✚ Case study

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Using PICO◊ 7 Single Use Negative Pressure Wound Therapy System (sNPWT) under compression therapy can help increase healing rate of a venous leg ulcer

✚ Case study plus points

PICO 7 sNPWT facilitated wound healing and complete closure.

The patient described changes in quality of life.

The application of sNPWT and compression helped healthcare clinicians involved in her care heal her wound.

Introduction

Venous leg ulcers (VLU) pose significant challenges to patients and healthcare systems and can persist for months and even years[1]. The annual cost of managing venous leg ulcers in the UK is £941.6 million[2]. It is estimated that 1-2% of the population worldwide suffer from hard-to-heal ulcers affecting patients' quality of life (QOL) and negatively impacting wound healing[3,4].

A pilot study undertaken by Schwartz *et al.*[5], treated nine VLUs with sNPWT for 4 weeks alongside compression bandaging and showed a decrease in the size of VLUs by 32%. Graduated compression therapy is first-line treatment for patients with VLU as it is an effective treatment and results in a low risk of recurrence[3]. Despite this, many VLUs remain hard to heal, however the PICO 7 sNPWT can help facilitate a positive wound healing trajectory for these types of wounds[6].

Case Presentation

The patient is a 63-year-old female who lives with her husband and manages all activities of daily living; she has a medical history of hypertension, hypothyroidism, and previous deep vein thrombosis to the right leg. The patient fell, suffering extensive bruising and the formation of a hematoma and as a result was admitted to the hospital and later discharged into the community under the care of the district nurses, who were applying conservative wound dressings.

The patient was referred to the tissue viability nurse (TVN) team, who advised debridement of the wound and a referral to the complex leg wound service for ongoing treatment of a complex ulcer. The patient was assessed by the specialist leg wound service team and diagnosed with a venous leg ulcer following traumatic injury to the right lateral gaiter area of the leg.

The patient could not perform some daily living activities and relied on her husband to help around the home. Moreover, from a psychosocial perspective, the patient thought the wound would never heal and was quite concerned prior to the referral to the complex leg wound service, fearing that the injury may result in amputation of her lower leg.

On initial assessment the wound measured 16cm x 10cm x 1cm (160cm^3). Exudate levels were high, and the wound bed presented with 95% slough and only 5% granulation tissue (Image 1). The wound was initially managed with a wound contact layer, including secondary dressing and full compression therapy.

Day 17, a clinical decision was made to commence PICO 7 sNPWT as the slough to the wound bed had reduced to 10%, exudate had decreased to moderate levels, and the wound bed was granulating. PICO 7 sNPWT (15cm x 30cm) was applied directly to the leg ulcer without using a filler, as the depth of the wound was 0.2cm. First-line graduated compression therapy continued alongside PICO 7 sNPWT, which aided venous return.

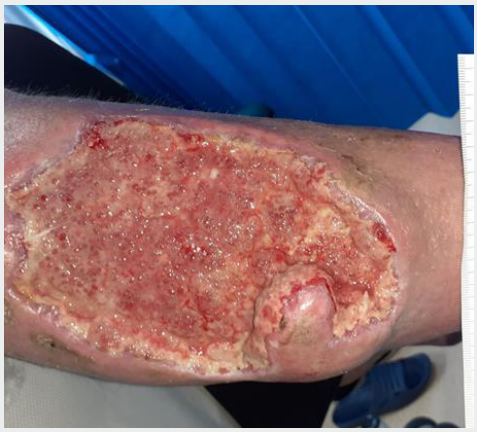

Image 1 Initial assessment
Wound measured 16cm x 10cm x 1cm (160cm^3).

Treatment continued

Assessment on day 27 (10 days after sNPWT was initiated) confirmed the ulcer to the lower leg had progressed well (Image 2). The wound size had reduced to 13.5cm x 7.1cm x 0.1cm (96cm^3) – slough was minimal, and exudate remained at moderate levels. The decision was made to continue sNPWT and full compression. At this point in the treatment plan, the patient highlighted that she was happy with the wound's progression.

On day 51, the wound continued to show improvement and had reduced in size to 11cm x 5.8cm x 0.1cm (6.4cm^3). The ulcer was documented as being 100% granulating and starting to epithelialise at wound edges (Image 3). At this point, the patient was very anxious about having compression applied in the clinic as it made her feel claustrophobic, so treatment was changed to hosiery. This did not prevent sNPWT from being used, as the patient was able to apply the hosiery over the PICO◊ 7 sNPWT device.

Treatment outcomes

On day 111, following further improvements in wound status, the clinical decision was made to step down from sNPWT to conventional dressings as the exudate levels were low and the wound had reduced in size to 5.3cm x 2.5cm x 0.1cm (1.3cm^3) (Image 4). On day 251 the ulcer was assessed as completely healed.

Before the patient had the wound, their overall health was good, and the clinician reported that the patient's psychological health was very good. However, the wound impacted the patient's mental wellbeing because the patient thought the wound would never heal and feared her injury would result in amputation of her lower leg.

The patient reported she was pleased once sNPWT and compression were applied as the healthcare clinicians involved in her care were able to heal her wound.

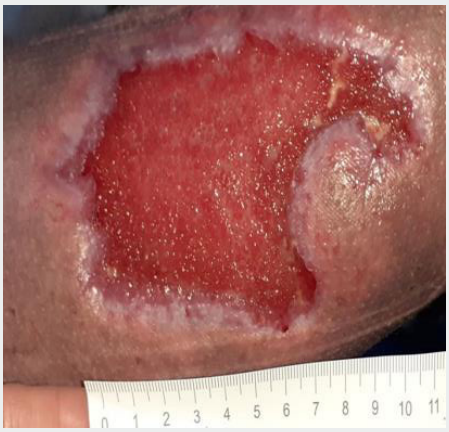

Image 2 Day 27
Wound measurement 13.5cm x 7.1cm x 0.1cm (96cm^3)

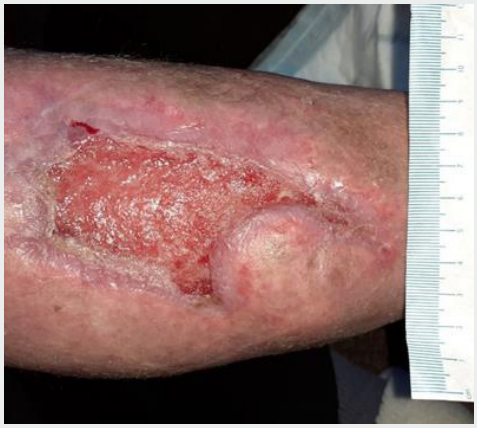

Image 3 Day 51
Wound measurement 11cm x 5.8cmx0.1cm (6.4cm^3)

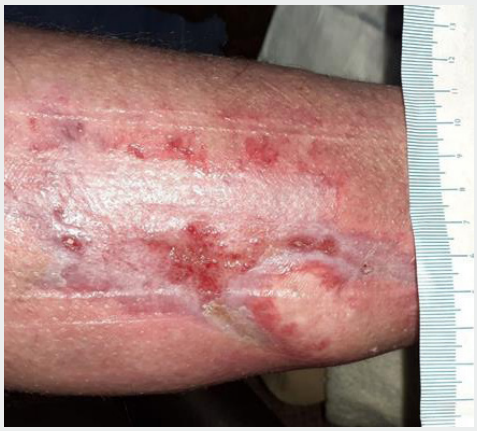

Image 4 Day 111
Wound measurement 5.3cm x 2.5cm x 0.1cm (1.3cm^3)

Results may vary

Conclusion

Venous leg ulcers, if not managed appropriately, can impact healing rates and negatively influence the QOL of patients. This patient could not perform some daily living activities and emotionally struggled with the wound.

The PICO 7 sNPWT device and the graduated compression therapy helped to reduce the wound size, which was very important for the patient as it aided compliance with treatment and facilitated wound healing and complete closure.

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