

# AN ENZYME ALGINOGEL\* IN THE MANAGEMENT OF A VENOUS LEG ULCER

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## Introduction

Venous Leg Ulcers (VLU), (accounting for 60-85% of all leg ulcers) are the most common type of leg ulcer<sup>1,2</sup>, caused in the main by venous insufficiency and its sequelae, and/or impaired calf muscle pump. Guest et al (2016)<sup>3</sup> suggested that 1.5% of the adult population have a leg ulcer which equates to 1 in 170 adults living with a VLU. Ashby et al (2014)<sup>4</sup> emphasise the need for on-going management and prevention of recurrence since patients with a VLU often present with repeated cycles of ulceration. The recurring risk is estimated to be between 26-69% in 12 months.<sup>5</sup>

Whilst compression therapy remains the gold standard treatment for VLUs, the primary wound dressing in complex ulceration also needs to be carefully considered and managed using a structured assessment method such as the TIMES framework.<sup>6</sup> This case study describes the management of 71 year old John's chronic wound ulceration. John is a moderately active man with a long history of ulceration; the current episode of ulceration has been present for four and a half years; John also had prostate cancer with bone involvement.

## Method

On his initial assessment by Tissue Viability, John presented with painful heavily exuding and malodorous ulceration to his right medial and lateral malleoli, both measuring approximately 9cms x 7.7cms; meaning that the area of ulceration was almost circumferential. The ulcers contained 70% slough and 30% dusky, fragile and unhealthy looking granulation tissue. There were no signs of healing from the wound margins. The aims of treatment were to reduce the wound bioburden, autolytically debride the sloughy tissue (thus reducing odour), control the exudate and reduce John's pain.

Treatment with an enzyme alginogel containing two antimicrobial enzymes (glucose oxidase and lactoperoxidase) was commenced. The enzyme alginogel comes in two preparations, one with a higher proportion of alginate and therefore more absorbent. This was selected due to the high exudate levels from John's wound. A silicone foam dressing was then applied underneath compression therapy, with John's dressings being changed twice weekly.

Wound 1 - Day1



Wound 1 - 1 year



Wound 2 - Day1



Wound 2 - 1 year



## Results

John tolerated the dressing regimen well and after a week the presence of healthy granulating tissue in the wound bed was noted. Over the next few weeks, there was marked progress with slough and odour reducing as well as an improvement in John's surrounding skin, as the exudate levels were controlled. John commented on the improvement in his quality of life as he was able to go out without fear of strike through and an associated malodour and his pain was under control.

Treatment continued with an enzyme alginogel to minimise the risk of further infection and to ensure the continuous debridement of John's chronic wound to prevent the development of biofilms. After 6 months John's ulcers were clean and granulating with evidence of epithelialisation and reduction in the size of the ulcers.

## Discussion

The most common reported symptoms of leg ulcers are pain, immobility, insomnia, exudate and odour.<sup>7</sup> Devitalised tissue is a barrier to healing with slough acting as a reservoir for microorganisms and biofilm formation<sup>8</sup> which impedes healing.<sup>9</sup> Devitalised tissue also increases odour and exudate and can mask the true extent of a wound.<sup>10</sup> The enzyme alginogel with its alginate polymers and enzymes has a proven broad-spectrum antibacterial activity<sup>11</sup> with the ability to inhibit biofilm formation<sup>12</sup>, thereby helping to control bioburden whilst absorbing exudate.

Whilst compression therapy remains the mainstay of treatment for venous ulceration, dressing selection in complex and chronic ulceration is an important element for the clinician to consider. With such extensive ulceration dressing change had been a painful and stressful experience for John, but he reported no discomfort during dressing change, which is recognised to be one of the most traumatic and painful times for a patient.<sup>13</sup>

## Conclusion

The team were able to utilise the enzyme alginogel throughout the healing trajectory of this extensive ulceration, thus minimising potential waste of products, as it can be utilised for up to 2 years from opening. As the bioburden, pain, malodour and exudate decreased his quality of life increased improved; a great outcome for the patient even though his ulcers are not quite healed but have considerably reduced in size with minimal exudate levels

\*Enzyme alginogel - Flaminol®

## References

- 1.Scottish Intercollegiate Guidelines Network (2010) SIGN Guideline 120: Management of Chronic Venous Leg Ulcers
- 2.National Institute for Health and Care Excellence (2016) Leg Ulcer Venous. Available at: <http://cks.nice.org.uk/leg-ulcer-venous#!scenario>
- 3.Guest Je, Ayoub N, McIlwraith T et al (2016) Health economic burden that wounds impose on the UK's National Health Service. *Int Wound J May*: 1260
- 4.Ashby RL, Gabe R, Ali S, Adderley U (2014) Clinical and cost effectiveness of compression hosiery versus compression bandages in treatment of venous leg ulcers (Venous leg ulcer Study IV, VenUSIV): A randomised controlled trial. *Lancet* 383 (9920): 871-9
- 5.Nelson EA, Bell-Seyfer SE (2014) Compression for preventing recurrence of venous ulcers *Cochrane Database Syst Rev* 9: CD002303
- 6.Wounds UK (2016) Best Practice Statement: Holistic management of venous leg ulceration. London: Wounds UK

7. Green J, Jester R, McKinley R, Pooler A (2016) The impact of chronic venous leg ulcers: a systematic review [online] <http://eprints.keele.ac.uk/693/3/Julie2%20Green.pdf>
- 8.Percival SL, Suleman I (2015) Slough and biofilm: removal of barriers to healing by desloughing. *J Wound Care* 24 (11):498-510
- 9.Metcalf DG, Bowler PG, Hurlow J (2014) A clinical algorithm for wound biofilm identification. *J Wound Care* 23 (3): 137-42
- 10.Ousey K, Roberts D (2016) Exploring nurses' and patients' feelings of disgust associated with malodorous wounds: a rapid review *J Wound Care* 25(8):438-42
11. De Smet K, Van den Plas D, Lens D, Sollie P (2009) Pre-clinical evaluation of a new antimicrobial enzyme for the control of wound bioburden. *Wounds* 21 (3): 65-73
- 12.Cooper RA (2013) Inhibition of biofilms by glucose oxidase, lactoperoxidase and guaicol: the active antimicrobial component in an enzyme alginogel. *Int Wound J* 10 (6):630-7
- 13.Woo K (2010) Wound-related pain: anxiety, stress and wound healing *Wounds UK* 6 (4):92-8