

Use of Negative Pressure Wound Therapy With Instillation in a Patient With a Complex Abdominal Wound: An Initial Experience

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Case History

- A 60-year-old male was admitted with a prolapsed and ischemic loop colostomy.
- Patient medical history included diverticulitis and previous flexible sigmoidoscopy and laparoscopic bowel colostomy creation.

Clinical Situation

- The patient underwent a stoma revision procedure.
- During hospitalization, necrotizing soft tissue infection over the left abdomen was diagnosed.

Action Taken

- Antibiotic therapy was initiated.
- Wide debridement of the left abdominal wall was performed with washout, followed by laparotomy with omentectomy, total proctocolectomy, and washout for intra-abdominal sepsis.
- An end ileostomy was created, and the abdominal wall was closed.
- The wound was managed with diluted iodine-soaked gauze daily.
- Gauze dressings were discontinued and negative pressure wound therapy (NPWT) with instillation and dwell time (NPWTi-d*) was initiated (**Figure 1**).
- Normal saline was instilled in the wound (over the closed fascia) with a 10-minute dwell time followed by 3.5 hours of negative pressure.
- Dressings were changed every 2-3 days.
- After 3 days, surgical debridement was performed and NPWT† was initiated with dressing changes every 2-3 days.
- However, NPWT use was not sufficient to promote wound healing and NPWTi-d was restarted (**Figure 2**).

Action Taken (Cont'd)

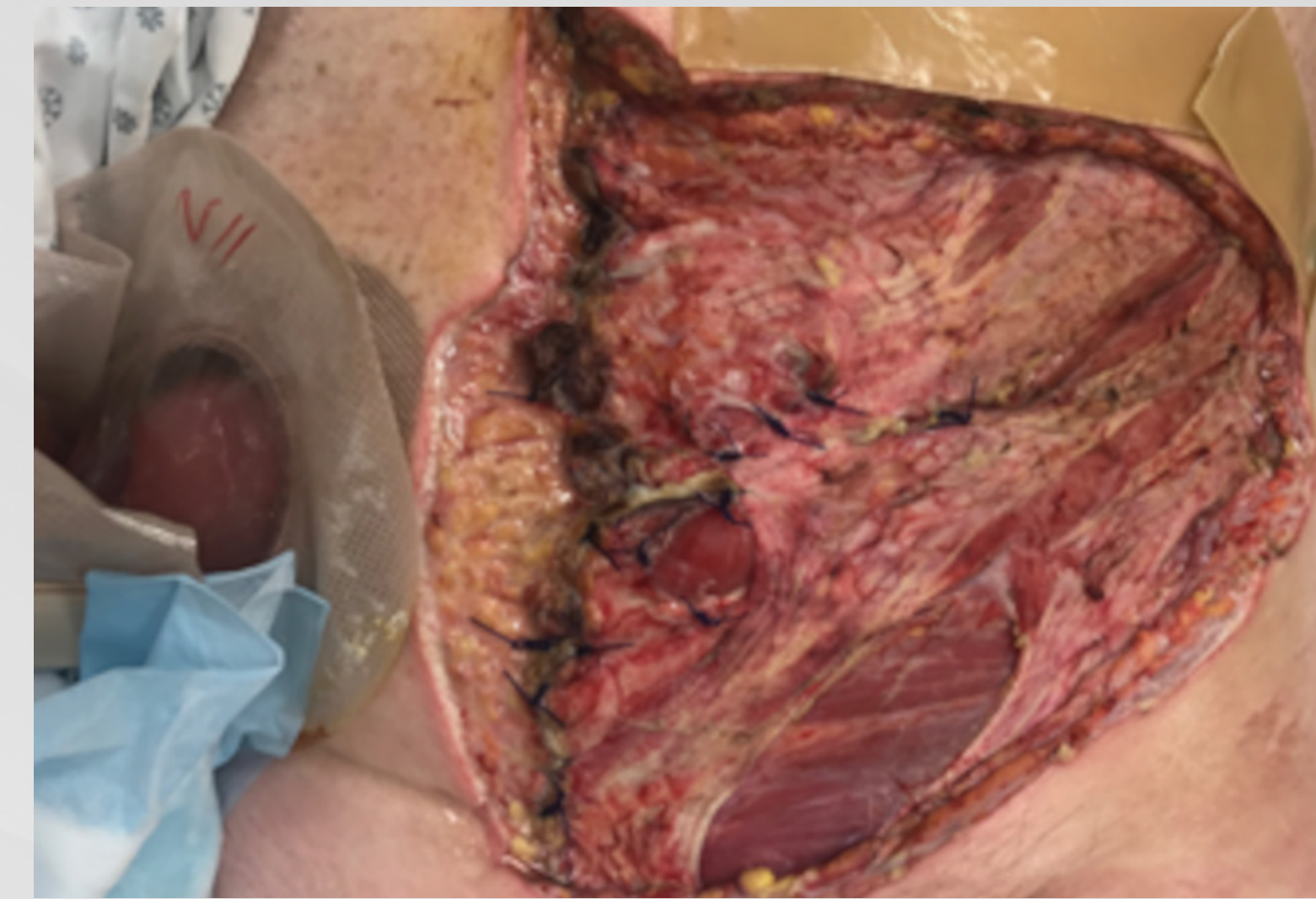


Figure 1. Wound after 5 days of iodine-soaked gauze dressings. NPWTi-d initiated for 3 days. (Treatment Day 5)



Figure 2. Wound after 5 days of NPWT. NPWT was discontinued and NPWTi-d restarted. (Treatment Day 14)



Figure 4. Wound after 8 days of NPWTi-d. (Treatment Day 22)



Figure 5. Wound after 12 days of NPWTi-d. Sensing pad location was changed due to lifting caused by the ostomy belt. (Treatment Day 26)



Figure 7. Wound after 19 days of NPWTi-d. Resolution of the purulent exudate pocket was observed. (Treatment Day 33)



Figure 8. Wound approved for skin grafting after 21 days of NPWTi-d. (Treatment Day 35)



Figure 3. Wound after 2 days of NPWTi-d. (Treatment Day 16)



Figure 6. Wound after 15 days of NPWTi-d. A pocket of purulent exudate was observed at the 10 o'clock position. The sensing pad location was moved to over the exudate pocket. (Treatment Day 29)



Figure 9. Skin graft remains intact without complications 47 days after grafting.

Outcomes

- Initial placement of NPWTi-d involved instillation fluid leaks associated with sensing pad placement.
- These were remedied with ostomy skin barrier ring use and adjusting the placement of the sensing pad.
- The wound was treated for 35 days followed by split-thickness grafting (**Figures 3-8**).
- The patient was discharged 5 days after grafting with 100% graft take and no dehiscence observed.
- The skin graft remained intact without any complications 47 days after grafting (**Figure 9**).

Implications for Practice

- In this patient, use of NPWTi-d allowed for frequent wound cleansing and removal of exudate without daily dressing changes, reducing nursing hours required for patient care.
- Hydrocolloid products, such as ostomy skin barrier rings, were effective at periwound skin protection and negative pressure seal maintenance.
- Strategic placement of the sensing pad should be considered to maximize NPWTi-d efficacy.
 - Wound size, anatomical location, gravity, pocket of exudate collection, and ostomy accessory location may affect the sensing pad's effectiveness.
- Amount of instillation volume may also affect use of NPWTi-d.
 - Do not overfill instillation volume and make sure to decrease instillation volume over time as the wound size decreases.
- NPWTi-d promoted development of healthy granulation tissue.
- Strategic placement of the sensing pad should be considered to maximize NPWTi-d efficacy.
- If use of NPWTi-d is not contraindicated, clinicians should consider adding NPWTi-d to their wound care treatment plan.