

Oxidized Regenerated Cellulose (ORC)/Collagen/Silver-ORC Dressing Use With Negative Pressure Therapy in Diabetic Foot Wounds

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Background

- Management of chronic wounds often requires the use of wound bed preparation to help remove barriers to healing.
- Two commercially available wound care products (oxidized regenerated cellulose [ORC]/Collagen/Silver-ORC [ORC/C/Ag-ORC] dressings* and negative pressure wound therapy [NPWT][†]) have been previously used separately in diabetic foot ulcers (DFUs) resulting in wound area reduction, increased development of granulation tissue, and wound closure.¹⁻³
- Recently, use of ORC/C/Ag-ORC dressings in conjunction with NPWT has become available.

Purpose

- The use of ORC/C/Ag-ORC dressings in conjunction with NPWT in 3 patients with diabetic foot wounds is presented.

Methods

- Sharp debridement was performed followed by initiation of oral antibiotics for all patients.
- Fenestrated ORC/C/Ag-ORC dressings in conjunction with NPWT were utilized for wound bed preparation and promoting development of granulation tissue.
- ORC/C/Ag-ORC dressings were reapplied at NPWT dressing changes (every 2-3 days).
- ORC/C/Ag-ORC dressing and NPWT was discontinued once the wound bed was completely covered with healthy granulation tissue (approximately 30 days).

Cases

- **Case 1.** Diabetic foot infection of the left foot, present for 18 days. Amputation of the 2nd and 3rd toes was previously performed. ORC/C/Ag-ORC dressings in conjunction with NPWT was initiated after sharp debridement for 25 days. ORC/C/Ag-ORC dressing with a secondary dressing was utilized once NPWT was discontinued.



Figure 1A. At presentation



Figure 1B. Application of ORC/C/Ag-ORC Dressing



Figure 1C. After 25 days



Figure 1D. After 10 days of ORC/C/Ag-ORC dressing

- **Case 2.** Abscess/diabetic foot infection of the left foot, present for 63 days. After sharp debridement, ORC/C/Ag-ORC dressings in conjunction with NPWT were initiated. Human bioactive allografts were placed 28 days after presentation.



Figure 3A. At presentation



Figure 3B. After sharp debridement



Figure 3C. Application of ORC/C/Ag-ORC dressings



Figure 3D. After 28 days

- **Case 3.** Diabetic foot infection of the left foot, present for 20 days. A 1st ray amputation was previously performed. ORC/C/Ag-ORC dressings in conjunction with NPWT was initiated after sharp debridement. An STSG was placed approximately 30 days after presentation. The STSG failed due to patient non-compliance. Wound care resumed using ORC/C/Ag-ORC dressings and a secondary dressing.



Figure 2A. At presentation



Figure 2B. Application of ORC/C/Ag-ORC dressings

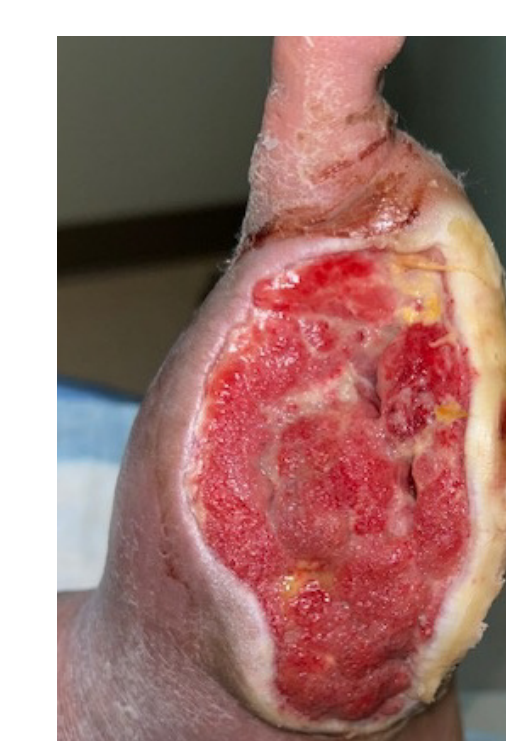


Figure 2C. After 16 days



Figure 2D. After 30 days



Figure 2E. 7 days after STSG procedure

Table 1. Case demographics

Case	Age	Sex	Comorbidities	Wound Type
Case 1	74	Male	Diabetes; Peripheral Vascular Disease; Hypertension	Diabetic Foot Infection
Case 2	77	Male	Tobacco Use; Alcohol Abuse; Diabetes; Poor Nutritional Status; Obesity; Hypertension; COPD; Diabetic Neuropathy; Agent Orange Exposure; Acute Kidney Injury; Bacteremia	Diabetic Foot Infection
Case 3	56	Female	Tobacco Use; Drug Abuse; Diabetes; Peripheral Vascular Disease; Poor Nutrition Status; Rheumatoid Arthritis; Pericardial Effusion; Atrial Fibrillation; CHF; COPD	Abscess/ Diabetic Foot Infection

COPD= Chronic Obstructive Pulmonary Disease; CHF= Congestive Heart Failure

Results

- Three patients presented for care (56-77 years, Table 1).
- Patient comorbidities included tobacco use, diabetes, obesity, hypertension, diabetic neuropathy, and chronic obstructive pulmonary disease.
- All 3 patients had developed a diabetic foot infection that had been previously managed with incision and drainage of the infection, oral antibiotics, and, in 2 patients, amputation.
- Previous wound care included NPWT (n=2), or advanced wound dressings with collagen matrix applications (n=1) between 18 and 63 days before presenting for care.
- Wound area and depth was reduced in all patients with use of ORC/C/Ag-ORC dressings in conjunction with NPWT.
- Healthy granulation tissue development was also observed in all 3 patients.

Conclusions

- In these 3 patients, use of ORC/C/Ag-ORC dressings in conjunction with NPWT resulted in healthy granulation tissue development and reduction of wound area and depth.

References

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2. Chen L, Zhang S, Da J, et al. *Ann Palliat Med*. 2021;10(10):10830-10839.
3. James SM, Sureshkumar S, Elamurugan TP, et al. *Niger J Surg*. 2019;25(1):14-20.