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Low level laser to reduce pain, pain medication and increase patient compliance in the treatment of lower limb ulceration

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Venous ulceration and varicose eczema, are mainly a result of venous hypertension¹⁻³. Compression therapy is an essential part of the treatment of venous diseases that affect the lower limbs. Several studies have shown that proper compression levels and gradients can provide support to the superficial venous system and improve lower limb blood circulation⁴⁻⁶. However, compression therapy has not always been as successful in the clinical setting as it has been in research studies⁷⁻⁹.

In the management of lower extremity ulceration caused by venous insufficiency, pain is often a common complaint¹⁰. In the writer's experience, the patient may become non compliant, when in their belief, the treatment regime such as compression dressings might be a contributor to the pain.

The following case study describes the application of low-level laser to reduce pain level in the presence of lower limb ulceration and increase patient compliance to allow for an elimination of pain medication and the reintroduction of compression dressings.

A 46 year old patient was referred to podiatry out patients ulcer management clinic with a venous ulcer of the lower leg.

History revealed a morbidly obese female with type II diabetes, with familial history of paternal obesity, diabetes, venous ulceration, and maternal history of diabetes.

The ulcer had been present for 9.5 years and the patient reported taking daily pain relief medication for the past 9 years.

Several treatment regimes were reported including the use of compression dressings, which were discontinued with the patient complaining of increase in the level of pain during compression dressing use.

Examination revealed an ulcer of 10.8 cm² with a length of 3.7cm and width of 3.6cm with a small amount of slough at a reasonable uniform base.

Treatment was commenced with the application of low level laser using a Maestro 830nm 40mw probe delivering 4J/cm² @ 5.7Hz which was applied to three points at the edge of the ulcer. Dressings included an Acticoat Active to the wound bed and Viscopaste Zinc paste bandage for protection of surrounding tissue.

Laser application and dressing changes were undertaken twice weekly.

One the second attendance the patient advised that pain reduction was such that she no longer required pain relief medication. At this time the patient agreed to the application of a low level graduated compression (<20mmHg) to reduce venous hypertension using a compression dressing of Soffban and Coplus.

The site healed after three months of treatment with no pain medication required during this period.

The American FDA has approved only the use of low level laser for the treatment of pain.

The writer's experience has realised that low level laser not only plays a role in wound healing but also in the reduction of pain associated with ulceration. Practitioners without authority to use low level laser for wound healing, may instead like to consider the role of low-level laser in the management of the pain associated with ulceration.



Bibliography

1. London NJM, Nash R. ABC of arterial and venous disease. *BMJ*. 2000;320(7246):1391–1394.
2. Marston WA, Farber MA, Bryant J, Burns J, Keagy BA. Management of lower extremity venous stasis ulcers in a comprehensive wound care clinic. *NC Med J*. 1998;59(2):128–131.
3. Cornwall JV, Dore CJ, Lewis JD. Leg ulcers: epidemiology and aetiology. *Br J Surg*. 1986;73(9):693–696.
4. Kerstein MD. The non-healing leg ulcer: peripheral vascular disease, chronic venous insufficiency, and ischemic vasculitis. *Ostomy Wound Manage*. 1996;42(10A Suppl):19S–35S
6. Kraemer WJ, Volek JS, Bush JA, et al. Influence of compression hosiery on physiological responses to standing fatigue in women. *Med Sci Sports Exerc*. 2000;32(11):1849–1858.
7. van Geest AJ, van Dooren-Greebe RJ, Go IH, Neumann HA. An impressive therapeutic result of class III compression stockings in a patient with longstanding, extensive, combined leg ulcers. *Eur Acad Dermatol Venereol*. 2000;14(1):15–17.
8. Hirai M, Iwata H, Hayakawa N. Effect of elastic compression stockings in patients with varicose veins and healthy controls measured by strain gauge plethysmography. *Skin Res Technol*. 2002;8(4):236–239.
9. Hayes JM, Lenman CA, Castonguay P. Graduated compression stockings: updating practice, improving compliance. *Medsurg Nurs*. 2002;11(4):163–167.
10. Wertheim D, Melhuish J, Williams R, Lane I, Harding K. Movement-related variation in forces under compression stockings. *Eur J Vasc Endovasc Surg*. 1999;17(4):334–337.
11. Sadvovsky R. Managing Lower Extremity Venous Ulcers *American Family Physician* August 15, 2003



Before treatment



After 3 months and 24 treatments