AIM
How to diagnose and treat ulcers of predominantly venous origin

KEY POINTS
- Treat with high-pressure compression if PAOD\(^1\) is not present
- Use multilayered compression if possible
- Ensure that patients comply with compression
- Adapt treatment if there is associated PAOD
- Perform superficial venous surgery and/or prescribe long-term compression to prevent recurrence

DIAGNOSING VENOUS ULCERS OF VENOUS ORIGIN
- Look for previous venous disorders and clinical signs of chronic venous insufficiency
- Look for associated PAOD (risk factors, clinical signs)
- Measure ABI\(^2\) (see limitations in Box 1)
  - If ABI between 0.9 and 1.3 → pure venous ulcer (no PAOD)
  - If ABI between 0.7 and 0.9 → mixed ulcer of predominantly venous origin (PAOD did not cause the ulcer)
- Prescribe venous Doppler ultrasound
- Prescribe Doppler ultrasound of the arteries if:
  - palpable peripheral pulses are absent
  - symptoms or other clinical signs of PAOD are present
  - ABI <0.9 or >1.3 (arterial stiffening).

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\(^1\) PAOD: peripheral arterial occlusive disease
\(^2\) ABI: ankle brachial index
**BOX 1. ANKLE BRACHIAL INDEX (ABI)**

- ABI = Ratio of ankle to brachial systolic blood pressure
- Can be easily measured using a continuous wave Doppler probe
- Can be measured during
  - the clinical examination if a Doppler probe is available
  - Doppler ultrasound.
- Can be used to
  - investigate associated PAOD
  - adjust compression.

**Limitations**: arterial stiffness (diabetics, elderly patients) can result in overestimation of ABI and failure to recognise PAOD. ABI values should be compared with the findings of the clinical examination (symptoms of PAOD, peripheral pulses, other clinical signs of PAOD). If these do not agree, perform Doppler ultrasound of the arteries.

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**TREATMENT**

- **Apply high-pressure compression** (30 to 40 mmHg at the ankle) if ABI is between 0.8 and 1.3 (see limitations of ABI above)
  - use multilayered compression if possible
  - ensure good compliance
  - follow the rules for using compression correctly (see Box 2).

- **Manage PAOD** in patients with mixed ulcers and **adjust compression** if ABI is <0.8 or >1.3 by reducing pressure (<30 mmHg) and by using short-stretch bandages, under specialist medical supervision

- **Take the following measures**
  - treat comorbidities (overweight, diabetes, undernutrition, heart failure, hypertension)
  - encourage overall mobility and exercising the ankles (physiotherapy if necessary)
  - prevent trauma and treat lesions early
  - ensure satisfactory cleanliness
  - encourage posture drainage and tell patients which positions to avoid
  - take patients’ social setting and geriatric status into account
  - update antitetanus vaccinations.

- **Treat pain** according to cause (change dressing, adjust compression, treat local complications, prescribe a topical anaesthetic for wound care) and prescribe analgesics if these measures do not suffice.
Perform superficial venous surgery if no obstruction or deep axial venous reflux is present and adjust long-term compression to prevent recurrence.

Consider using pinch grafts or mesh grafts in the case of:
- ulcers resistant to conventional treatments for more than 6 months
- ulcers larger than 10 cm²

Do NOT perform deep venous surgery unless a specialist opinion has been obtained and unless compression and surgical treatment of the associated venous insufficiency have proved ineffective.

**BOX 2. RULES FOR APPLYING COMPRESSION**

- Apply compression either from rising or 24 hours per day (in the latter case use low elasticity, short-stretch bandages, which are comfortable at night).
- Adjust the compression system on a case-by-case basis to obtain optimum efficacy and compliance (e.g. use bandages as long as ulcers have not healed, use multiple layers of low-pressure stockings or bandages to achieve better-tolerated and easier-to-apply high-pressure compression.
- Be familiar with good practice for applying stockings or bandages: ensure patients have been lying down for some time, protect the skin, use filling material, stretch evenly, try the compression out first. Educate patients and those caring for them in how to use compression.
- Refer to the instructions to achieve the desired pressure because this cannot be measured on patients. If multilayered compression is used remember that pressures add up.

**Important reminder**

Do not take a bacteriological swab nor give antibiotics as a matter of routine.
Do not use topical antibiotics. Use systemic antibiotics only if clinical signs of infection are present.