

Evaluation of Negative Pressure Wound Therapy Using an All-in-One, Encapsulated, Reticulated Open-Cell Foam Dressing in Complex Wounds

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Background

- Negative pressure wound therapy (NPWT) using a polyurethane, reticulated open-cell foam (ROCF) dressing has been employed for managing diverse wound types.
- While the therapeutic benefits of NPWT are well established, ROCF dressing application can create obstacles for therapy.
- Additionally, patient discomfort during ROCF dressing removal due to tissue ingrowth may also make effective NPWT prohibitive.¹⁻³
- Dressing change frequency (every 48-72 hours) may require additional assistance by home health care services.
- Here, we report our initial evaluation of an extended wear (up to 7 days), all-in-one, encapsulated ROCF dressing* with an integrated perforated non-adherent contact layer designed to help mitigate tissue ingrowth and a hybrid silicone/acrylic adhesive drape.⁴

Methods

- Antibiotics were initiated, if necessary.
- Each patient was treated previously with NPWT using ROCF dressing.
- An encapsulated ROCF dressing of appropriate size was applied over the defect with the foam and non-adherent layer also extending over the periwound skin.
- NPWT[†] applied continuous subatmospheric pressure (~125 mmHg).
- The encapsulated ROCF dressing was worn for ≥ 72 hours prior to dressing change but can be worn for up to 7 days.
- To help optimize healing a placental particulate was applied prior to surgical closure.
- Surgical closure with excision was performed with or without flap closure, as needed.
- Closed wounds were managed using closed incision negative pressure therapy (ciNPT[‡]).

Results

- Four (n=4) patients with an average age of 50.3 ± 12.5 years (Range: 34-64 years) presented for care.
- Three representative cases are presented (**Figures 1-3**).
- Wound types included pressure ulcers, (n=2), a complex thigh wound (n=1), and a lower back wound resultant of a non-healing surgical site (n=1).
- Reduced placement time (< 5 minutes), relative ease of dressing application and removal, and periwound skin protection were noted by patients and staff.
- Three patients (75%) wore the encapsulated ROCF dressing for 7 days; whereas 1 patient (25%) had the dressing removed at Day 6 due to soilage.
- All patient wounds exhibited improvement evidenced by reduced wound dimensions and re-epithelialization.

Cases

Case 1: A 49-year-old male with paraplegia presented with multiple pressure ulcers status post (s/p) failed flap surgery. Poor nutritional status was also noted in the patient. Patient received NPWT for wound bed preparation. To assist with healing, wound management continued with NPWT using an encapsulated ROCF dressing.

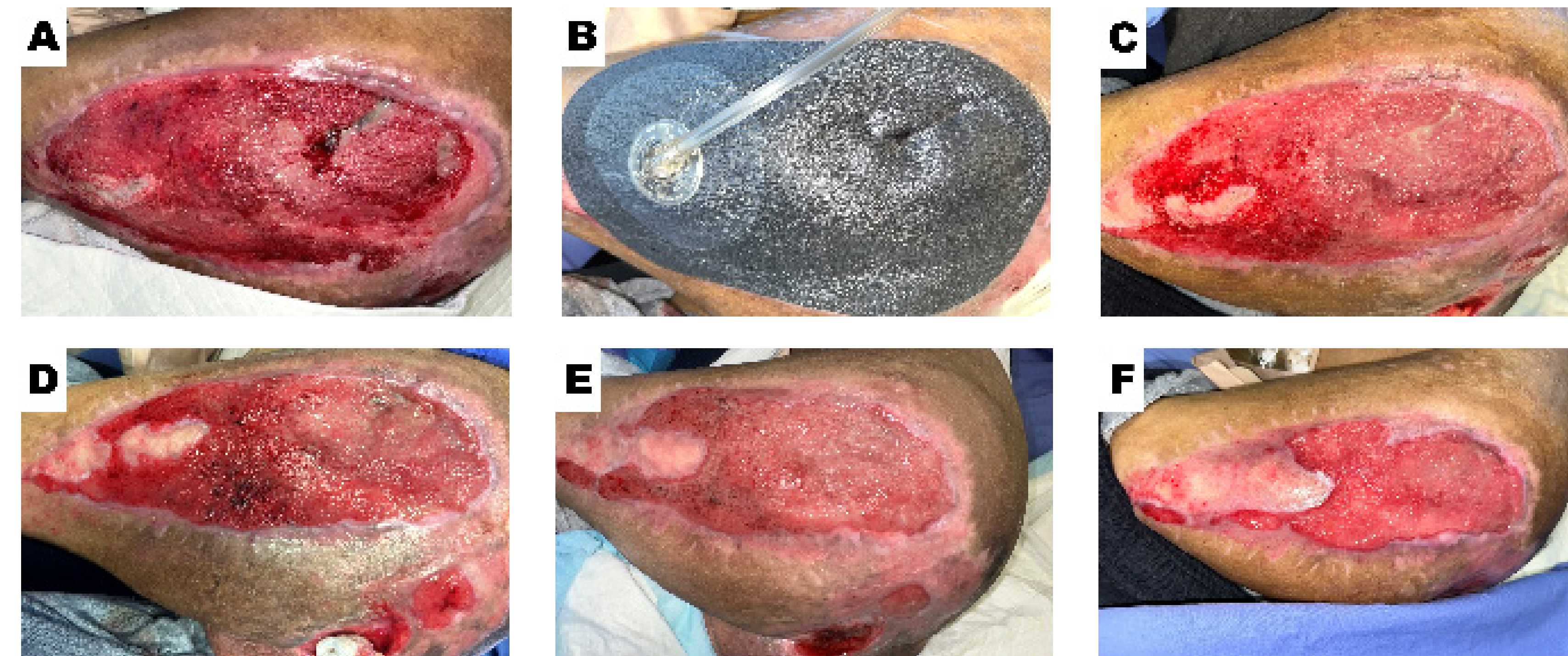


Figure 1. Complex thigh wound in patient with paraplegia. **A.** Wound at presentation (Day 1). **B.** Application of encapsulated ROCF dressing to wound (Day 1). **C.** Wound at Day 14. **D.** Wound at Day 28. **E.** Wound at 10 weeks. **F.** Wound at 16 weeks (treatment ongoing).

Case 2: A 34-year-old female with paraplegia secondary to cerebral palsy presented with a sacral ulcer that had been present for a year. Patient received NPWT for wound bed preparation. To assist with healing, wound management continued with NPWT using an encapsulated ROCF dressing. Surgical closure was performed with excision and primary closure.

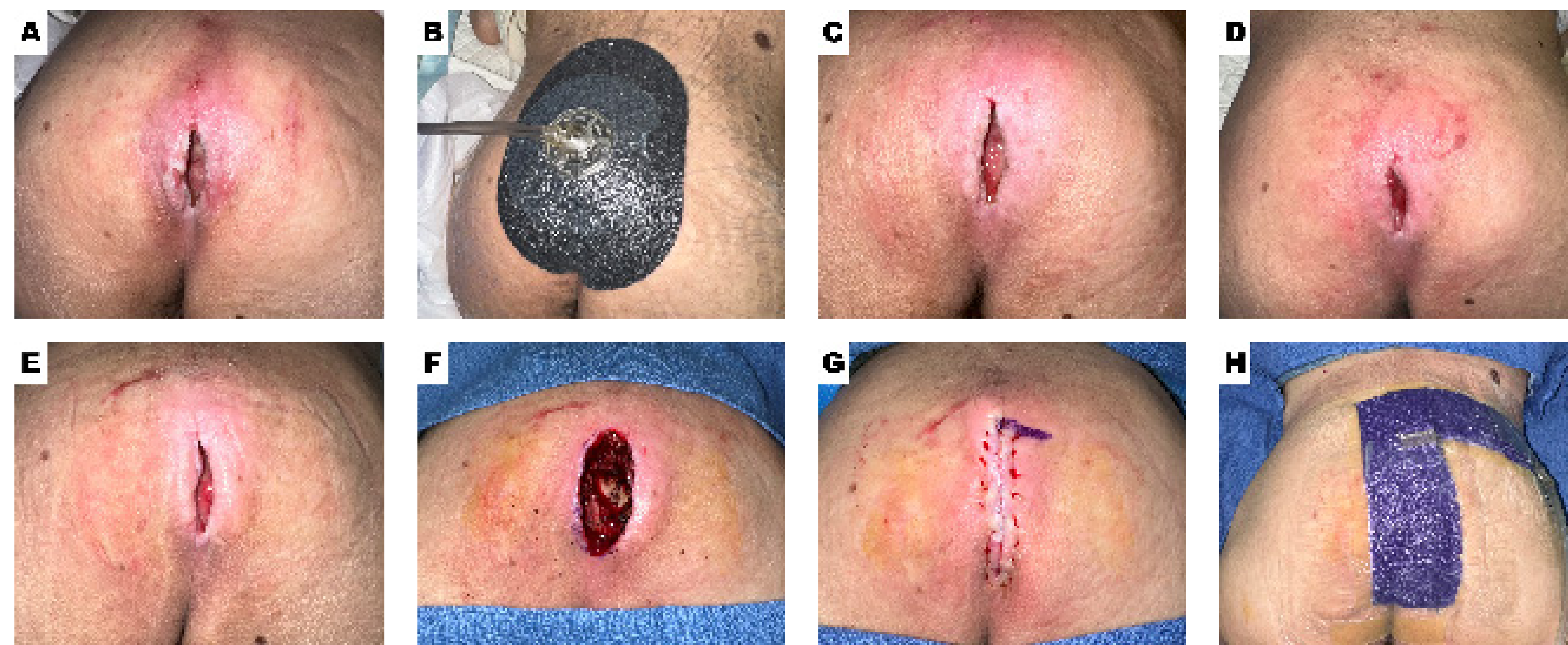


Figure 2. Sacral ulcer in patient with paraplegia. **A.** Wound at presentation (Day 1). Application of encapsulated ROCF dressing to wound (Day 1). **C.** Wound at Day 14. **D.** Wound at 6 weeks. **E.** Wound at 12 Weeks. **F.** Wound at 12 weeks. **G.** Sutured wound post excision (12 weeks) **H.** Sutured wound managed with ciNPT (12 weeks).

Cases (Cont'd)

Case 3: A 54-year-old female developed a postoperative abscess s/p laminectomy that required operative debridement and the placement of hardware. Patient had recurring infection requiring operative drainage with the wound left to heal secondarily. Prior medical history included hypertension and rheumatoid arthritis. The patient received NPWT for wound bed preparation. To assist with healing, wound management continued with NPWT using an encapsulated ROCF dressing. While surgical closure was planned, the wound resolved without surgical intervention.

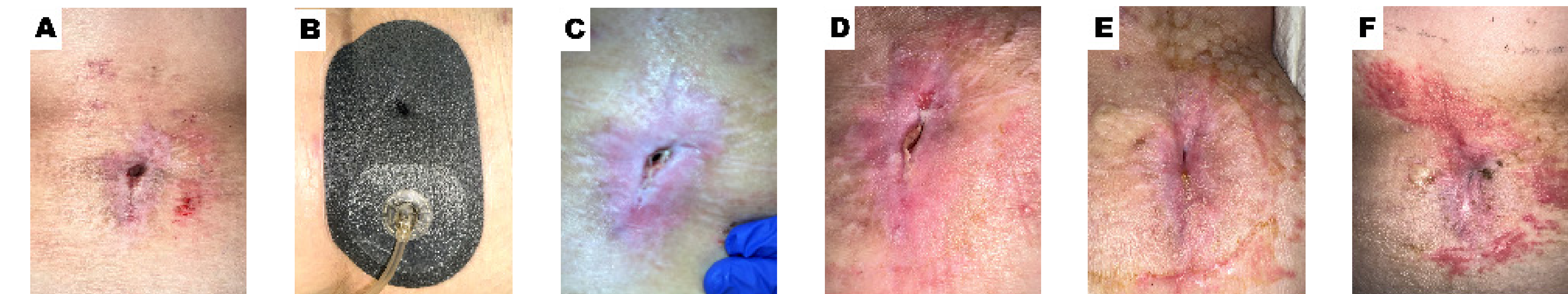


Figure 3. Non-healing surgical wound s/p laminectomy. **A.** Wound at presentation (Day 1). **B.** Application of encapsulated ROCF dressing to wound (Day 1). **C.** Wound at Day 7. **D.** Wound at Day 14. **E.** Wound at 4 weeks. **F.** Wound resolved (5 weeks) without surgical intervention.

Results (Cont'd)

- The second patient with a sacral ulcer (64-year-old male with paraplegia) underwent excision and a modified flap closure with flap edges managed using ciNPT.
- Interestingly, the appearance of wounds managed with NPWT using the encapsulated ROCF dressing were smooth, less granulated, and accompanied by epithelialization relative to the characteristic appearance of ROCF dressing-treated wounds.

Conclusions

- In these 4 patients, the encapsulated ROCF dressing served as an attractive alternative to traditional ROCF dressing.
- In these patients, it appeared effective in helping to support wound area reduction.
- The encapsulated ROCF dressing seemingly helped to reduce home health visits for dressing changes; thereby allowing wound monitoring without dressing placement variability.

References

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