Oxidized Regenerated Cellulose (ORC) with Negative Pressure Wound Therapy Use for Wound Bed Progression

Michael N. Desvigne, MD, FACS, CWS, FACCWS; Krista Bauer (Montgomery), RN, WCC, OMS; Kari Day, RN, BSN, WCC; Ashley L. Wardman, LPN

Abrazo Arrowhead Hospital and Wound Clinic, Glendale, AZ

Background

- Oxidized regenerated cellulose (ORC)/Collagen/Silver-ORC dressings (ORC/C/Ag-ORC)* are currently used in the management of chronic wounds.
- These dressings provide a moist wound environment conducive to granulation tissue formation, epithelialization, and wound healing.
- Wound bed preparation, particularly in anticipation for surgical closure, has been managed using negative pressure wound therapy (NPWT†) using reticulated open cell dressings (ROCF‡).
- Recently, the use of NPWT with ROCF dressings in combination with ORC/C/Ag-ORC dressings has become available.
- This therapy combination may allow for wound bed preparation that provides the benefits of both products.

Purpose

- Use of NPWT with ROCF and ORC/C/Ag-ORC dressings in 6 patients is presented.

Methods

- ORC/C/Ag-ORC dressings were cut to fit the wound and fenestrated.
- A non-adherent layer was placed over the ORC/C/Ag-ORC dressings prior to application of NPWT with ROCF dressings.
- Continuous negative pressure at -125 mmHg was utilized.
- ROCF dressing changes occurred every 24-72 hours.
- ORC/C/Ag-ORC dressings were reapplied during ROCF dressing changes.

Representative Cases

Case 1. A 70-year-old male presented with a non-healing sacral pressure injury. Previous medical history included paraplegia, multiple sclerosis, and hypertension. NPWT was initiated. After 3 days, ORC/C/Ag-ORC dressing with NPWT use was started. After 6 days, healthy granulation tissue was observed in the wound bed.

Figure 1A. Wound at presentation (Day 0)

Figure 1B. Wound after 3 days of ORC/C/Ag-ORC dressings and NPWT (Day 6)

Figure 1C. Application of ORC/C/Ag-ORC dressings and NPWT (Day 6)

Figure 1D. Wound after 6 days of ORC/C/Ag-ORC dressings and NPWT (Day 9)

Case 2. A 48-year-old male presented with a diabetic foot ulcer (DFU) of the left foot. Previous medical history included diabetes, neuropathy, and tobacco use. After 14 days of treatment, healthy granulation tissue was observed in the wound bed and a split-thickness skin graft (STSG) was placed.

Figure 2A. Wound at presentation (Day 0)

Figure 2B. Wound after 7 days of ORC/C/Ag-ORC dressings and NPWT (Day 7)

Figure 2C. Wound after 14 days of ORC/C/Ag-ORC dressings and NPWT (Day 14)

Figure 2D. Wound 14 days after STSG placement (Day 28)

Results

- Six patients presented for care.
- Wound types included pressure injury (n=4) , surgical dehiscence (n=1), and diabetic foot ulcer (n=1).
- Previous medical history included paraplegia, poor nutritional status, multiple sclerosis, hypertension, diabetes, neuropathy, and tobacco use.
- No complications resulting from NPWT with ROCF and ORC/C/Ag-ORC dressing use were observed.
- In all patients, wound size reduction and granulation tissue development were noted.
- Wound healing was observed in 2 patients after a secondary surgery.
- One wound healed secondarily without the need for additional surgery.
- One wound was closed with a skin graft.
- The remaining 2 wounds were allowed to heal through secondary intention with use of advanced wound dressings once NPWT with ROCF and ORC/C/Ag-ORC dressings were discontinued.
- Representative cases are shown in **Figures 1-2.**

Conclusions

- In these 6 patients, the combination of NPWT with ROCF and ORC/C/Ag-ORC dressings was safe and effective.
- This wound management combination helped promote wound bed preparation in anticipation of surgical closure or wound healing through secondary intention.
- More research is needed to better understand the potential synergy between NPWT and ORC/C/Ag-ORC dressings.
- This therapy combination should be considered for patients with chronic wounds and wound healing delays.

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*3M™ Promogran Prisma™ Collagen Matrix with ORC and Silver; †3M™ ActiV.A.C.™ Negative Pressure Wound Therapy System; ‡3M™ V.A.C.® Granufoam™ Dressing (3M Health Care, St. Paul, MN)

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