

Clinical application of a gauze based Negative Pressure Wound Therapy System* on two chronic abdominal wounds

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Objectives

This poster aims to demonstrate the effectiveness of a gauze based Negative Pressure Wound Therapy (NPWT) system* at a negative pressure of -80mmHg on two patients with chronic surgical dehisced abdominal wounds. Presently, protocols for other NPWT devices recommend higher pressures as recommended by research publications dating to 1997. Review of earlier publications outside the U.S. showed that NPWT at lower pressures were conducive to wound healing. It is evident that further research is needed.

Introduction

Negative Pressure Wound Therapy (NPWT) has been used as an adjunct modality to treat and manage complex acute and chronic wounds¹. Negative pressure is demonstrated to improve wound bed preparation, remove exudate, provide a moist wound environment, potentially decrease bacterial colonization, and increase local vascularity².

The literature demonstrates the benefit of this modality and it's effectiveness. Although optimal parameters vary between devices one can conclude that the same parameters will not suffice for every wound and more research is needed.

One study on porcine models demonstrated peak blood flow to a wound occurred at negative pressure of -125mmHg. While another study on rabbit models identified negative pressure of -75 -- -80mmHG as being beneficial.

This poster aims to demonstrate the effectiveness of a gauzed based NPWT system* at a negative pressure of -80mmHg on two patients with abdominal wounds.

Conclusion

In conclusion, it was evident that the use of a gauze based NPWT at -80 mmHg pressure demonstrated favorable results in these two patients.

References

- Lowery, C, Miller, M. Negative Pressure Wound Therapy: "A Rose by Any Other Name". *Ostomy Wound Management*. 2005;51:44-49.
- Campbell PE. Surgical wound case studies with the versatile-1 wound vacuum system for negative pressure wound therapy. *J Wound Ostomy Continence Nurs*. Int Wound J 2006;33:176-80

*EZCARE - Smith & Nephew Wound Management Inc., St Petersburg, FL.

Case study 1

The patient is a 38-year-old female admitted to the hospital on 2/25/08 secondary to a partially dehisced post-cesarean incision. She presented with increasing drainage, redness, induration and significant pain on the left side of her abdomen along with wound deterioration.

Upon initial presentation, her abdominal wound measured **4 cm²** (1 cm x 4 cm) with extensive tracking.

On 2/25/08, the patient underwent an I & D and her wound now measured **39 cm²** (2 cm x 19.5 cm) with a depth of 6 cm and tracts at 3 o'clock = 7.5 cm and at 9 o'clock = 9.5 cm.

On 2/28/08, gauze based NPWT* with a constant negative pressure of -80 mm Hg was applied to the wound and changed biweekly. During each dressing change, patient's wound was copiously irrigated using a syringe and normal saline.

On 3/27/08 her wound measured **6 cm²** (0.2 cm x 13 cm) with a depth of 0.1 cm and tracts at 3 o'clock = 1.6 cm & at 9 o'clock = 0.3 cm.

NPWT was then discontinued. NPWT was used for 28 days.



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Case study 2

The patient is a 29-year-old female admitted to the hospital on 5/14/08 for surgical debridement secondary to a chronic draining dehisced abdominal wound. Patient had a laparotomy with bilat salpingo-oophorectomy at another facility on 3/2008.

Prior to admit on 5/14/08, patient was experiencing abdominal pain, fever, increasing drainage and odor. Antibiotics were started at this point.

On 5/14/08 her wound measured **93.6 cm²** (18 cm x 5.2 cm) with a depth of 7.2 cm, undermining at 3-4 o'clock = 2.5 cm at 11 o'clock = 5.1 cm and at 9 o'clock = 4.5 cm.

On 5/15/08, gauze based NPWT* started at a constant negative pressure of -80mm Hg was applied and changed biweekly. During each dressing change, patient's wound was copiously irrigated using a syringe and normal saline.

On 5/22/08, patient began outpatient therapy with her abdominal wound measuring **34.32 cm²** (13.2 cm x 2.6 cm) with a depth of 6.3 cm, undermining at 12 o'clock = 1.7 cm & at 10 o'clock = 3.1 cm.

On 6/12/08, her wound measured **2.52 cm²** (8.4 cm x 0.3 cm) with a depth of 1.4 cm and undermining at 12 o'clock = 2.2 cm.

NPWT was discontinued on the following visit - 6/16/08 and patient began self care at home. NPWT was used for 32 days.



5/22/08 skin separated in order to see the wound base

6/18/08