Use of Negative Pressure Wound Therapy in Patients With Complex Abdominal Wounds With Enterocutaneous Fistula

Shane Rudolph, MSN, AGACNP-BC, CWOCN; Diane Wagner, MSN, BSN, RN, CWOCN

Temple University Hospital, Philadelphia, PA

Introduction

- Complex wounds can be difficult to heal and may require advanced wound care techniques.
- In some patients, wound healing can be further complicated by the presence of an enterocutaneous fistula (ECF) and the associated effluent.
- ECF effluent is corrosive, and the continuous moisture can damage surrounding skin and increase the risk for infection.[1]
- In patients with ECFs requiring wound care, the fistula and associated effluent are isolated from the wound bed prior to the initiation of wound care.

Purpose

- The use of negative pressure wound therapy (NPWT) for wound management in patients with abdominal wounds containing an ECF is assessed.

Methods

- Antibiotics were initiated as needed and surgical wound debridement was performed if required.
- Ostomy paste or barrier ring was used to protect periwound skin.
- Non-adherent silicone dressings* were used to protect delicate structures.
- Any fistulas in the wound bed were isolated prior to application of -125 mmHg NPWT.†
- Non-adherent silicone dressings or calcium alginate dressings were used to protect the fistulas.
- Ostomy appliances were employed to collect fistula effluent and isolated it from the wound bed.
- NPWT dressings were changed every 2-3 days.

Results

- Five patients with 6 wounds presented for care (average age 63.2 years, **Table 1**).
- Previous medical history included kidney transplant, Crohn's Disease, bowel resections, and cancer.
- Wound locations included abdominal wounds (n=5) and a groin wound (n=1, **Table 1**).
- ECFs were present in or near 5/6 wounds.
- NPWT was utilized for an average of 36.7 days (range 5-98 days).
- All patients were successfully discharged without further complications.
- Representative cases are shown in **Figures 1-3.**

Table 1. Patient demographics

Case	Age	Sex	Medical History	Wound Location
1	55	Male	Kidney Transplant	Abdominal
2	72	Female	Breast Cancer, Hypertension, Hyperlipidemia, Cholecystectomy, Perforated Diverticulitis	Abdominal; Groin
3	57	Male	Chronic Kidney Disease, HIV, Previous Substance Use Disorder	Abdominal
4	52	Male	Crohn's Disease	Abdominal
5	80	Male	Bladder Cancer	Abdominal

HIV= Human immunodeficiency virus

Cases

Case 1. The patient underwent intervention for fascial dehiscence with a hernia. Antibiotics were initiated and NPWT was utilized. At 30 days after fascial closure, a high-output ECF was identified within the wound bed. The ECF was isolated and NPWT use continued. NPWT was utilized for a total of 98 days. The wound was closed using a split-thickness skin graft.

Figure 1a. Wound 30 days after fascial closure

Figure 1b. Wound after 60 days of NPWT

Figure 1c. Application of ostomy bag over the isolated ECF

Case 2. The patient underwent an exploratory laparotomy with sigmoidectomy, ostomy creation, and incision and drainage of the left groin for necrotizing soft tissue infection. The ECF was leaking effluent into abdominal and groin wounds. The ECF was isolated and NPWT was initiated for 10 days for the abdominal wound and 65 days for the groin wound. Both wounds fully healed.

Figure 2a. Groin wound after incision and drainage and surgical debridement

Figure 2b. Groin wound after 30 days of NPWT

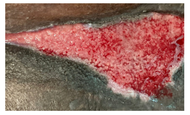

Figure 2c. Groin wound after 65 days of NPWT

Figure 2d. Groin wound fully healed at Day 112.

Figure 2e. Abdominal wound at presentation

Figure 2f. Abdominal wound after 5 days of NPWT

Cases (Cont'd)

Case 3. The patient underwent an ileostomy resulting in development of an abdominal ECF complicated by multiple enterotomies. A high-output, large abdominal ECF was noted. The ECF was isolated and NPWT was initiated. After 21 days, NPWT was discontinued and a standard 4 inch ostomy appliance was applied.

Figure 3a. Wound at presentation

Figure 3b. Application of NPWT

Figure 3c. Application of the ostomy bag

Figure 3d. Wound after 21 days of NPWT

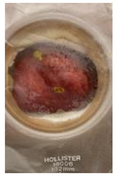

Figure 3e. Application of standard 4 inch ostomy appliance

Conclusions

- In these 5 patients, isolation of the ECFs and effluent and the use of NPWT resulted in development of healthy granulation tissue in the wound bed.
- With the use of NPWT to manage the wounds, all 5 patients were able to be discharged from hospital inpatient care without further complications.

References

1. Hoedema RE, Suryadevara S. Enterostomal therapy and wound care of the enterocutaneous fistula patient. *Clin Colon Rectal Surg*. 2010;23(3):161-168.

Presented at Symposium on Advanced Wound Care Fall , October 13-16, 2022, Las Vegas, NV

*3M™ Adaptic™ Touch Non-Adhering Silicone Dressing, †3M™ V.A.C.® Therapy (3M Company, St. Paul, MN)

The authors thanks 3M for assistance with poster preparation and production.