

Sequential Wound Management in Three Patients with Lower Extremity Wounds

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Background

- Chronic and complex wounds often require a combination of treatment methods tailored to the needs of the wound and the patient.
- Advanced wound therapies and dressings such as standard negative pressure wound therapy (NPWT*), NPWT with instillation and dwell time (NPWTi-d[†]), and oxidized regenerated cellulose (ORC)/collagen (C)/silver-ORC dressing[‡] can be used in sequential order to help manage the wound as it progresses toward healing.

Purpose

- The sequential use of NPWTi-d, NPWT, and ORC/C/silver-ORC dressings in 3 patients is described.

Methods

- When osteomyelitis was diagnosed, patients received antibiotics and underwent amputation or bone resection, as needed.
- Two patients received NPWTi-d.
 - Case 1: Normal saline (7 mL), 2-minute dwell time, and 2.5 hours of continuous negative pressure at -125 mmHg.
 - Case 3: Normal saline (14 mL), 10-minute dwell time, and 3.5 hours of continuous negative pressure at -125 mmHg.
- All patients received NPWT at -125 mmHg.
- Dressing changes for both NPWTi-d and NPWT were performed every 2-3 days.
- After the discontinuation of NPWT, all patients received ORC/C/silver-ORC dressings.
- ORC/C/silver-ORC dressing applications occurred every 2-3 days.

Results

- Three patients with lower extremity wounds underwent care (age range: 53-74 years).
- Patient comorbidities included diabetes, hypertension, critical limb ischemia, and degenerative joint disease (Table 1).
- Wound types included Wagner grade 3 diabetic foot ulcer, surgical dehiscence, and infected diabetic foot.
- Case images are shown in Figures 1-3.

Table 1. Patient demographics and wound types

Case	Age	Gender	Comorbidities	Wound Type
1	64	Male	Diabetes Mellitus; Peripheral Vascular Disease; Obesity; Hypertension; Critical Limb Ischemia; Peripheral Neuropathy	Wagner Grade 3 DFU
2	74	Male	Degenerative Joint Disease; Hallux Rigidus; Peptic Ulcer Disease; Prior Surgeries to the 1st Metatarsophalangeal Joint	Wound Dehiscence
3	53	Female	Diabetes Mellitus; Coronary Artery Disease; Chronic Kidney Disease; Hypertension; Peripheral Neuropathy; Fibromyalgia	Infected Diabetic Foot

Results (Cont'd)

- Case 1.** Wound care included 5th ray amputation, NPWTi-d (6 days), NPWT (30 days), and ORC/C/silver-ORC dressings (22 days). Sharp debridement of hypergranulation tissue occurred on Day 22 followed by use of ORC/collagen/silver-ORC dressings (21 days) The wound was fully healed 79 days after amputation.



Figure 1A. Wound at presentation.



Figure 1B. Wound after 5th ray amputation and 6 days of NPWTi-d.



Figure 1C. Wound after 30 days of NPWT.



Figure 1C. Wound after 22 days of ORC/C/silver-ORC dressings.

- Case 2.** Wound care included percutaneous transluminal angioplasty, removal of surgically instilled hardware, antibiotic therapy, NPWT (21 days), allograft procedure, NPWT as a bolster (14 days), and ORC/C silver-ORC dressings (14 days). The wound was 90% closed 70 days after bone resection.



Figure 2A. Wound at presentation.



Figure 2B. Wound after bone resection.



Figure 2C. Application of allograft.



Figure 2D. Wound after 14 days of ORC/C/silver-ORC dressings.



Figure 2E. Wound 70 days after bone resection.

Results (Cont'd)

- Case 3.** Wound care included incision and drainage, amputation, NPWTi-d (35 days), NPWT (14 days), and ORC/C/silver-ORC dressings (14 days). The wound was fully healed 70 days after amputation.



Figure 3A. Wound after incision and drainage.



Figure 3B. Wound after ray amputation of the hallux.



Figure 3C. Wound after 35 days of NPWTi-d.



Figure 3D. Wound after 14 days of NPWT.



Figure 3E. Wound after 14 days of ORC/C/silver-ORC dressings.



Figure 3F. Wound closed 70 days after amputation.

- NPWT was discontinued after 21-30 days and treatment was switched to ORC/C/silver-ORC dressings.
- All wounds were fully healed 70-79 days after presentation.

Conclusions

- In these three patients, the use of sequential wound management along with good clinical practice including amputation and antibiotics resulted in full healing of all 3 wounds.