The treatment of venous ulceration in a young & fit man

Venous ulceration is neither discriminatory nor a respecter of age and can occur in young and fit people as well as in the elderly. In this case study, a young and fit man became a victim of poor venous return.

The Patient

Mr X is a thirty-eight-year-old bricklayer with bilateral leg ulcers sustained as a result of trauma when some scaffolding poles fell on him while at work. During the eight weeks following the initial injury, the ulcers had shown no evidence of improvement and consequently he was referred to the district nurse led leg ulcer clinic for specialist advice. Prior to his referral to the clinic the ulcers required a change of dressing three times a week and, as Mr X was a very fit and active man, he expressed a desire to limit the time spent away from work for change of dressings.

Ten years previously the patient required a skin graft to the left ischial region following an injury again in the workplace, when a pile of bricks fell on his leg. More recently he had an episode of phlebitis in the right leg, which was treated four months prior to the onset of these leg ulcers. Compression therapy had not been used in the eight weeks preceding the referral to the community leg ulcer clinic.

Background Information

Chronic wounds can be socially very isolating. They are often painful and may require frequent dressing changes. Leg ulcers are the most frequently occurring of these chronic wounds and leg ulceration is surprisingly common, occurring in approximately 1% of the United Kingdom adult population. Over the age of 65 it is known to increase to 3.6% (Dale and Gibson 1986). The cost, both financially and in terms of nursing time are high, with leg ulcer management accounting for 25 to 50% of district nursing time (Moffat 1992). With statistics such as these it is unsurprising that a large amount of wound care research has focussed upon this worrying and distressing problem. One aspect of this research has been studies into the use of compression therapy in the management of venous ulceration. Centred around the need to reverse venous hypertension in the superficial veins, graduated compression forces fluid in the interstitial spaces back into the vascular and lymphatic systems (Finnis 2001), thereby reducing associated oedema and allowing healing to progress.

A number of systems for compression are now in common usage. Multi or four-layer bandaging was developed in the venous ulcer research clinic at the Charing Cross Hospital (Moffat and Dickson 1993). The four-layer system is made up of orthopaedic wool, crepe bandage, a highly elastic compression bandage which is applied at half stretch with a 50% overlap and finally a lightweight elastic cohesive bandage also applied at half stretch with the same degree of overlap.

The short-stretch system comprises a single layer of orthopaedic wool padding and a single layer of inelastic cohesive bandaging above. This is applied at full stretch with the usual 50% overlap. The wool layer provides protection for the bony prominences and also, if required as a means of reshaping the leg to ensure that gradual compression can be achieved.

A study by Duby et al (1993) found little or no difference in the efficacy of the multi-layer or short-stretch systems that were tested and Nelson (1996 & 1996) confirmed this finding.

Guidelines for the management of leg ulcers have been in place since 1998. These guidelines confirm that compression bandaging should be the first line of treatment for the uncomplicated venous leg ulcer (RCN 1998). Once the ulcer has healed compression therapy is no longer necessary than a bandaging system (i.e. Actico compression hose) should be continued, because as Finnis (2001) points out the underlying aetiology does not usually significantly improve and the problem that created the ulcer will remain, creating a potential for future ulceration.

From the initial presentation, it appeared that Mr X would benefit from compression therapy. The long duration of poorly healing wounds may indicate circulatory insufficiency of some kind. Also the history of an episode of phlebitis, the inflammation of a vein that commonly leads to thrombus formation (Porch 1995), is a condition that is at risk of occurring in patients with venous insufficiency. This inflammation can lead to impairment of venous flow, resulting in a delay in the healing of any subsequent wound, which may occur in the surrounding area.

Before compression can be considered it is vital that any recipient of this form of treatment is fully assessed to ensure that compression is appropriate. Although it is believed that some 70% of leg ulcers occur as a result of venous insufficiency (Moffat 1994), many may be due to diabetes, arterial disease or have a mixed aetiology. To protect the patient against inappropriate treatment, the National Guidelines for leg ulcer management (RCN 1998) suggested an assessment framework, which includes patient history...
physical examination, and ankle brachial pressure index (ABPI) measurements. The correct method of Doppler assessment has been published by Vowden et al (1996). The recommended index pressure (obtained by Doppler assessment) should be used for compression therapy to be safely commenced (RCN 1998). If circulation is poor (due to arterial disease) as indicated by pressures of below this figure, compression could lead to pressure necrosis and possibly result in amputation (Callam et al 1987).

- The Case Study

Mr X has no history of Diabetes Mellitus or Rheumatoid Arthritis. There have been no incidences of phlebitis other than the episode four months ago. Previous trauma, the subsequent trauma to the right leg and the most recent trauma had all resulted in the present unhealing ulcers, which further suggested venous insufficiency (Cameron 1997). Severe circumferential oedema or hyperpigmentation was also present in both ankles. This pigmentation known as haemosiderin is caused by the leakage of red blood cells and fibrinogen into the tissues due to venous hypertension (Cherry et al 1993). Mr X also had bilateral ankle oedema, the right ankle measuring 29cm and the left 31cm. The ulcers were both present in the lower tibial region with the ulcer on the right leg measuring 4cm by 1cm and the left measuring 3cm by 3cm in size. Both ulcers contained slough and were producing a moderate amount of exudate. Mr X did not report that the ulcers were painful.

Assessment of the arterial flow by Doppler ultrasound transmitted a clearly evident triphasic sound, characteristic of normal arterial flow. Ankle brachial pressure indexes were 1.21 for the right leg and 1.07 for the left. The assessing nurse concluded that there was no evidence of arterial disease and along with the presence of ankle oedema and the brown staining of the lower legs, it was clear that the ulceration was purely venous in origin.

Compression therapy was therefore discussed with the patient. However, Mr X expressed concerns about the bulk of the bandages as he needed to wear safety boots on the building site and was worried that these would not fit over the bulky bandaging, thereby affecting his normal working patterns. A multi-layer system was not considered for this reason.

Increasing venous efficiency and thereby promoting healing in the ulcers as quickly as possible was a major consideration. However, the degree of oedema, if left untreated was also likely to eventually make wearing boots difficult and uncomfortable.

A decision was made (in discussion with the patient) that Actico short-stretch cohesive bandages (Actico Healthcare) would be an ideal system for this gentleman as it would support his requirements. In view of the degree of ankle oedema present, two layers of Actico bandaging were applied to each leg with a Flexplan padding layer beneath. The double layer of bandaging would increase the degree of compression and thereby reduce the oedema.

Blair et al (1988) argued that the type of wound dressing used is unlikely to influence the rate of healing of the ulcer when used in conjunction with compression. Therefore Finnie (2001) suggests that a simple dressing be used in conjunction with compression. However, Mr X expressed a wish to reduce the number of visits for dressing changes because of the amount of time required away from work. If the dressing changes were to be extended, the wound exudate would need to be more effectively managed. The wounds were also slightly and in order for them to be properly treated for the rate of healing, the slough needed to be debrided. Risk of wound contamination from substances such as cream, if the bandages were to become wet from the exudate, was also a consideration. Iodexflex (Smith and Nephew) and Tielle (Johnson and Johnson) were the dressings of choice to manage these wounds under Actico bandages. Iodexflex is a conformable sterile cadexomer iodine paste that is effective in absorbing slough and fluid and Iodine has been shown to not only be an effective antimicrobial, but also a useful debriding agent (Thomas 1994). It has also been recognised to be able to stimulate wound granulation (Fatanga 1997). The secondary dressing was Tielle (recommended for the management of moderately exuding wounds) which has an absorbent hydrogel polymer central island (Johnson and Johnson Medical 1996).

It is recommended that Iodexflex be changed 2 to 3 times weekly, but this did not suit the needs of the patient and it was hoped that the secondary dressing would manage any additional exudate. The application of compression therapy would also reverse the venous hypertension and therefore, would further reduce oedema, reducing dressing change requirements.

- The Outcome

Mr X tolerated the compression therapy well, finding it comfortable with no evidence of slippage. He was able to wear his boots without any difficulty. The dressings were changed weekly and at the first dressing change, the ulcers showed evidence of granulation and this boosted Mr X's morale. With continued use of the Astro bandaging, the ulcers were fully healed in eight weeks. The aim of treatment then became prevention of ulcer recurrence.

When fitted for compression hosery, the patient's ankle measurements had reduced to 27.5cm and 27cm respectively.

- Conclusion

Maintenance of a normal active lifestyle and work patterns that were disrupted as little as possible, were of great importance in this instance. To achieve this aim, creative use of available, more sophisticated dressings was appropriate, demonstrating the need for stabiility in wound care.

As this case study clearly demonstrates, compression therapy continues to the treatment of choice for the management of leg ulcers. The Actico cohesive short stretch bandaging system provided sustained compression with a high level of comfort, reduced oedema and promoted healing in these non-healing venous ulcers. Further demonstrating that the short-stretch system is an effective way of managing leg ulcers as the multi-layer alternatives.

- References


