Outcomes with use of Novel Silicone-Acrylic Hybrid Drape During Negative Pressure Wound Therapy with Fluid Instillation: Initial Clinical Experience

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Background

- Applying a standard acrylic adhesive drape over foam dressings to produce a seal during NPWT can be cumbersome; if the drape folds upon itself during application, it often needs to be discarded.
- Removal of the drape can harm surrounding tissue and cause pain for patients.[1,2]
- A novel, low tack adhesive silicone-acrylic hybrid drape (HA-drape)* that may be re-positioned and re-placed (**Figure 1**) is recently commercially available.[3]

Fig 1A. Demonstration of hybrid drape being folded.

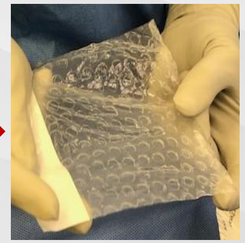

Fig 1B. Folded hybrid drape is re-expanded and ready to place over foam.

Purpose

We present our initial evaluation results of the functionality of a novel, low tack adhesive silicone-acrylic hybrid drape during negative pressure wound therapy (NPWT) and fluid instillation.

Methods

- NPWT with instillation and dwell (NPWTi-d[ǂ]) of a topical hypochlorous acid solution was applied via an open-cell foam dressing with through holes.[ǂ]
- The HA-drape, consisting of polyurethane film with acrylic adhesive and a silicone perforated layer, was trimmed and applied over the foam plus a 5-7 cm periwound tissue border.
- Solution dwell time was 20 minutes, followed by 3 hours of negative pressure, and dressings were changed every 3 days.

Results

- The HA-drape was used during eight applications in three large complex wounds: a traumatic wound, burn wound, and stage IV pressure injury (**Figs. 2-4**).
- In all cases, the seal was maintained between dressing changes, including during intervals of solution instillation.
- The HA-drape did not need to be re-placed or re-positioned during therapy or any dressing change.
- No periwound tissue was harmed and there were no complaints of pain during HA-drape removal.
- All wounds progressed toward closure during therapy.

Case 1. A 42-year-old male presented to the emergency room 16 hours after sustaining a complex right calf laceration. Broad spectrum intravenous antibiotics were administered. Patient was admitted to the operating room for immediate surgical debridement, resection of devitalized soleus and gastrocnemius muscle, washout, primary repair of muscular compartment fascial defects, 3 cm cutaneous flap advancement, partial closure of the skin, and application of NPWTi-d. Patient discharged home on hospital day 2 with standard NPWT and HA-drape for 21 days. The wound was healed at 3 weeks.

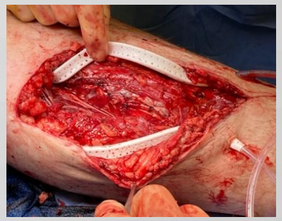

Fig 2A. Wound following debridement, washout, resection and repair of deep structures.

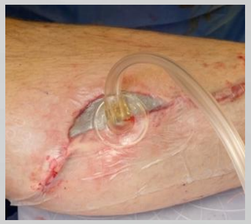

Fig 2B. Negative pressure seal was maintained during instillation without difficulty. (Ensure pressure sensing pad is over foam to avoid potential injury.)

Results (Cont'd)

Case 2. A 71-year-old female with diabetes and left above-knee amputation presented three days post injury with right full-thickness thigh burn and cellulitis. A broad-spectrum intravenous antibiotic was initiated. Patient was admitted to the operating room for tangential burn eschar excision, burn area debridement (300 cm^2) and NPWTi-d system application with a HA-drape. The patient developed a well granulated wound; cellulitis symptoms resolved, and the wound was primarily closed. Patient was discharged home on hospital day 14. Two-week follow-up was unremarkable.

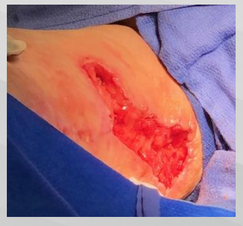

Fig 3A. Wound following excision and debridement.

Fig 3B. Application of foam dressing and drape.

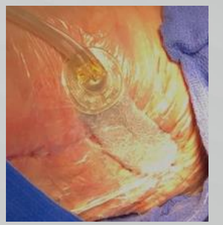

Fig 3C. HA-drape and negative pressure applied.

Fig 3D. Primarily closed wound (14 cm) at 2-week follow-up.

Results (Cont'd)

Case 3. A 47-year-old male with paraplegia developed a stage IV left ischial pressure injury. Cellulitis was noted, as well as presence of fibrinous exudate deep in the wound base. The patient underwent sharp operative debridement and pulse lavage. NPWTi-d was applied. The tubing was placed laterally over the hip to avoid weight-bearing on the tubing. On post-operative day 4, beefy red granulation tissue with columnar granulation macrodomes were present in the wound bed. On day 12, cellulitis was resolved, and patient was switched to oral antibiotics and discharged home with follow-up in the wound clinic.

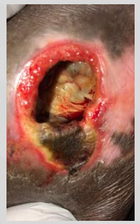

Fig 4A. Wound at presentation.

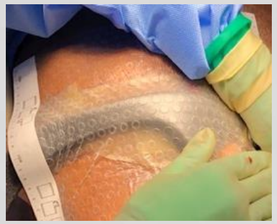

Fig 4B. Foam and HA-drape application to allow tubing placement laterally over hip.

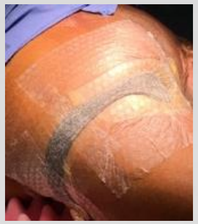

Fig 4C. Successful seal of HA-drape over foam dressing.

Conclusions

- The HA-drape could be removed more easily and less painfully than a standard NPWT drape, and seal integrity was maintained even during and after fluid instillation.
- Ability to re-position and re-apply the HA-drape may help reduce waste and save application time.

References

1. Collier M. *Br J Nurs*. 2019;28(15):S26- S32.
2. Fumarola S, Allaway R, Callaghan R, et al. *J Wound Care. 2020;29:*S1- S24.
3. Fernández LG, Matthews MR, Benton C, et al. Int Wound J. 2020; 17(6): 1829–1834.

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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 labeling prior to application. Rx only.

*3M™ Dermatac™ Drape, ǂ3M™ Veraflo™ Therapy, ǂ3M™ V.A.C. Veraflo Cleanse Choice™ Dressing (3M, San Antonio, TX)

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