

USE OF TWO-LAYER COMPRESSION BANDAGING IN A CARE HOME

Venous leg ulcers are often described as hard to heal wounds that can affect a person's quality of life and are prevalent among older people. This article looks at the use of two-layer compression bandaging on a resident with an ulcer of 20 months' duration and the importance of addressing holistic factors to deal with the condition.

VENOUS LEG ULCERS

Venous leg ulcers fall into the category of hard to heal wounds. These are defined as wounds that do not follow the normal process of repair and consequently are slow to heal (Harding et al, 2006). Studies have reported varying statistics on the healing rates of venous leg ulcers — healing rates for uncomplicated venous ulcers at 12 weeks vary between 30% to over 75% (Moffatt et al, 1992; Harper et al, 1995). Some have reported that more than 20% of venous leg ulcers have failed to heal, despite the use of compression therapy (Rippon et al, 2007).

Venous ulceration occurs due to the changes within the venous system. In many cases, this may be due to a combination of factors, including deep vein thrombosis and varicose veins. In elderly patients, this is often exacerbated by immobility that reduces the effects of the calf muscle pump. When valves within the veins are damaged, the blood flow is affected with venous reflux occurring, leading to venous hypertension within the micro circulation. This causes the following skin changes — staining, varicose eczema and lipodermatosclerosis.

Compression is designed to reverse the changes occurring in the venous circulation. A number of mechanisms have been described including reduction in venous reflux, reduction in venous hypertension, increased venous flow velocity, reduction in oedema and prevention of white cell adhesion in the micro-circulation.

The prevalence of such ulcers increases with age. At 80 years of age, 20 per 1,000 of the population will have experienced living with a venous ulcer (Nelson et al, 2006). With the population living to a greater age, more elderly people are moving into a care home setting with an established ulcer. It is, therefore, important that nursing staff in care homes are provided with training, and develop knowledge and understanding in wound management so that the care home can provide a quality of life to meet these residents' needs.

CARE HOME

Queen's House is a 32-bed care home in the Scottish Borders, providing nursing and residential care to residents over 65 years of age. The care home is in the voluntary sector and is a Scottish Registered Charity, registered with the Scottish Care Inspectorate. The most recent Care Inspectorate Inspection awarded Queen's House an overall rating of five (very good) out of a possible six.

With elderly people being encouraged to remain in their own homes, with variable support from the community sector, new residents to the care home are generally frailer or have developed complex nursing issues. The benefits of moving into a care home are set out in the National Care Standards (November 2007), which focuses on the quality of life that the person using the service can expect to experience.

The standards are grouped under headings that follow the person's journey through the service. These are as follows:

- ▶ Before moving in (Standards 1–6)
- ▶ Settling in (Standards 7–11)
- ▶ Day-to-day life (Standards 12–19)
- ▶ Moving on (Standard 20).

The standards are based on a set of principles that cover dignity, privacy, choice, safety, realising potential, equality and diversity. Care homes in Scotland are

KEY WORDS

- ▶ Venous leg ulcer
- ▶ Hard to heal wounds
- ▶ Compression two-layer bandaging
- ▶ Care home
- ▶ Quality of life.

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Figure 1: Exudate causing maceration of the skin.



Figure 2: Patient in a pair of Velcro-fastening shoes.

registered and inspected by the Scottish Care Inspectorate under the Regulation of Care (Scotland) Act 2001.

CASE REPORT

Mrs C, an 89-year-old female resident, was admitted to Queen's House care home from sheltered housing in July 2010. She required nursing care due to her increased frailty, large venous ulcer, which required twice-weekly dressings, as well as the fact that she was registered partially blind.

Mrs C had a history of recurring venous ulcers, each episode increasing in duration and difficulty to heal. She found the 20-month-old ulcer very distressing as, although she was unable to clearly see the ulcer, the odour was strong. Mrs C felt this limited her social life and prevented her from being able to go out with her family. She had also spent time in hospital where various dressings had been tried. Her tolerance of compression bandaging in the past had been low, citing skin irritation with some products. Due to her past experiences, she did not believe that the ulcer could be healed and remained quite negative in her attitude.

Initial assessment

On initial presentation to the author and colleague Patricia Mitchell (senior registered nurse), the ulcer measured 12cm x 8cm and was producing copious amounts of exudate. The surrounding skin was unhealthy due to the abundance of exudate causing maceration of the skin (Figure 1). This caused Mrs C distress due to the significant wound odour. A Doppler ultrasound reading showed an ankle brachial pressure index (ABPI) greater than 0.8.

Mrs C had a number of recognised indicators for delayed healing. These included a large ulcer of long duration, very limited general mobility and a fixed ankle joint showing an equinus deformity. Her leg showed considerable dysmorphism due to these factors, with significant loss of calf muscle. Following examination, and taking into consideration her risk factors and known statistics, it was clear that Mrs C's progression to healing would be measured in months, rather than weeks.

Treatment plan

The treatment plan was aimed at improving skin care, decreasing the amount of exudate and odour, and with the use of a two-layer compression system (Coban™; 3M™), reducing the size of the venous leg ulcer. The bandage system was chosen for comfort, reduction of slippage and rucking and the fact that it was latex-free for reduced risk of allergy. A two-layer system, rather than a four-layer, would result in a less bulky bandage, improving comfort and mobility, and promote the resident's concordance.

Dressing regimen

The dressing regimen for the ulcer included a non-adhesive foam, charcoal dressing to reduce odour and the two-layer compression system to provide the required compression. An emollient ointment was used to protect the surrounding skin from exudate and to moisturise other skin areas. Wound swabs isolated *Staphylococcus aureus*. A course of flucloxacillin antibiotics was prescribed by Mrs C's GP. She did not complain of actual pain from the ulcer, more of a 'non-visible irritation', according to the patient herself. Analgesic was prescribed by the GP, but she was reluctant to take it on a regular basis.

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KEY WORDS

- ▶ Venous leg ulcers fall into the category of hard-to-heal wounds, particularly in the elderly population
- ▶ A venous leg ulcer can have a significant impact on a person's quality of life
- ▶ Care homes can provide an environment where continuity of care, closer monitoring of dressings and addressing additional needs can contribute to wound healing
- ▶ Compression bandaging may be used to maintain a healed venous ulcer and prevent recurrence.



Figure 4 (top): Mrs C's wound after seven months of compression bandaging treatment.

Figure 5 (below): Mrs C's ulcer was practically healed following 10 months of treatment.

Diet

There is considerable evidence from clinical studies to show the vital role that nutrients from a well-balanced dietary intake play in wound healing. Older adults are a known risk group for malnutrition and, as discussed earlier are also a group at risk of developing leg ulcers. It is, therefore, very important that the person's dietary needs are addressed as part of their treatment plan.

A study by Wissing et al (2002) investigated ulcer healing and recurrence in relation to nutritional risk profile in a small number of elderly patients. Important findings from the study showed that those patients with an unhealed or recurrent ulcer had higher mean nutritional risk scores. The study also showed that those patients with healed ulcers had a significant higher mean social interaction score than those with open wounds. The findings implied that increased nutrition risk and broader social settings could affect the healing of leg ulcers.

Mrs C had been transferred to Queen's House from sheltered accommodation. One main meal per day was prepared for the residents in this environment, while all other dietary intake had to be provided by the residents themselves. On admission to Queen's house, Mrs C was of slight frame, weighing 54.5kg with a body mass index (BMI) of 21.4. Meals are cooked in house at the care home, with the chef providing a nutritional, well-balanced diet of three meals per day, including a three-course lunch.

Residents are given a choice of meals from the daily menu. As staff built up a relationship with Mrs C, it was obvious that she had led a very frugal existence. The benefit of having meals cooked and

provided for her showed in her increased weight and improved appetite. This had a significant and positive impact on the healing of her venous ulcer. Her weight continued to be monitored on a monthly basis, reaching a maximum of 57kg in August 2011.

Footwear

Due to her poor mobility and fixed ankle joint, Mrs C did not have adequate footwear. Persistent leakage of exudate had made her reluctant to purchase new footwear in the past. Following a podiatrist consultation and a physiotherapy assessment, Mrs C was given catalogues featuring suitable footwear, helping her to maintain her independence. The compression bandage was also lightweight and reduced bulk, which increased mobility and gave a wider choice of footwear. Mrs C finally agreed that new improved footwear would provide more support and stability to her ankle when mobilising. A pair of Velcro fastening shoes were purchased (Figure 2).

Ongoing treatment

After a period of four months following the commencement of the dressing regimen, the ulcer had diminished in size to approximately 35% of the initial measurements (Figure 3). Exudate levels had been reduced, with granulation tissue evident, and the surrounding skin appeared to be in a much healthier condition.

Dressing changes continued on a twice-weekly basis to provide continuity of care. Mrs C found that the compression bandaging was comfortable to wear as the first layer (foam) caused no skin irritation, which she had experienced with previously used products. No slippage of the bandage was evident,



Figure 3: Mrs C's leg ulcer following four months of the dressing regimen.

which aided comfort and compliance.

Mrs C was also more confident now that the odour from the ulcer had been reduced. She felt able to socialise more with fellow residents, without feeling self-conscious, giving her a better quality of life. She began to join in the social activities and would attend concerts and church services within the care home.

After seven months of compression bandaging treatment (*Figure 4*), the ulcer was reduced to less than 25% of its original presentation. Exudate levels had reduced to a minimum, only requiring dressing changes once per week. Odour from the ulcer was no longer a concern, therefore, charcoal dressings were no longer required. A 'lite' version of the polyurethane foam dressing was now being used as the primary dressing.

Photographic evidence of the vast improvement in the ulcer was recorded on a monthly basis. Due to being registered partially sighted, Mrs C was unable to see the photographic evidence of this, however, she was greatly encouraged by the positive comments by the senior nurses when they re-dressed her leg over the months of treatment.

RESULTS

The results of using the two-layer compression system were very significant. The ulcer was practically healed following 10 months of treatment (*Figure 5*). It was advised that, due to Mrs C's history of recurrence of venous ulcers, she should remain in compression bandaging indefinitely.

Use of compression hosiery to achieve a good fit would be difficult due to Mrs C's lack of calf muscle, fixed ankle joint and an equinus deformity. Therefore, the compression bandaging system was changed to the 'lite' version. At the time of writing, Mrs C had remained free from venous ulcers for the past nine months.

DISCUSSION

The healing of a venous ulcer can have a major impact on a person's life. In dealing with a venous ulcer, it is important to take into consideration other factors that, when addressed, can contribute to its healing, such as nutritional aspects and (in this case) footwear. As Mrs C's clinician, it was

vital to listen to her' views and concerns —issues that patients view as being important may be very different to what clinicians may first assume.

In this case, the patient was very concerned about her loss of socialising, caused by the odour emanating from the ulcer. This caused her much embarrassment and loss of confidence and had a much greater effect than the venous ulcer itself.

For Mrs C, her nutritional state improved within the care home setting. Closer monitoring of her oral fluid intake also helped to avoid further complications like dehydration and urinary tract infections. With involvement from other members of the multidisciplinary care team, i.e., physiotherapist and podiatrist, Mrs C was able to achieve a better quality of life through the use of comfortable footwear, which enhanced her mobility.

Good communication and continuity of care when dressing the wound were also key factors. Mrs C gained trust in the skills and ability of the nurses caring for her ulcer, after her previous, negative experiences. This more positive attitude had some impact in maintaining compliance to treatment until the complete healing of the ulcer.

CONCLUSION

The two-layer compression bandaging system was very beneficial in supporting the healing of a longstanding venous ulcer. This distressing venous ulcer of 20 months' duration healed in 10 months. Addressing holistic factors such as nutrition and poor mobility have also contributed to the successful healing process. Throughout, the venous ulcer was re-dressed by the two senior registered nurses in the Queen's House Care Team, which provided continuity of care.

The care home environment created an opportunity for closer monitoring of the patient's dressing and her additional needs, which also influenced healing. The outcome was dramatic, giving the patient an enhanced quality of life by improving her overall health and self-confidence. With a view to the resident's longer-term health, the (now) healed wound is being maintained in 'lite' compression bandaging to reduce the likelihood of any recurrence. [WUK](#)

'Photographic evidence of the vast improvement in the ulcer was recorded on a monthly basis'

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