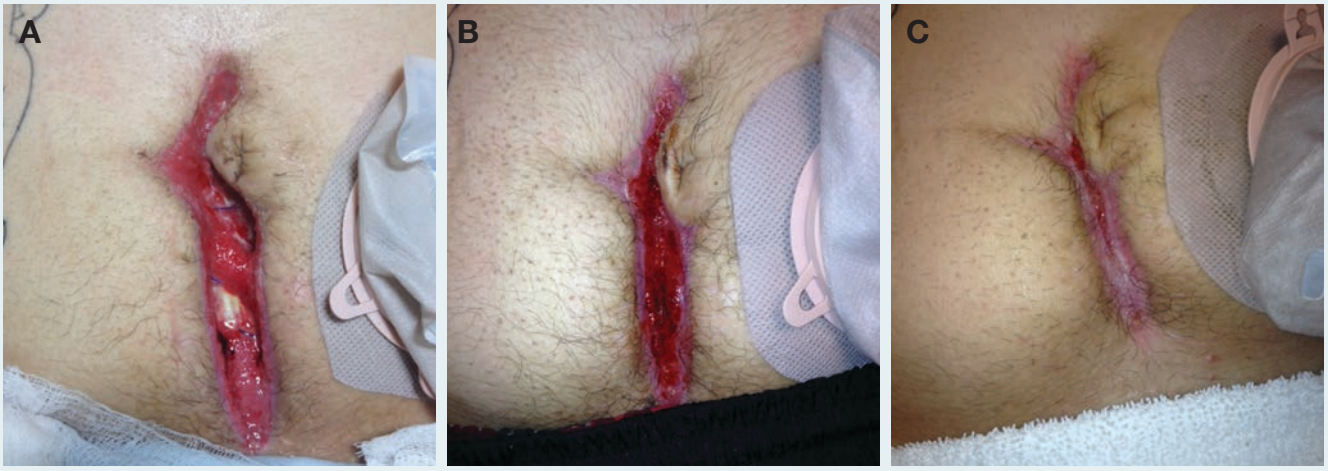

Figure 2. Abdominal wound dehiscence.

Figure 3. Transtibial amputation (TTA) dehiscence.

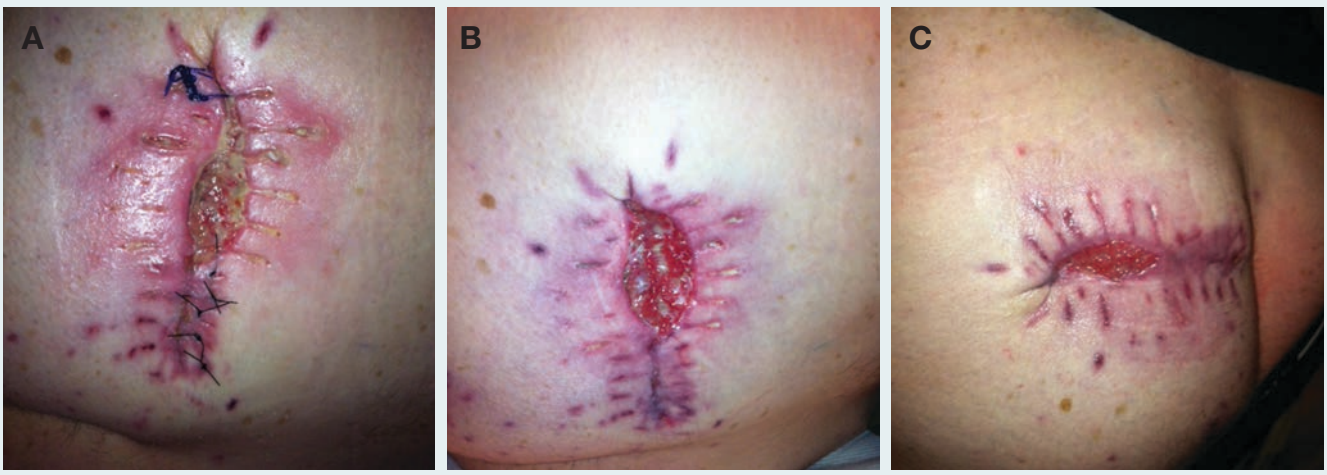

Figure 4. Shrapnel wound: delayed primary closure dehiscence.

Case 3

A 22-year-old active duty Army Specialist sustained a dismounted combat improvised explosive device (IED) blast in Afghanistan, resulting in multiple fractures of his right lower extremity. He underwent numerous orthopedic procedures to treat the fractures, including the use of external fixators. He was evaluated for a limb salvage procedure, including a microvascular free flap, but elected to have a transtibial amputation to regain maximum functional ability. His wound dehisced, leaving an open wound that measured 3.0 cm x 2.0 cm x 0.1 cm (see Figure 3a). He was treated with Manuka honey and low-frequency, noncontact ultrasound treatments

twice a week. After little progress toward a healing trajectory over the next several weeks, the topical therapy was changed to a HCD. At that time, the wound measured 2.3 cm x 2.9 cm x 0.2 cm, and there was a new pocket along the incision at the medial corner open to a depth of 2.0 cm (see Figure 3b). After 8 weeks of HCD changes, the wounds were completely healed (see Figure 3c).

Case 4

A 36-year-old active duty Marine Corps Major sustained extensive shrapnel injuries to his right buttock from a suicide bomber in Afghanistan. He underwent eight procedures for irrigation and debridement of his wounds with NPWT before he was transferred from the combat zone to our facility. Following delayed primary closure and NPWT, the wound dehisced and was treated with various topical therapies including cadexomer iodine gel and carboxymethylcellulose dressings with secondary composite dressings (see Figure 4a).

Because the wound was not healing satisfactorily, HCD, low-frequency ultrasound therapy twice a week, and topical steroid cream daily for periwound dermatitis were initiated. Following 13 days of the HCD treatment, the wound measured 4.8 cm x 2.0 cm x 0.1 cm with loosening slough (see Figure 4b). After an additional 3 weeks, the wound measured 3.5 cm x 1.5 cm x 0.1 cm, and the patient was discharged with hydrogel dressing (see Figure 4c). The wound was totally healed 1 week later.

Conclusion

Hydroconductive dressings were used effectively on a variety of wounds that failed to heal initially with other topical therapies. This is a versatile first-line product for use on acute dehisced surgical wounds. ■

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