

Use of A Novel Dressing Combining Negative Pressure Wound Therapy With Instillation and a Reticulated Open Cell Foam with Silicone Hybrid Drape in Complex Wounds

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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 has been reported to help solubilize and soften non-viable tissue, wound debris, infectious materials, and thick exudate.¹⁻⁴
- Recently, a new dressing utilizing reticulated open cell foam with through holes as a single unit foam (ROCF-CCC[†]) in combination with a hybrid polyurethane drape (hybrid drape[‡]) has been developed for use.
- Use of NPWTi-d with ROCF-CCC and hybrid drape in 5 patients with complex wounds is presented.

Methods

- Antibiotics were initiated if necessary.
- NPWTi-d using ROCF-CCC dressings was chosen based on wound bed characteristics including presence of thick fibrinous exudate and slough.
- Normal saline or 0.125% hypochlorous acid solution was instilled into the wound bed with a 20-minute dwell time, followed by 2 hours of continuous negative pressure (-125 mmHg).
- Dressing changes occurred every 24 to 72 hours.
- Patients underwent targeted surgical debridement.
- Once healthy granulation tissue was observed, dermal matrix or skin graft placements were performed.
- NPWT[§] was used as a bolster over the dermal matrix or skin grafts with dressing changes every 3 to 7 days.

Results

- Five patients presented for care. Wound types included lower extremity arterial ulcers, (n=1), venous stasis ulcers (n=2), and pressure injury (n=2). (Figures 1-3).
- Use of NPWTi-d with ROCF-CCC and hybrid drape resulted in softening of thick fibrinous exudate and slough, allowed for targeted surgical debridement, and reduced the number of planned operating room visits.
- The hybrid drape allowed for maintenance of periwound skin integrity.
- The ROCF-CCC dressing was noted to be more user-friendly without the need to search for additional materials prior to placement.
- Senior nurses noted “ease of use” feedback from junior nurses.
- All wounds showed granulation tissue development.
- Three patients underwent surgical reconstruction, while the other 2 were transitioned to NPWT upon discharge.

Cases

Case 1: An 84-year-old female presented with a non-healing surgical wound left foot dorsum. She has a prior medical history of hypertension, arterial insufficiency, and previous debridement. Patient was admitted for persistent infection with full thickness necrosis. Infection was managed via systemic antibiotics. Patient was taken to the operating room (OR) for staged debridement and to administer NPWTi-d using ROCF-CCC dressing. After NPWTi-d use, a reticular dermal matrix was placed to help optimize healing. Treatment transitioned to conventional NPWT, and the patient continued wound management using NPWT for 6 weeks. The patient returned to the OR for placement of split-thickness skin graft (STSG). NPWT was used for 7 days to bolster the graft.



Figure 1. Non-healing surgical wound left foot dorsum. A. Foot at presentation. B. Wound post NPWTi-d and debridement. C. Application of NPWTi-d with ROCF-CCC dressing (wound is protected by non-adherent material). D. Wound (Day 3) with placental particulate. E. Wound (Day 3) with dermal matrix. F. Wound (Day 3) with NPWT and ROCF dressing to bolster dermal matrix. G. Wound at Week 3. H. Wound (Week 6) with placental particulate. I. Placement of STSG. J. Wound prior to application of NPWT. K. Wound (Week 6) with NPWT and ROCF dressing to bolster STSG. L. Wound (Week 6) with NPWT and ROCF dressing to bolster STSG.

Case 2: A 42-year-old female with incomplete quadriplegia, who lives independently, was admitted for multiple, worsening pressure ulcers (Stage 4) and secondary infection. Her prior medical history included urostomy. Her incomplete quadriplegia was resultant of a gunshot wound. Upon evaluation, it was determined that the patient was a poor surgical candidate given her poor nutritional status. NPWTi-d using ROCF-CCC dressing was initiated. Patient transitioned to conventional NPWT use and continued wound management as an outpatient.

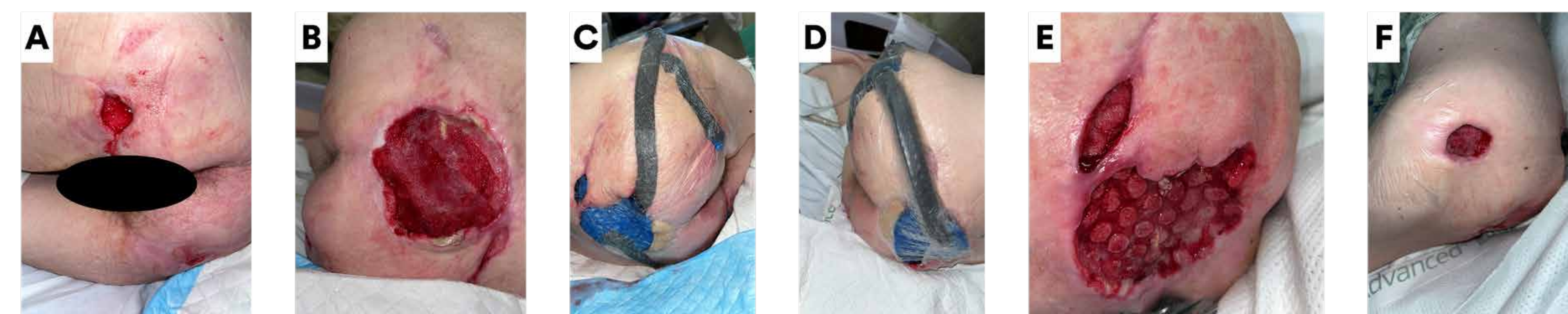


Figure 2. Multiple pressure injuries in an incomplete quadriplegic patient. A. Pressure ulcer on left gluteal sulcus. B. Pressure ulcer on sacral area. C. Use of ROCF-CCC dressing with ROCF-V bridge. D. Use of ROCF-CCC dressing with ROCF-V bridge. E. Sacral pressure ulcer with microcolumns post NPWTi-d using ROCF-CCC dressing. F. Pressure ulcer on left hip post NPWTi-d.

Cases (Cont'd)

Case 3: A 49-year-old male with paraplegia was admitted to hospital for multiple worsening pressure ulcers despite wound management and offloading. Initially the patient was treated with NPWTi-d using ROCF-CCC dressing for wound cleansing and solubilization of devitalized tissue. Infection was managed via systemic antibiotics. Following ROCF-CCC dressing change, the patient was taken to the operating room for staged debridement. After excision of the entire ulcer, the wound was managed via NPWTi-d and ROCF-V^{**} dressing. NPWTi-d was enlisted as a strategy to prepare the wound bed for eventual closure using flaps.



Figure 3. Multiple pressure injuries in a patient with paraplegia. A. Left hip pressure ulcer 24 hours (Day 1) after NPWTi-d with ROCF-CCC (First panel); Left hip pressure ulcer on Day 4 (Second panel); Wound (Day 4) post excision of the entire ulcer (Third panel); NPWTi-d using ROCF-V applied to left hip excisional wound at Day 4 (Fourth panel). B. Right buttock pressure ulcer 24 hours (Day 1) after NPWTi-d with ROCF-CCC (First panel); Right buttock wound (Day 4) post excision of the entire ulcer (Third panel); NPWTi-d using ROCF-V applied to right buttock excisional wound at Day 4 (Fourth panel). C. Pressure ulcer at 24 hours (Day 1) (Upper panel); Pressure ulcer on Day 4 (Lower panel).

Conclusions

- In these 5 patients, the use of NPWTi-d with ROCF-CCC and hybrid drape provided sufficient wound cleansing that allowed for subsequent targeted surgical debridement of thick fibrinous exudate and slough, maintenance of periwound skin integrity, and helped reduced the complexity and time needed for dressing changes.

References

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