

# Case: Negative pressure wound therapy with Vivano® supported the operative therapy of a venous leg ulcer

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## Introduction

Therapy-resistant leg ulcers that have evolved as a consequence of vein incompetence or post-thrombosis can be treated successfully by a shave therapy (1) and a subsequent covering with split-skin graft.

In a first step the ulcer as well as the surrounding lipo-dermatosclerosis are removed. Then, the depth of the wound has to be reduced by formation of granulation tissue because a stable granulation tissue is the precondition for the successful uptake of the graft.

Negative pressure wound therapy (NPWT) has been shown to promote the formation of granulation tissue (2). In the case of a patient with chronic venous insufficiency we assessed the integration of NPWT with Vivano® into the treatment algorithm of chronic venous leg ulcers which were going to be treated by shave-therapy followed by split skin graft.

## Case

A 77-year-old female patient with chronic venous insufficiency suffered from progressive venous ulcers at the inner and outer lower right leg for five years. A broad spectrum of prior therapies had generated no success.

### Day 0: Shave-Therapy

The ulcer and the surrounding lipodermatosclerosis were removed by shaving tangentially thin layers until well vascularized tissue was visible in the deep subcutis. The aim was to shift the deficient healing of the dermis and upper subcutis into a successful healing in the deeper subcutis.

### Day 0-7: NPWT-Therapy

After the shave of the ulcer intermittent negative pressure therapy was performed by various suction modes (125 mmHg/5 min and 65 mmHg/2min) for seven days until robust granulation tissue has been induced. A gauze dressing had been used as contact layer between the wound and the polyurethane foam VivanoMed® Foam.

### Day 7- 12: Mesh Graft Application and NPWT-Therapy

The good granulation tissue at Day 7 provided a clean and robust base for the cover by meshed skin graft without the need for local anesthesia. The graft was fixed by a skin adhesive at the wound border (3). Then, graft uptake was supported by negative pressure at 125 mmHg. After fixation of the meshed skin graft for another five days negative pressure therapy was stopped.

### Day 16-28: Wound Closure

The treatment was continued with the application of antibacterial cream and gauze dressings, and accompanied by adequate compression with short stretch bandages. At day 28 the ulcers were completely closed. Thereafter venous insufficiency was treated with lymphdrainage and compression to avoid recurrence.

## Conclusion

Vivano® integrated well into the shave-therapy of venous leg ulcers. NPWT supported the formation of clean granulation tissue and therefore prepared the wound bed for secondary closure by meshed skin graft. In a second step it supported the uptake of the graft by preventing the accumulation of serum beneath the graft thus assuring a tight contact zone.

## References

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- 3) Weyandt G.H. et al. Dtsch Dermatol Ges. 2007 Aug;5(8):714-5.