Use of Negative Pressure Wound Therapy with Instillation in Complex Wounds: A Small Case Series

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Background

- Negative pressure wound therapy (NPWT) with instillation and dwell time (NPWTi-d*) using a reticulated open cell foam dressing with through holes (ROCF-CC†) has been reported to help solubilize non-viable tissue and thick exudate as well as remove wound debris and infectious materials.[1-3]

Purpose

- The use of NPWTi-d with ROCF-CC was assessed in 8 patients with complex wounds.

Methods

- Patients and wounds were assessed at presentation.
- Antibiotics and surgical debridement were initiated as needed.
- Exposed and delicate structures were protected with a non-adherent hydrofiber dressing.
- NPWTi-d with ROCF-CC were applied to the wounds.
- Normal saline, acetic acid (0.25%), or hypochlorous acid was instilled over the wound bed with a dwell time of 10 minutes, followed by continuous negative pressure at -125 mmHg for 2 to 3.5 hours.
- Dressing changes occurred every 2-3 days.
- NPWTi-d was discontinued once the wound bed was fully covered with healthy granulation tissue.

Results

- Eight patients (age range 29-78 years) presented for care.
- Previous medical history included paraplegia, diabetes, and hypertension.

Representative Cases

Case 1. A 66-year-old male with a history of paraplegia presented with a stage 4 pressure injury to the right lateral hip. The patient was discharged with traditional NPWT after 38 days of NPWTi-d.

Figure 1A. Day 0

Figure 1B. Day 3

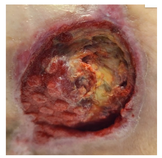

Figure 1C. Day 10

Figure 1D. Day 17

Figure 1E. Day 30

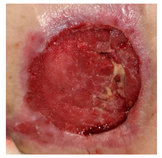

Figure 1F. Day 45 (1 week after discharge)

Case 2. A 74-year-old male underwent a left above-the-knee amputation for a thrombosed left popliteal artery aneurysm and compartment syndrome. After 24 days of NPWTi-d, the patient was discharged with traditional NPWT.

Figure 2A. Day 0

Figure 2B. Day 3

Figure 2C. Day 10

Figure 2D. Day 17

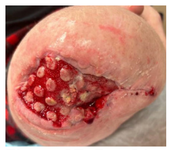

Figure 2E. Day 24

Case 3. A 51-year-old female presented with Fournier's gangrene of the right buttock and hip. Surgical debridement was performed followed by application of NPWTi-d. After 28 days, NPWTi-d was discontinued and the patient was discharged to a skilled nursing facility. The patient received a split-thickness skin graft (STSG) 83 days after surgical debridement.

Figure 3A. Day 0, wound after surgical debridement (hip shown on right)

Figure 3B. Day 7 (hip shown on right)

Figure 3C. Day 14 (hip shown on right)

Figure 3D. Day 21 (hip shown on right)

Figure 3E. Day 28

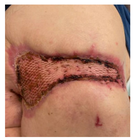

Figure 3F. Day 90 (1 week after STSG placement)

Results (Cont'd)

- Wound types were pressure injuries, amputation, Fournier's gangrene, and post-surgical abdominal wound (**Table 1**).
- Representative cases are shown in **Figures 1-3**.

Table 1. Wound Types

Wound Type	n=8
Pressure Injury	3 (37.5%)
Amputation	3 (37.5%)
Above-the-knee	1 (12.5%)
Below-the-knee	2 (25.0%)
Fournier's Gangrene	1 (12.5%)
Post-Surgical Abdominal Wound	1 (12.5%)

Conclusions

- Use of NPWTi-d with ROCF-CC resulted in the hydromechanical removal of infectious materials, non-viable tissue, and wound debris.
- NPWTi-d use led to the development of healthy granulation tissue in the wound beds for all 8 patients.

References

1. Teot L, Boissiere F, Fluieraru S. *Int Wound J*. 2017;14(5): 842-848. doi:10.1111/iwj.12719
2. Fernandez LG, Matthews MR, Ellman C, et al. *Wounds*. 2020;32(10):279-282.
3. Blalock L. *Wounds*. 2019;31(2):55-58.

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*3M™ Veraflo™ Therapy, †3M™ Veraflo Cleanse Choice™ Dressing (Solventum Corporation, Maplewood, MN)

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