Dealing with common lower limb problems in primary care: part two

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This article is the second in a two-part series on managing common lower limb problems encountered in primary care. The first article in the series (Brown, 2017) discussed the causes of oedema and its relation to underlying conditions, such as venous disease, lymphoedema and lipoedema. This article investigates skin care, the management of ‘wet legs’ and the different types of compression therapy available to non-specialist community nurses.

KEYWORDS:
- Lower limb
- Oedema
- Venous disease
- Lymphoedema
- Lipoedema

As outlined in the first article in this series, abnormal lower limb swelling is variously referred to as chronic oedema, lymphovenous oedema, lymphoedema or lipoedema (Todd, 2012). Chronic oedema includes oedema which develops as a result of venous disease, dependency oedema and lymphovenous disease and is classed as ‘chronic’ if it has been present for three months or longer (Todd, 2012). With patients with lower limb problems, it is always important also to assess the skin and establish the cause for any breakdown, e.g. oedema or exudate production (Wounds UK, 2016).

VARICOSE ECZEMA AND ‘WET LEGS’

‘Wet legs’ is a term healthcare professionals tend to use to describe both varicose eczema and lower limb oedema/lymphoedema. However, although very similar clinically, their pathophysiology is different. Varicose eczema is the result of fluid leaking into the tissues as a result of excessive persistent pressure within the veins associated with venous disease (Figure 1). This fluid is stagnant and contains enzymes, growth factors and inflammatory molecules, which are a skin irritant and break down the skin’s protective barrier. As a result of the immune response, a reaction develops, which initially manifests as an itchy, dry and scaly skin condition (Elwell and Craven, 2015). If not managed with compression therapy, this response becomes chronic and the patient will develop lipodermatosclerosis, a thickening and hardening of the subcutaneous tissues.

The treatment of both varicose eczema and wet legs focuses on managing the existing symptoms and treating any underlying conditions to prevent future exacerbations (flares). Skin care is important, as is compression therapy. The skin of oedematous legs is often dry and the patient may develop cracks and fissures or fungal infections on the skin of their lower limbs (Lindsay and Stephens, 2007). However, this can be managed with regular skin care, including cleansing and moisturising. Providing optimum skin care is an important element in the management of all types of lower limb swelling.

SKIN CARE

‘Wet legs’ in lower limb oedema is due to a failure of the lymphatic system, which becomes overwhelmed with lymphatic fluid which then leaks into the tissues (Keast, 2013). This fluid (lymphorrhoea) is protein-rich and is a major risk factor for infection, particularly if the skin barrier is breached. In both cases, the underlying condition must be managed with compression therapy. Patients with lymphoedema may also have signs of venous disease and exhibit symptoms of lipodermatosclerosis.

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Figure 1.
Varicose eczema.
Together let’s keep an ambitious objective in mind: ZERO.
Zero delay in wound healing.
Zero chronic wound recurrence.
Zero wound-related readmissions.
Zero waste of healthcare resources.
Zero diabetic amputations.
community nurse with an indication of the cause of the oedema. The patient’s skin should be examined for dryness and lipodermatosclerosis. This can manifest as a ‘woody’ effect, particularly in the gaiter area, which is typical of venous disease (Figure 2). In addition, the skin should be examined for fragility and signs of dermatitis (Keast, 2013). Signs of dermatitis are very dry, itchy, red and cracked skin. If the dermatitis is an allergic reaction to a sensitising agent, for example, wound dressing products or topical preparations, there may be a very obvious demarcation line of inflamed skin close to the actual source. Patients with venous disease are particularly prone to dermatitis and the development of allergies due to the application of creams and dressings over a long period of time (Figure 3).

Oedematous limbs also need to be protected from trauma where the skin has become stretched and thin due to excessive fluid in the underlying tissues (Keast, 2013). Extra care must be taken to avoid damaging the skin of oedematous legs. For example, avoid adhesive dressings which may stick to the skin and secure dressings with cotton bandages rather than using tape. Healthcare professionals should ensure that their fingernails are short and wear gloves when applying moisturisers. Patients should be advised to avoid situations where they are at risk of injury, such as supermarket trolleys and pets, within reason. Also, as said above, the fluid in lymphoedematous legs, called lymph, is rich in protein and provides an ideal environment for infections, particularly if there is a breach in the skin’s integrity.

### Skin cleansing

The skin should be cleansed with tap water and the use of bland cleansing products, such as aqueous cream and emulsifying ointments is recommended. However, aqueous cream must be washed off immediately, as it contains sodium laurel sulphate which can cause irritation and allergies (Schofield, 2013; British Medical Association [BMA] and Royal Pharmaceutical Society [RPS], 2016). Highly perfumed soaps can also cause irritation and allergies by stripping the skin’s natural oils and so should be avoided.

Some emollients, including Dermolf® (Dermal Laboratories), Doublebase® (Dermal Laboratories) and Hydromol® (Alliance Pharmaceuticals), can also act as soap substitutes. BP emulsifying ointment, which is a combination of 50% white soft paraffin and 50% liquid paraffin, provides a cost-effective alternative. However, patients must be warned to keep away from naked flames and smoking when using this product as it is highly flammable (BMA and RPS, 2016). Patients also need to be cautioned to take care when bathing or showering with these products, as they can cause bathroom surfaces to become slippery (BMA and RPS, 2016).

Because patients can develop allergies to the additives used in the production of creams, ointments are generally recommended for use on very dry skin (BMA and RPS, 2016). Ointments are more effective than creams, as the latter do not provide an effective barrier and contain preservatives to which the patient can become sensitised and develop an allergic reaction (Schofield, 2013).

Ideally, emollients should be applied twice-daily; however, most patients who have undergone compression bandaging will have their legs washed and moisturised at each dressing change. This may take place weekly, or less or more frequently depending on exudate volume. Emollients should be applied gently and following the downward direction of hair growth to avoid blocking the pores, which can cause irritation and folliculitis (infection of the hair follicles) (Lindsay and Stephens, 2007). However, some clinicians who work with people with lymphoedema encourage fluid redistribution in the legs by applying emollients in an upward direction initially and then completing the

### Table 1: CEAP classification of venous disorders (Eklof et al, 2004; Nazarko, 2013)

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C0</td>
<td>No visible or palpable signs of venous disease</td>
</tr>
<tr>
<td>C1</td>
<td>Telangiectasia (spider veins or reticular veins)</td>
</tr>
<tr>
<td>C2</td>
<td>Varicose veins, distinguished from reticular veins by having a diameter of 3mm or more</td>
</tr>
<tr>
<td>C3</td>
<td>Oedema</td>
</tr>
<tr>
<td>C4</td>
<td>Changes in the skin and subcutaneous tissue secondary to chronic venous disease. This is divided into two sub-classes to better define the differing severity of venous disease:</td>
</tr>
<tr>
<td>C4a</td>
<td>Pigmentation or eczema</td>
</tr>
<tr>
<td>C4b</td>
<td>Lipodermatosclerosis or atrophie blanche</td>
</tr>
<tr>
<td>C5</td>
<td>Healed venous ulcer</td>
</tr>
<tr>
<td>C6</td>
<td>Active venous ulcer</td>
</tr>
</tbody>
</table>
Haddenham easywrap® is a UK patented* compression wrap system for the treatment of lymphoedema, chronic oedema and various other swelling related conditions.

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easywrap’s low profile design means that it can be worn comfortably under most everyday clothing and footwear.
Emollients prevent transepidermal water loss by creating an occlusive layer on the surface of the skin. This increases water in the protective top layer of the skin (stratum corneum), helping to restore the skin's barrier function, i.e. keeping allergens and irritants out and moisture in (Flavell, 2015).

In varicose eczema (Figure 4), any acute exacerbation is usually managed with topical dermatological treatments, such as topical steroids and effective skin care. A twice-daily application of emollients and topical steroids is recommended (Patel et al, 2001). Due to side-effects, such as skin-thinning, some community nurses may be reluctant to administer topical steroids or tend to discontinue treatment too early (Du Vivier and Stoughton, 1975). However, a two-week intensive course using a very potent topical steroid, such as Eumovate® (GlaxoSmithKline), each week for maintenance. In the long term, patients will need to wear some form of compression to treat the underlying venous disease.

Management involves absorbing the fluid together with treatment of the underlying condition. Compression bandaging is the only effective way of managing wet legs, although this is contraindicated in patients with peripheral arterial disease (PAD) (Trayes et al, 2013). In addition, compression bandaging should be used with caution and under medical supervision, particularly if the oedema is due to cardiac or renal failure (Muldoon, 2013). Initially, compression bandaging may need to be reapplied daily until the volume of fluid decreases and the oedema is under control. It may be necessary to use superabsorbent dressings under compression bandages. However, healthcare professionals need to be aware of the effect that these may have on both the sub-bandage pressure of the bandages used and the patient's increased limb circumferences (Cook, 2011), as the use of thick dressings will affect the patient's limb size which will determine which combination of compression bandages to use to achieve therapeutic compression.

Figure 4. Varicose eczema.

Levels (Cook, 2011). This must be considered when deciding on which size or compression system to use.

It is well known that compression therapy is the most effective treatment to reduce oedema (B Tomasch and Mortimer, 2015), and is the frontline treatment for both venous disease-related oedema and lymphoedema (European Wound Management Association (EWMA), 2005; Trayes et al, 2013). In venous disease, it works by applying pressures higher than those within the veins, thereby reversing venous hypertension and managing the resultant oedema (Muldoon, 2013). In lymphoedema, bandages are applied in the initial phase of treatment to produce a more ‘normal’ limb shape, support the overstretched skin, reduce the amount of lymphorrhoea and soften the tissues (EWMA, 2005).

Compression bandages

Compression bandages are broadly categorised as long- or short-stretch (Todd, 2012). Long-stretch bandages, also called extensible or elastic, deliver sustained pressure, regardless of how mobile the patient is and have the ability to expand and retract, even when there is some reduction in oedema.

Figure 5. Beads of lymphatic fluid — lymphoedema.
The application of a combination of layers results in increased stiffness and high working pressures, even if the patient is resting or in bed (Lymphoedema Framework, 2006). These bandages are generally available in kits and there are various combinations to fit any limb circumference. They tend to be used in patients with limited mobility or poor ankle movement and/or open venous leg ulceration, as one of the components is a soft woollen layer, which is particularly useful in managing exudate or fluid (Lymphoedema Framework 2006; Cook 2011). Pressures achieved are dependent on the type of the bandager, who will need to have been assessed as competent in their application. Although used in the management of simple oedema, long-stretch or elastic bandages have the potential to merely push the fluid further up the leg. When the initial oedema has reduced, it may be necessary to re-measure the limb to ensure optimum pressures are being applied.

Short-stretch bandages, also known as inelastic bandages, are generally used for mobile patients with venous leg ulceration, lower limb oedema or in the initial treatment phase of lymphoedema (Lymphoedema Framework, 2006) (Figures 6a, b). As the patient walks and the calf muscle pump is activated, the bandages form a resistant cylinder ensuring the blood rebounds back into the venous system. This results in high working pressures; whereas, on rest or elevation, there is very little pressure exerted. As a result, many patients tolerate this type of compression well.

The bandages are made from 100% cotton or a mixture of cotton and polyamide and are applied at 100% stretch to form a rigid cylinder around the leg (Linnitt and Davies 2007). Applied in multiple layers (multilayer lymphoedema bandaging [MLLB]), the aim in the initial two-week intensive lymphoedema therapy phase is to restore the leg to a more normal shape (Badger et al, 2000).

Compression hosiery

A Cochrane review found that compression hosiery (Figure 7), post-healing, may reduce recurrence in venous ulceration (Nelson and Bell-Syer, 2014), although the optimum class of hosiery required to achieve this is currently unknown (Nelson and Bell-Syer 2014).

Compression hosiery kits can also be used in active ulceration and for the treatment of oedema. They are a useful method of applying compression if the practitioner is not trained to apply compression bandaging, or if the leg ulcer is small with minimal exudate and the limb is a reasonably normal shape (Muldoon, 2013; Nazarko, 2017) (Figure 8). They are particularly useful if the patient wishes to manage their leg ulcer independently. Furthermore, in a randomised controlled trial, Ashby et al (2014) concluded that the healing rates of venous leg ulcers, which were treated with hosiery kits, were comparable to that of four-layer bandaging, and that increased use of hosiery kits was likely to result in substantial cost-savings and improved quality of life for people with venous leg ulcers. This study also found that participants who wore hosiery when they had ulceration were more likely to continue wearing it after their ulcer had healed, which in turn would reduce the risk of recurrence.

Compression hosiery comes in various sizes, textures and compression classes and is available as custom-made for abnormal limb shapes. Class 3 hosiery (25–35mmHg; British Standard) is generally recommended for treating active venous ulceration. However, in reality, many patients struggle to tolerate these garments and find them difficult to apply and remove. Therefore, the highest class of hosiery that the patient will tolerate should be selected, since some compression is better than none at all (Nazarko, 2017).

Off-the-shelf compression hosiery is generally made of circular-knit weave, which is knitted in a continuous circle using a fixed number of needles (Linnitt and Davies, 2007; Todd, 2012), and is only suitable for normal-shaped legs with minimal oedema. Compression hosiery for lymphoedema is generally made-to-measure and is manufactured on a flat bed and the edges are stitched together.

Patients with grossly lymphoedematous legs should be referred to lymphoedema specialists for further management.

Remember...
What is involved in a good compression bandaging method to apply compression dressings to the leg and therefore deliver an appropriate level of compression (Owens and Mahoney, 2017). They are machine-washable, available in several sizes and lengths, and have been found to deliver an effective alternative to compression bandages (Wicks, 2015; Mosti et al, 2015), and are available on FP10. The main advantage of these devices is that patients are able to manage their lower limb problem independently if they wish (Owens and Mahoney, 2017; Nazarko, 2017). They may also be more acceptable to patients who cannot tolerate compression bandaging.

Compression therapy is only one of four cornerstones of treatment for lymphoedema (EWMA, 2005) and is suitable for the management of simple lymphoedema. Patients with severe or complex lymphoedema should be referred for specialist assessment for additional treatments, such as manual lymphatic drainage (MLD) (Keast, 2013).

Healthcare professionals caring for patients with simple lymphoedema, venous leg ulceration and simple oedema, should encourage weight reduction, if appropriate, and frequent periods of elevation during the day, which anecdotally has been found to reduce swelling (Lymphoedema Framework, 2006). Although the recommendation is to elevate legs above the level of the heart, in reality, this may be difficult for some patients to achieve due to their level of mobility, and, if this is the case, they should be advised to go to bed at night and during the day if possible, rather than sleeping in a chair.

Another self-care strategy to reduce oedema and promote ulcer healing is to perform moderate exercise, such as walking, swimming, cycling and low impact aerobic exercise if appropriate (Lymphoedema Framework 2006). The prescribing of diuretics has no place in the management of uncomplicated lymphoedema, as there is no evidence to support their use and this practice is not recommended by the National Lymphoedema Network (2012).

CONCLUSION

This article has discussed the management of lower limb problems commonly seen in primary care and has focused on the management of uncomplicated lymphoedema, venous ulceration and lymphovenous disease. The treatment of commonly associated conditions, such as varicose eczema and wet legs, has been discussed, together with suggestions on how these conditions can be effectively managed by the non-specialist practitioner. It is recommended that patients with peripheral vascular disease, oedema due to other medical conditions, such as renal failure, and complex lymphoedema, are referred to specialist centres for expert assessment and management.

Revalidation Alert

Having read this article, reflect on:

- What is involved in a good skin care regimen
- Why ‘wet legs’ develop and how they should be treated
- Your knowledge of the different options of compression therapy

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KEY POINTS

- Varicose eczema, lower limb oedema/lymphoedema and ‘wet legs’ are common conditions which have different management strategies.

- Effective skin care is an important element of treatment for patients with these lower limb problems.

- Healthcare professionals in primary care will encounter many patients with lower limb problems. It is important that they are able to provide optimum treatment.

- When caring for patients with venous disease or simple oedema/lymphoedema, healthcare professionals should be aware of the alternative treatment options now available.

- Healthcare professionals need to involve patients in treatment decisions and encourage them to self-care whenever possible.
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- How has this contributed to tissue viability nursing overall?
- Is there any evidence to support the entry (national guidelines, literature, etc).

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