Comparative Evaluation of a Novel Skin-Friendly Double-Sided Super Absorbent Polymer (SAP) Dressing Versus Alginates and Foams in Compression Therapy for Advanced Wound Healing

Alison Garten, DPM, CWSP, CPED[1] and Caitlin Crews-Stowe, PhD, MPH, CPH, CPHQ, CIC, VA-BC[2,3]

1. Charlotte Limb Preservation and Diabetic Foot Center, Charlotte, NC
2. Scenic City Healthcare Consulting, Chattanooga, TN
3. University of Tennessee at Chattanooga, Department of Health and Human Performance, Chattanooga, TN

Introduction

Chronic lower extremity wounds are the most common type of non-healing wound and affect up to 4.5 million people in the United States alone.[1] One of the main challenges for chronic wound healing is effective exudate management.[2] Super absorbent polymer (SAP) dressings are designed to have the capacity to handle copious exudate, prevent leakage, as well as remove harmful exudate components from the wound bed.[2] This case study evaluated a super absorbent polymer dressing in a chronic lower extremity wound after a failed trial of alginate and foam dressing under compression.

Case Description

In October 2024, an 85-year-old male patient with a past medical history of chronic venous insufficiency (CVI), hyperlipidemia, GERD, hypertension, and former tobacco use presented to the wound care center with a non-healing left lower extremity wound for the past 5 months. The patient had been self-treating with Neosporin with a non-sterile dressing when he initially presented for treatment.

Initial treatment consisted of an antimicrobial alginate dressing, bordered foam, and a compression sleeve due to the patient's known foam sensitivity as well as their known CVI. Strict leg elevation was also ordered as well as a referral back to the vein center. The patient followed up 10 days later, where continued peri-wound irritation and skin fragility was observed. The decision was made to discontinue the alginate and foam dressing and trial a double-sided super absorbent polymer (SAP) dressing with continued low compression under a layered wrap.

The patient was seen again 1 week later where the peri-wound maceration and skin fragility had basically resolved. The trial SAP dressing was continued along with the compression wrap. One week later, the patient was seen for a final time, where complete wound resolution was seen. The patient was still awaiting the vein center appointment, for which he was advised to keep the appointment. Long-term compression was discussed with the patient and the patient was discharged from the wound care center.

Discussion

This case highlights the importance of proper dressing selection and compression in managing chronic venous insufficiency (CVI)–related wounds. Initially, healing was hindered by inadequate compression and skin sensitivity to foam dressings. Switching to a double-sided super absorbent polymer (SAP) dressing led to rapid improvement, resolving peri-wound irritation within a week and achieving complete wound healing in 2 weeks. While the patient did not require vein intervention, long-term compression remains crucial to prevent recurrence. The success of the SAP dressing warrants further evaluation in similar cases.

Conclusion

The introduction of the skin-friendly, double-sided super absorbent polymer dressing resulted in complete wound healing within 2 weeks of implementation on the patient's wound. Further evaluation of the product is underway.

Initial Visit
Self-treatment: Neosporin & non-sterile dressing

1st Follow-Up
(7 Days Later)
Antimicrobial alginate, bordered foam, & compression

2nd Follow-Up
(10 Days Later)
Transitioned to a double-sided SAP with low compression

3rd Follow-Up
(7 Days Later)
Continued double-sided SAP and compression

4th & Final Visit
(7 Days Later)
Complete wound resolution; discharged from wound care center

References

1. Brownrigg, J. R., et al. (2013). "Evidence-based management of PAD & the diabetic foot." *Eur J Vasc Endovasc Surg* **45**(6): 673-681.
2. V, M. V., et al. (2024). "Systematic review and quality assessment of clinical and economic evidence for superabsorbent wound dressings in a population with chronic ulcers." *Int Wound J* **21**(3): e14750.