

Versatility of negative pressure wound therapy (NPWT) when utilised in the management of non-healing wounds: a case series

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Significance to Practice

It is estimated that 1–2% of the population in developed countries will experience a chronic or non-healing wound during their lifetime¹.

One suggested strategy to improve outcomes in non-healing wounds is the use of advanced treatment therapies, such as negative pressure wound therapy (NPWT). When used appropriately and integrated into existing care pathways, NPWT may improve healing rates, reduce clinical time, prevent admission/re-admission, and improve the patient experience.

Two common categories of NPWT are Traditional Negative Pressure Wound Therapy (tNPWT) and Single-Use Negative Pressure Wound Therapy (sNPWT). This case series demonstrates the safe and effective use of one tNPWT* and one sNPWT† device in the management of non-healing, open surgical wounds when used as part of a planned treatment pathway alongside standard wound dressings.

Method

Five case studies are presented from hospital and community healthcare settings. All patients had a non-healing surgical wound. All patients received treatment with sNPWT. Length of therapy days varied between 19 to 91 days.

Results

This case series included male and female patients aged 32 to 84 years. Following treatment with NPWT:

- Three wounds achieved full closure:
- One wound reached near closure
- One wound was managed palliatively with marked improvement in quality-of-life outcomes

Case Study Number	Wound Type	Gender	Patient Age	Past Medical History	Type and Length of treatment with NPWT	Full Closure Achieved	Product Related Adverse Events
1	Forefoot Amputation	Female	73 years	Peripheral arterial disease (PAD) Insulin dependent diabetes mellitus Coronary Artery Bypass Surgery	sNPWT 91 days	Yes	No
2	Great Toe amputation	Male	73 years	Peripheral Arterial Disease	sNPWT 63 days	Yes	No
3	Dehiscence of Laparotomy Incision	Female	63 years	Carcinoma (Breast & Peritoneum) Perforated bowel, Septic shock, Ileostomy, Palliative	sNPWT 35 days	Palliative care (closure not expected)	No
4	Dehiscence of Laparotomy Incision	Female	50 years	Gastric Ulcer	tNPWT 5 days sNPWT 14 days	Yes	No
5	Dehiscence of Laparotomy Incision	Male	32 years	Open Ileocecal Resection	tNPWT 27 days sNPWT 21 days	Approaching full approximation of wound edges	No

*RENASYS® Negative Pressure Wound Therapy System
 †PICO® Single Use Negative Pressure Wound Therapy System
 ‡ACTICOAT® FLEX 3 Antimicrobial Barrier Dressing
 §DURAFIBER® Absorbent Gelling Fibrous Dressing
 ¶ALLEVYN® GENTLE BORDER LITE
 ††NO-STING® SKIN-PREP

Case Study 1: Treatment and dressing application of a patient who experienced a forefoot amputation

Day 1: Start of treatment with silver antimicrobial dressing[‡] and sNPWT[†].



Week 11: Significant reduction in wound size, healthy granulation tissue to wound bed.



Week 15: sNPWT treatment discontinued.



Week 20: Results after further treatment with gelling fibre dressing[§] and secondary foam dressing[¶].



Week 25: Complete wound closure achieved and fitting of prosthesis planned.



Case Study 2: Treatment and subsequent closure of an open wound post great toe amputation

Day 1: Start of sNPWT[†] treatment, silver antimicrobial dressing[‡] and non-sting barrier film^{††}.



Week 7: After 43 days of sNPWT, reduction of the wound surface area.



Week 9: sNPWT discontinued after 56 days of treatment. Transitioned to standard dressings to support final closure.



Week 18: Wound closure achieved.



Conclusion

Non-healing surgical wounds either healed or improved substantially when treated with an evidence-based approach using NPWT in conjunction with optimised wound care strategies and interventions. Patient quality of life improvements were achieved as healing the wounds enabled rehabilitation programs to commence.

References:

1. Järbrink K, Ni G, Sönnergren H, et al. Prevalence and incidence of chronic wounds and related complications: a protocol for a systematic review. *Systematic reviews*. 2016;5:1–6.