Leg ulcers are chronic, tend to be recurrent, and are associated with considerable morbidity. Leg ulcers are common, with a prevalence of 1.8 per 1,000 adults older than 25.¹ The prevalence increases with age to approximately 2% in those older than 65.² A recent survey found Canadian family physicians are not confident in their abilities to manage leg ulcers.³ Pain is often undertreated. Although there are many causes, venous ulcers account for the majority (Table 1).

Up to 20% of patients with venous disease have co-existing arterial disease.

What do I look for?

Patients with venous insufficiency may present with a history of deep venous thrombosis, vein stripping, leg surgery or trauma, and a family history of venous disease. There are a number of physical signs for venous disease (Table 2).

The ulcer is typically located on the gaiter area (especially around the medial malleolus) and is characteristically shallow with an irregular margin. The surrounding skin is often macerated, crusted, and scaling.

### Table 1
**Types of leg ulcers and their appearance**

<table>
<thead>
<tr>
<th>Differential diagnosis of leg ulcers</th>
<th>Ulcer appearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Venous</td>
<td>• irregular border; shallow, sloughy base</td>
</tr>
<tr>
<td>• Arterial</td>
<td>• punched out, pale, or necrotic base</td>
</tr>
<tr>
<td>• Mixed venous/arterial</td>
<td>• more typically venous features</td>
</tr>
<tr>
<td>• Diabetic</td>
<td>• frequently round; may be deep or under mined; base may be sloughy or necrotic</td>
</tr>
<tr>
<td>• Vasculitis</td>
<td>• palpable purpura</td>
</tr>
<tr>
<td>• Pyoderma gangrenosa</td>
<td>• start as tender, erythematous nodules or blisters that ulcerate; may have violaceous border</td>
</tr>
<tr>
<td>• Malignancy</td>
<td>• may have rolled or eaped up border; irregular margin; no evidence of healing</td>
</tr>
</tbody>
</table>

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¹ References
² References
³ References
What do I test for?
Up to 20% of patients with venous disease have co-existing arterial disease, which increases the risk of injury due to compression therapy. Although, many patients with advanced arterial disease do not experience claudication due to relative immobility.

Table 3 outlines the signs and risk factors for arterial disease which should be assessed.

What can vascular assessment offer?
An ankle-brachial pressure index (ABPI) of at least 0.8 is needed to ensure the safety of compression bandaging. If the ABPI is between 0.5 and 0.8, modified compression may be suitable.

The ABPI should be interpreted with caution in patients with diabetes as calcification of the tibial and peroneal arteries may render these vessels non-compressible. There is, however, no relationship between medial calcification and atherosclerotic disease within the vessel.

What about compression?
Compression bandaging is the mainstay of treatment of venous ulcers and high compression is more effective than low compression, provided there is normal arterial circulation.

Compression therapy reduces edema, decreases venous hypertension, and improves venous flow. There is improved microcirculation and a restoration of venous valve function. Lymphatic drainage is improved and patients usually note a reduction in pain and aching.

What are the risks?
While beneficial, compression is not without its risks, including:
- microvascular occlusion,
- tissue necrosis, and
- amputation.

Compression bandaging should be applied only by trained practitioners. If the bandage is applied too tightly, there may be areas of necrosis over bony prominences. Bandage slippage can also result in an ineffective gradient and excessively high sub-bandage pressures, where the bandage rests.
What to use?
Moist wound conditions allow optimal cell migration, proliferation, and neo-vascularization. Dressings should be simple, cost-effective, low adherent, and should maintain a moist healing environment.

Gauze should be avoided as it tends to be painful to remove, and non-selectively debrides the wound, removing both healthy and necrotic tissue.

Antiseptic agents (i.e. sodium hypochlorite, povidine iodine, or hydrogen peroxide) should not be used since all have a high toxicity to fibroblasts.

Products containing lanolin, phenol alcohol, or topical antibiotics may cause sensitization.

What should I remember?
The use of compression stockings is important to prevent recurrence. In the absence of compression, recurrence rates of 57% at 18 months have been demonstrated. This drops to 28% in those wearing compression stockings. Stockings should be fitted by a skilled practitioner and need replacement every four to six months.

To avoid recurrence in the absence of significant arterial disease, it is important to educate the patient on the need for “compression for life”.

References

Take-home message
- The majority of leg ulcers are venous ulcers.
- It is important to assess patients for arterial disease risk factors as well.
- Compression bandaging is the primary means of treatment for venous ulcers; high compression is more effective than low compression.
- During treatment, remember to avoid:
  • gauze,
  • antiseptic agents,
  • lanolin,
  • phenol alcohol, and
  • topical antibiotics.