

# Use of Negative Pressure Wound Therapy with an All-in-One Dressing to Manage Split Thickness Skin Grafts in Three Patients with Venous Leg Ulcers

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## Background

- Split-thickness skin grafts (STSGs) are a valuable tool in the management of Venous Leg Ulcers (VLUs).
- An all-in-one dressing has become available for use with negative pressure wound therapy (NPWT). This dressing is designed with an incorporated silicone-acrylic adhesive drape and perforated non-adherent layer to be worn for up to 7 days and facilitates fast and simple dressing application and removal.

## Purpose

- This study evaluated the use of NPWT with the all-in-one dressing to manage STSGs in three patients with VLUs.

## Methods

- Surgical debridement and NPWT with instillation and dwell (NPWTi-d\*) were used to prepare the wound bed for STSG.
- After placement of the STSG, NPWT<sup>†</sup> and all-in-one dressing<sup>°</sup> were applied to bolster the STSG.
- A negative pressure of -125 mmHg was utilized with dressing changes every 7 days.
- A placental allograft was applied over the STSG to optimize healing.
- STSGs and periwound skin were assessed at each dressing change.

## Results

- Three patients, 63-86 years old, presented for care of VLUs (**Table 1**).
- STSGs were managed with NPWT and all-in-one dressing, treatment duration ranged from 1 to 5 weeks. Case studies are shown below (**Cases 1-3**).
- Two patients had 100% graft take and one patient had 75%-80% graft take due to non-compliance.
- Dressing application took less than 2 minutes and dressing removal was pain-free.
- Use of NPWT with the all-in-one dressing resulted in improved graft take and positive VLU healing outcomes.

Table 1. Wound Demographics

Case	Age	Sex	Comorbidities	Wound Type
1	71	female	venous insufficiency, hypertension, lupus	VLU
2	86	female	venous insufficiency, hypertension, lupus, breast cancer	VLU
3	63	female	venous insufficiency, hypertension, diabetes mellitus, cirrhosis	VLU

VLU= venous leg ulcer

## Discussion

- In these patients, wound bed preparation and use off the all-in-one dressing with NPWT over the STSG was well tolerated.
- Application of the all-in-one dressing with NPWT over the STSGs resulted in granulation tissue formation and improved graft take.
- Dressing application took less than 2 minutes, and dressing wear-time resulted in fewer dressing changes.

## Cases

**Case 1.** A 71-year-old female with a medical history of venous insufficiency, hypertension, and lupus presented for care of a venous leg ulcer on the left lower extremity. After surgical treatment including operative debridement, NPWTi-d was initiated to prepare the wound bed for a staged STSG. An all-in-one dressing and NPWT was used as a bolster after STSG.



A. VLU at presentation



B. After surgical debridement and NPWTi-d



C. After surgical debridement



D. Placement of STSG



E. 1 week after STSG



F. 5 weeks after STSG

**Case 2.** An 86-year-old female presented for care of a venous leg ulcer. Surgical debridement and four days of NPWTi-d were used to prepare the wound bed for STSG. After 3 weeks of NPWT with all-in-one dressing, graft take was 100%.



A. VLU at presentation



B. After surgical debridement



C. After NPWTi-d



D. After surgical debridement



E. Placement of STSG



F. 3 weeks after STSG

**Case 3.** A 63-year-old female presented for care of complex wounds of uncertain etiology on bilateral lower extremities. After surgical deridement, the wounds were cleansed by soaking with a hypochlorous acid solution. Placental allograft was placed over the STSG to optimize healing. Graft take was 75-80% due to non-compliance.



A. At presentation for STSG (left lower extremity)



B. Placement of STSG and placental allograft



C. 7 days after STSG



D. At presentation for STSG (right lower extremity)



E. Placement of STSG



F. 7 days after STSG