

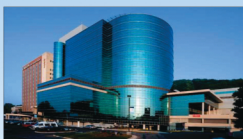
Don't Dwell on the Past, Instillation is the Future of Wound Care! A Case-Study Series Examining the Outcomes of Negative Pressure Wound Therapy with Instillation and Dwell Time (NPWT-id) for Complex Wound Healing

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Carilion Roanoke Memorial Hospital

One of the largest hospitals in the Commonwealth of Virginia, Carilion Clinic Roanoke Memorial Hospital (CRMH) is the region's only Level 1 Trauma Center, serving as a regional resource and providing access to comprehensive trauma services since 1983. CRMH features a 703-bed academic medical center, including Carilion Children's, a full service, 92-bed "hospital within a hospital", that provides specialized intensive care for neonatal, pediatric, and adolescent patients. CRMH is part of Carilion Clinic Roanoke Campus, which has been Magnet designated three times.



Introduction

Healing complex wounds in the hospital environment is a constant challenge for Wound, Ostomy, Continence Nurses (WOCNs). For more than two decades, we have used negative pressure wound therapy (NPWT) to assist with rapid cellular regeneration and wound closure for a variety of wound types. Recently, negative pressure wound therapy with instillation and dwell time (NPWT-id*) was made available as a novel adjunct to traditional NPWT to deliver solutions to the wound bed in a controlled manner.

In limited early studies¹⁻⁴, NPWT-id was shown to increase the number of closed wounds prior to hospital discharge, improve wound cultures, reduce time to final wound surgical procedure, reduce overall hospital length of stay, and reduce the number of operative procedures compared to patients receiving standard NPWT only.

Visible clinical effects from previous case study series^{1,4} describes observed increases in amounts of granulation tissue formation, reduced wound volume, improved appearance of granulation tissue (more red and beefy appearing), and more rapid covering/filling of dead space, undermined cavities, and exposed bone during NPTW-id compared to standard NPWT treatment. Additional anecdotal studies^{3,5} have also shown reduction in tissue bioburden and elimination of infection, though more controlled studies are needed to explore the treatment that NPWT-id can offer.

*V.A.C. VersiFlo Therapy (KCI, An Acely Company, San Antonio, TX).

Purpose & Methods

This case study series will show the use of NPWT with instillation and dwell time for a variety of complex wounds.

Each complex wound was unique in origin. In cases 1 and 2, Normal Saline was instilled with NPWT and in case 3 an antiseptic wound irrigation cleanser and solution with NPWT (variations can be viewed in Table 1). In each of the cases, NPWT dressings were changed 3x/week. The progression of the wounds in each case showed marked improvement over the expected outcomes, which can be observed in the case series photos.

Case 1



Day 1: NPWT-id application

Day 3: Surgical Debridement & re-application of NPWT-id

Day 3: NPWT-id re-application

Case 2

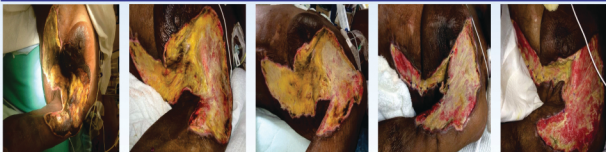


Day 1: NPWT-id Application

NPWT-id Application with isolated fistula

Day 5: NPWT-id Application

Case 3



Day 1: Pre-OR Debridement

Day 3: Bedside Debridement + NPWT-id

Day 7: Bedside Debridement + NPWT-id

Day 14: Bedside Debridement + NPWT-id

Day 29: NPWT-id continued



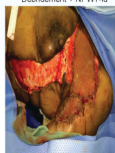
Day 36: NPWT-id continued



Day 41: NPWT-id continued



Day 44: NPWT-id continued



Day 45: Partial STSG in OR + NPWT



Day 49: NPWT removal, 50% STSG

Table 1

Case #	Age	Sex	Wound Etiology	Medical History	NPWT-id Settings
1	4	M	Diabetic Foot Ulcer	Uncontrolled diabetes, acute admission for diabetic foot infection, DFU open >6 months prior to hospitalization	125 mmHg/ Med Intn., Cont. Normal Saline Instill q 3 hrs 10 min dwell time
2	2	M	8 Abdominal Wound with Stomatized Fistula within Wound Bed s/p GSW	GSW to abdomen with small bowel resection with a period of open abdomen/delayed closure, colostomy. Multiple subsequent abdominal surgeries, including colostomy takedown with anastomotic leak resulting in sepsis; permanent stomatized fistula (1 year after initial injury)	125-150 mmHg/ Med Intn., Cont. Antiseptic Wound Irrigation Solution Instill q 2-3 hrs 5-10 min dwell time
3	5	F	3 Soft Tissue Necrotizing Infection s/p central line IV infiltrate	Diabetes, ESRD/CRF, Right & Left Breast CA (multiple lymph node biopsies, partial mastectomy RT Breast, lumpectomy LT Breast), Hypothyroidism, HTN, Sarcoidosis, Anemia	125-150 mmHg/ Med Intn., Cont. Normal Saline Instill q 2-3 hrs 10 min dwell time

Conclusions

Outcomes of the patients presented in this case study series demonstrate positive patient results with NPWT-id. Use of this technology will likely continue to grow as hospital systems seek to improve outcomes that will result in decreased burden of cost and reduce the potential for future complications in complicated, at risk wounds.

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