Application of Negative Pressure Wound Therapy Using a Novel Drape Containing an Acrylic and Silicon-based Adhesive

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Introduction

- In patients treated with negative pressure wound therapy (NPWT*), pain related to the removal of the acrylic drape† and periwound skin irritation are known issues.
- As an alternative to the existing acrylic drape, a novel hybrid adhesive drape (ha-Drape‡) containing an acrylic and silicone adhesive film has been developed.

Purpose

We describe our initial experiences when applying NPWT using the ha-Drape.

Methods

- Drapes were applied over foam dressings to 6 wounds.
- NPWT was applied at -125 mmHg for 1-7 days, and the ha-Drape and foam dressings were changed according to the manufacturer's instructions.
- Systemic antibiotics were administered to 4 of the 5 patients, and 5 of the 6 wounds underwent surgical debridement before application of NPWT using ha-Drape.
- Pain related to drape removal was assessed using a Global Pain Scale, and periwound skin was monitored for signs of irritation at each drape removal.

Summary of Cases

Case	Age (yrs)	Sex	Comorbidities	Wound Type	Complications	Pain Score (0-10)
1	67	M	• Diabetes • Poor nutritional status • Hypertension	Surgical dehiscence	None	0 (Global Pain Scale)
2a	71	M	• Steroid use • Autoimmune disease	Soft tissue/ Open wound	None	Not assessed
2b	71	M	• Steroid use • Autoimmune disease	Soft tissue/ Open wound	None	Not assessed
3	41	M	• Smoker • Hypertension	Pressure Ulcer (Stage 4)	None	Not assessed
4	67	M	• Diabetes • Coronary heart disease • Peripheral vascular disease • Poor nutritional status • Steroid use • Obesity	Diabetic Foot Ulcer (Stage 4)	None	0 (Global Pain Scale)
5	53	F	• Smoker • Autoimmune disease • Peripheral vascular disease • Hypertension	Trauma-soft tissue/ Open wound	None	0 (Global Pain Scale)

Results

- There were 6 wounds in 5 patients (4 males and 1 female) who had an average age of 61.7 ± 12.1 years (**Table**).
- Wound types included ulcers (n=2), surgical dehiscence (n=1), and wounds resulting from trauma or graft rejection (n=3).
- Therapy goals consisted of wound bed preparation, granulation tissue formation, and removal of infectious materials.
  - In each case, therapy goals were achieved without any complications.
- A pain score of 0 was reported in 3 of 5 patients immediately after each drape removal, and periwound skin irritation was not detected for any of the 5 patients.
- The ha-Drape was used to support NPWT for 2 wounds on a patient with an autoimmune disease, which normally would not receive the traditional acrylic drape due to skin fragility and the compromised immune status of the patient.
- Representative cases are shown in **Figures 1 - 3**.

Conclusions

- The results from these cases suggest that the use of the ha-Drape may improve the patient experience when using NPWT by helping alleviate pain at drape removal and by helping to mitigate periwound skin irritation.

Case 1: Surgical dehiscence after transmetatarsal amputation

Figure 1A. A 9-week-old non-healing wound following dehiscence after closure of a transmetatarsal amputation. Wound on Day 1 before debridement followed by application of NPWT using ha-Drape.

Figure 1B. Wound after 1 week of NPWT using ha-Drape. Dressings and drape were changed every 2-3 days, according to the manufacturer's instructions.

Figure 1C. Wound after 7 weeks of NPWT using ha-Drape. The wound was covered with placental matrix at 5 weeks before applying NPWT using the ha-Drape. A non-adherent layer was used between the placental matrix and NPWT dressings

Figure 1D. Fully epithelialized wound after 15 weeks of NPWT using ha-Drape.

Case 2: Bilateral lower extremity wounds (Graft vs. Host Disease)

Figure 2A. Bilateral lower extremity wounds on Day 1.

Figure 2B. Left (top) and right (bottom) lower leg wounds on Day 4 after coverage with a meshed allograft. A non-adherent layer was used over the allograft, and NPWT using a ha-Drape was then initiated.

Figure 2C. Right (left) and left (right) lower leg wounds after 3 weeks of NPWT using ha-Drape. The patient ultimately elected for palliative care.

Case 3: Stage-4 pressure ulcer

Figure 3A. A stage-4 right ischial pressure ulcer at presentation.

Figure 3B. Application of bridging for NPWT using an ha-Drape.

Figure 3C. Application of NPWT dressings under ha-Drape. The patient was discharged to a skilled nursing facility but failed to return for a follow-up visit.

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NOTE: Specific indications, contraindications, warnings, precautions and safety information exist for these products and therapies. Please consult a clinician and product instructions for use prior to application. Rx only.
As with any case study, the results and outcomes should not be interpreted as guarantee or warranty of similar results. Individual results may vary depending on the patient's circumstances and condition.

***V.A.C.® Therapy System, †V.A.C.® Drape, ‡DERMATAC™ Drape (KCI, an Acelity Company, San Antonio, TX)**

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