

Clinical Outcomes Using New Hybrid Drape with Negative Pressure Wound Therapy for Various Wound Types in Difficult Anatomical Locations: Case Study



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Clinical Problem

- Negative pressure wound therapy (NPWT) is traditionally applied using an adhesive acrylic drape, which can present challenges for patients and clinicians.
- Removal of the standard drape can harm surrounding tissue and cause pain and discomfort for patients.^{1,2}
- Additionally, applying the drape can be cumbersome, and it cannot be re-positioned after placement.

Past Management

- Since the introduction of NPWT, a standard acrylic adhesive drape, included in all dressing kits, has been applied over the foam dressing for all wounds managed with NPWT at our hospital.

Current Clinical Approach

- Recently, we began using a new hybrid NPWT drape with a low tack acrylic adhesive and silicone perforated layer as a first line NPWT drape for complex wounds, primarily in difficult anatomical locations.
- We present outcomes with the acrylic-silicone hybrid NPWT drape utilized in five complex wound cases (**Cases 1-5**): (1) deep abdominal wound close to an ostomy; as a bolster over split- or full-thickness skin grafts in the (2) forearm, (3) groin area, and (4) lower leg; and (5) a diabetic foot ulcer.
- Demographics and wound etiologies are shown in **Table 1**.
- Dressings were changed every 2-3 days for wounds and removed after 5 days for grafts.
- The drape was repositioned as necessary upon dressing application.

Patient Outcomes

- In all cases, a tight seal was maintained between dressing changes and until dressing removal over the graft.
- Neither replacement nor repositioning of the drape was required

Results

Case 1. A 71-year-old female with deep abdominal wound with ostomy.



A. Presentation post total abdominal colectomy, lysis of adhesions and end ileostomy.



B. Hybrid drape applied over NPWT foam dressing, achieving a seal despite abdominal creases and close proximity to ostomy.

Case 2. A 78-year-old female with skin graft after surgical excision of squamous cell carcinoma.



A. Full-thickness skin graft (FTSG) reconstruction post wide excision for carcinoma.



B. Hybrid drape applied over NPWT dressing as bolster over FTSG. There was no evidence of epidermal stripping at drape removal.

Case 3. A 67-year-old female with split-thickness skin graft (STSG) following a thermal burn.

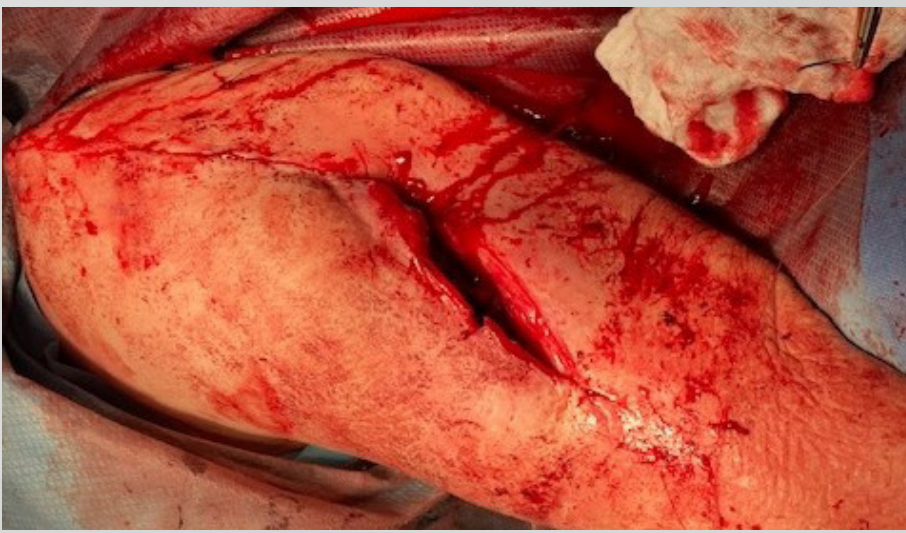


A. STSG placed over left medial thigh and groin.



B. Hybrid drape applied over NPWT dressing used as bolster over STSG. Seal remained intact for 5 days despite challenging groin location.

Case 4. A 78-year-old male with arm abscess secondary to pathological fracture and removal of hardware.



A. Abscess following failed fixation of left midshaft humerus and removal of hardware.



B. Hybrid drape applied over NPWT foam dressing.

Case 5. A 68-year-old male with a diabetic foot ulcer.



A. Left foot abscess following irrigation and debridement.



B. Osteomyelitis was treated and NPWT applied.



C. To ensure suitable offloading, the foam dressing was bridged to the dorsal aspect of the foot and secured.



D. Hybrid drape was applied over the entire foam dressing, including tubing connector pad and 4 cm foam bolster.

Results (Cont'd)

Table 1. Patient demographics, wound type, comorbidities and procedure prior to negative pressure wound therapy.

Case	Age	Sex	Wound Type	Comorbidities	Procedures prior to NPWT
1	71	F	Deep abdominal wound with ostomy	Morbidly obese; abdominal dehiscence; MRSA positive	Total abdominal colectomy; lysis of adhesions; end ileostomy
2	78	F	Skin graft after surgical excision of squamous cell carcinoma	—	FTSG reconstruction post wide excision (6 x 6 cm) for carcinoma of left dorsal forearm
3	67	F	Thermal burn and skin graft	—	STSG to left medial thigh and groin
4	78	M	Failed fixation of left midshaft humerus	Hypertension; diabetes; multiple myeloma; MSSA positive. Failed hardware post fall; left arm abscess with osteomyelitis secondary to pathological fracture	ORIF of proximal humerus fracture; removal of all hardware, subsequent to revision ORIF left IM nail fixation
5	68	M	DFU	Type II diabetes (20 years)	Irrigation and debridement of left foot osteomyelitis with abscess

NPWT = negative pressure wound therapy; MRSA = Methicillin-resistant *Staphylococcus aureus*; FTSG = full-thickness skin graft; STSG=split-thickness skin graft; MSSA= Methicillin-sensitive *Staphylococcus aureus*; ORIF= open reduction internal fixation; IM=intramedullary; DFU=diabetic foot ulcer

Conclusions

- In our experience, dressing application and removal were simplified with the new hybrid NPWT drape versus the standard drape.
- At dressing changes, all patients experienced improved comfort due to easier removal of the hybrid drape.

References:

- Collier M. Minimising pain and medical adhesive related skin injuries in vulnerable patients. *Br J Nurs*. 2019; 28(15): S26-S32.
- Fumarola S, Allaway R, Callaghan R, et al. Overlooked and underestimated: medical adhesive-related skin injuries. *J Wound Care*. 2020; 29 (Suppl. 3: S1-S24).
- Fernández LG, Matthews MR, Benton C, Buresch R, Sutherland A, Tillison N, Brooks J. Use of a novel silicone-acrylic drape with negative pressure wound therapy in anatomically challenging wounds. *Int Wound J*. 2020; 17(6):1829-1834.