Wound management: Putting the pressure on venous leg ulcers and reducing the risk of skin tears

Skin tears and venous leg ulcers are among the most common wounds treated in general practice. They occur most often in older people, can be slow to heal, cause significant distress and greatly reduce a person’s quality of life.

As many as 43% of residents in aged care facilities experience a skin tear. An Australian study found that application of an appropriate moisturiser twice a day to the resident’s arms and legs reduced the incidence of skin tears by almost 50%. Compression therapy is the cornerstone of venous leg ulcer management; it improves healing rates and prevents recurrences. A randomised controlled trial found venous leg ulcers heal significantly faster with compression therapy, compared with no compression therapy (see Figure 1).

This therapeutic brief highlights the importance of using compression therapy for the treatment and prevention of venous leg ulcers, and the application of a moisturiser twice a day to reduce the risk of skin tears in older people.

Figure 1: Approximate percentage of venous leg ulcer healing with and without compression therapy

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Healing with compression therapy</th>
<th>Without compression therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>31%</td>
<td>73%</td>
</tr>
<tr>
<td>24</td>
<td>33%</td>
<td>86%</td>
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You may find the ‘Guide to assessing, preparing and dressing venous leg ulcers and skin tears’ helpful for you and your practice nurse. Access the MATES website at: www.veteransmates.net.au
Venous leg ulcers

Venous leg ulcers often persist for many years, despite active treatment, and recur often. According to the Wound Management Innovation Cooperative Research Centre, 3% of the population over 60 years of age are affected by venous leg ulcers and 70% will have a recurrence of their venous leg ulcer within 15 years. When patients receive best practice, 80% are healed within 24 weeks. People most at risk of developing a venous leg ulcer include older people with obesity, poor mobility resulting in venous stasis, a history of varicose veins, previous leg ulcers, leg trauma or surgery, or deep vein thrombosis (DVT). Specialist wound management can be provided through community nursing services or at hospital wound management clinics, some of these having specialist wound management nurses.

Compression therapy

Compression therapy reduces pressure in the superficial veins promoting venous blood flow and reducing oedema. This promotes faster healing of the ulcer and aids in preventing recurrence after the ulcer has healed. The most effective method is graduated compression from the toes to the knee. A variety of compression bandages and hosiery is available (see Box 4).

Apply the principles of compression therapy

Only use compression therapy in patients with adequate arterial blood flow and in those who can detect and report increasing pain and are able to promptly remove the bandages if needed. If compression therapy is applied when the patient’s arterial blood flow is inadequate, it can impede the flow of blood to the leg causing skin necrosis, ulceration or even amputation. Up to 30% of leg ulcers have an arterial cause and 10 to 20% have a mixed venous and arterial cause. Calculate the ABPI to determine adequate arterial blood flow in both legs (see Box 1). To determine arterial blood flow, calculate the ABPI by measuring the ankle to brachial systolic blood pressure and can be obtained using a sphygmomanometer and Doppler ultrasound device. Appropriate training is required to accurately interpret results. An ABPI of 0.8 to 1.2 indicates good arterial flow. An ABPI above 1.2 usually indicates possible arterial calcification and a TBPI is recommended. An ABPI less than 0.8 indicates arterial insufficiency and may require referral for a specialist vascular assessment, including assessment and evaluation of suitability for and degree of compression therapy.

Box 1. Calculating the Ankle Brachial Pressure Index (ABPI)

Calculating the ABPI is the most reliable way to detect hidden arterial disease. The ABPI is the ratio of the ankle to brachial systolic pressure and can be obtained using a sphygmomanometer and Doppler ultrasound device. Appropriate training is required to accurately interpret results. An ABPI of 0.8 to 1.2 indicates good arterial flow. An ABPI above 1.2 usually indicates possible arterial calcification and a TBPI is recommended. An ABPI less than 0.8 indicates arterial insufficiency and may require referral for a specialist vascular assessment, including assessment and evaluation of suitability for and degree of compression therapy.

Box 2. To find a health professional trained in the application of compression bandages and wound management, contact:

- Community Health Nursing services, through DVA at: https://www.dva.gov.au/providers/community-nursing
- Hospital wound management clinics or leg ulcer clinics
- Hospital wound management specialist nurses
- Hospital outpatient clinics
- Wound Nurse Consultant or Wound Management Nurse practitioners

Patients who have not had compression bandaging before, have substantial leg oedema or might be at risk of complications, require review within 24 to 48 hours after application of the bandages to assess for pain, impaired capillary return, numbness, discoloration, skin trauma or tissue necrosis. This is usually conducted by the nurse or doctor who applied the bandages and can be via a telephone call or a visit. Reinforce to the patient, the importance of reporting bandage slippage, wet bandages, increased pain, tingling, numbness or changes in colour to their toes or feet at any time. Advise that discomfort usually decreases as oedema and inflammation resolves and venous return improves.

Some patients find compression therapy restrictive, uncomfortable and stigmatising. Talk with your patient about the need, application and benefits of using compression therapy and the risks associated with not using it. Patients are more likely to commence and persist with compression therapy if they are properly informed and expect the treatment will make a difference (see Box 3).
Address factors that may affect healing

Because many patients with a venous leg ulcer go through a cycle of ulcer healing and recurrence, identify and address factors that might hinder wound healing. Factors might be related to medical, surgical or leg ulcer history, comorbidities, nutrition (vitamin C deficiency) or occupational and lifestyle factors, including smoking.5,11,15,20,21

Assess your patient’s understanding of their condition, their capacity to adhere to and tolerate treatment, and their available social support. Discuss any personal concerns they might have.11,13,22

Consider community nursing services for veterans having difficulty with treatment, for example those who are frail, have poor eyesight, dexterity problems, or difficulty travelling to a clinic.

Community nursing services for wound management are available to eligible veterans through DVA at: https://www.dva.gov.au/providers/community-nursing

Review medicines that might affect the skin or healing, for example corticosteroids affect almost every phase of wound healing and cause thinning of the skin, bruising and skin tears, especially in older men and women.21,23

Talk with your patient about how they can help their ulcer to heal

To promote healing, emphasise the importance of:

Eating a healthy diet

A healthy diet high in calories, protein and vitamins A, C and E, and an adequate fluid intake is necessary to promote wound healing and replace fluid loss from wound exudate.13 Referral to a dietician is often very helpful.

Elevating the affected leg to heart level

Encourage elevation of the affected leg to heart level during periods of inactivity to reduce oedema and promote healing.13

Exercising

Heel-to-toe walking and ankle stretches, especially while wearing compression bandages, can improve calf muscle function, assist venous return and reduce oedema.13 Consider referral to a physiotherapist or exercise physiologist with experience in treating patients with venous insufficiency.13

Explain to your patient that many dressings can be left intact for up to a week; less frequent changes means less disturbance to the wound temperature, moisture and granulating tissue.2,14

Educational resources about venous leg ulcers and compression therapy might be helpful to patients and their families available on the Wounds Australia website at: http://www.woundsaustralia.com.au/publications/publications.php

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Box 3. Strategies to encourage patients to commence and persist with compression therapy19

- Clear verbal and written instructions.
- Convincing the patient to ‘try and see’.
- Telephoning or visiting the patient the next day after initial application of bandages.
- Confidence in the treating practitioner.
- Giving patient control.
- Getting the doctor and family involved.
- Starting with lower compression and increasing gradually as tolerated.
- Removing a layer of bandaging if painful.
- Conducting serial wound tracings to show improvement.
- Increasing the padding layer for comfort.
- Recommending analgesia for pain and discomfort.

Box 4. Tap into wound care resources

- Compression hosiery garments are available for veterans through the DVA RAP schedule at: http://www.dva.gov.au/sites/default/files/files/providers/rap_schedule.pdf
- Refer to the recently updated DVA Wound Care Module at: www.dva.gov.au/woundcare
- This YouTube video, about how to put on compression hosiery at home, might be helpful for your patient, available at: https://www.youtube.com/watch?v=to-b0zzRaPl
Skin tears

The most common cause of skin tears in older people is trauma sustained when working outdoors (for example in the garden), getting in and out of bed, removing adhesive tapes, falls, and knocking furniture, including bed rails and wheelchair foot plates. Skin tears most often occur on the limbs. Older men and women most at risk of developing a skin tear include those with dry and fragile, paper-thin skin, immobility and dependence in activities of daily living, poor nutrition, history of previous skin tears, or pre-existing vascular lesions or ecchymosis.

Assess the patient and the wound

Assess your patient, the wound, skin flap, cause of the wound and category of skin tear. When assessing the wound and extent of the skin tear and flap, use the TIME assessment and the STAR Skin Tear Classification System and document details (see guide). Assessing the wound and classifying the skin tear will determine the level of injury sustained and help to guide treatment.

Minimise recurrence

Encourage your patient to wear medical-grade compression hosiery (not anti-embolic hosiery) after an ulcer has healed; leg ulcers almost always recur unless ongoing prevention is maintained. If your patient finds the stockings uncomfortable to wear, try changing the brand or having the stocking ‘made to measure’ to improve compliance. Obtain compression hosiery and a donning aid for ease of application through the DVA RAP Schedule for eligible veterans (see Box 4).

Dress the skin tear

Where possible, preserve and replace the skin flap, protect the surrounding tissue and reduce the risk of infection and further injury. Refer to the guide for dressing a skin tear.

Talk with your patient about how they can reduce the risk of skin tears

- As many as 43% of residents in aged care facilities experience a skin tear. Encourage all your older residents, including men to apply an appropriate moisturiser twice a day. An Australian randomised controlled trial found the application of a pH neutral, perfume-free moisturiser twice daily to the arms and legs reduced the incidence of skin tears by almost 50% in residents living in aged care facilities. Moisturisers, including Alpha Kerl lotion, are appropriate and available to veterans on the RPBS listed under skin emollients. Moisturisers that contain sodium lauryl sulphate, for example aqueous cream, are not recommended as they might irritate or damage the skin.
  - Keep the skin hydrated by avoiding over-washing. Use emollient liquid soaps, which are soft, soothing and moisturising, rather than bar soaps which are alkaline and dry and damage the skin. An example is Hamilton® Skin Therapy Wash which is available on the RPBS.
  - Encourage adequate nutrition and fluid intake.
  - Use a barrier cream to avoid moisture-related skin damage, for example incontinence, excessive moisture from sweating or wound exudate.
  - Never use any adhesive products on people with fragile skin.

Use protective garments, including stockings or long sleeves and trousers, and tubular bandages, especially when working in the garden or around the house. Review medicines that may increase the risk of falls or worsen thinning of the skin. For further information, refer to previous MATES topics: Reviewing medications to reduce risk of falls at: www.veteransmates.net.au/topic-20 and Oral corticosteroids at: www.veteransmates.net.au/topic-42

Encourage your older patients at home or in aged care facilities to have a safe environment, including well-lit and clutter-free rooms, padded furniture and appropriate lifting devices to transfer patients. Consider a home visit from an occupational therapist to assess the needs of your patient at home. Veterans may be eligible through DVA funded health services at: http://www.dva.gov.au/sites/default/files/files/health%20and%20wellbeing/healthservices.pdf

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References


5. Sussman G. Ulcer dressings and management. AFP. 2014; 43(9): 588-592.


A guide to assessing, preparing and dressing venous leg ulcers and skin tears

Assessing the wound using TIME\(^1,2\)

**Tissue**
- presence of devitalised, granulated or necrotic tissue
- deeper tissues visible, including bone, tendon, muscle or subcutaneous fat
- presence of foreign material or debris

**Inflammation / Infection**
- signs of local clinical infection including redness, heat, fever, swelling, delayed wound healing, new or increasing pain and exudate
- abnormal granulation tissue, including bleeding or dark coloured tissue
- increasing malodour
- extent of infection (local, spreading or systemic)

**Moisture**
- amount, colour and type of exudate

**Edge of wound**
- the wound edge is clean, dry or macerated
- condition of the wound edges, including sloped, undermined, callused or heaped up skin at the edges
- condition of the peri-wound skin, including hydration level, inflammation, excoriation, oedema or presence of a sinus track

Venous leg ulcers

Assess the ulcer, peri-wound skin and the patient’s legs, feet, mobility and gait, and document findings.\(^3,4\) Use the systematic approach of TIME (Tissue, Inflammation / Infection, Moisture balance and Edge of wound) to assess and prepare the wound bed.\(^2,3\) Reassess the wound regularly using TIME to summarise aspects of the wound bed, note any changes since the last assessment and to adjust wound management accordingly.\(^1\) Assessment of the ulcer location, dimensions (length, width and depth), clinical appearance of the wound bed and the edges are particularly important in determining the cause of the ulcer and healing status.\(^1,4,5\) Photographing or tracing the outline regularly is helpful to note changes over time and demonstrate improvement.\(^1,4,5\)

Address the effects of odour and leakage from the wound, and social isolation felt by the patient because of their wound or treatment.\(^5,6\)

Venous leg ulcers are often painful.\(^7\)

Wound pain can have an impact on the patient’s quality of life, including sleep, mood, relationships and activity, and it can increase healing time by decreasing concordance with treatments, including compression therapy.\(^1,5\) Aim to identify if the pain is dressing change-related, wound-related or due to other issues, to treat adequately.\(^1\)

The decision on when to change a dressing depends on the type and location of the wound, type of dressing used, wound bed, volume of exudate and patient factors.\(^8\) Wound dressings available on the RPBS can be accessed at: [www.pbs.gov.au/browse/rPBS?initial=d](http://www.pbs.gov.au/browse/rPBS?initial=d)

Preparing the wound bed and dressing a venous leg ulcer

- Clean the wound and peri-wound area using water, saline or an appropriate pH-balanced skin cleanser.\(^5,9\) Don’t use alkaline soaps or cleansers as they cause dry, flaky and irritated skin.\(^1,9\)
- Debride slough, non-viable or necrotic tissue.\(^3,5\) Some types of dressings, including hydrogels, aid debridement.\(^3\)
  - Provide adequate pain relief during debridement.\(^5\)
- Choose a simple non-adherent dressing to protect the wound and absorb excess exudate.\(^3,8\) **No specific dressing is superior for reducing healing time.**\(^3,5\) Select a dressing based on its function, the wound bed status, amount of exudate and patient preference.\(^3\) When choosing a dressing to use under compression therapy, choose one that:
  - maintains a moist wound healing environment, but is able to manage varying levels of exudate\(^6\)
  - absorbs and retains fluid without leaking under external compression
  - helps maintain the wound core temperature within a normal body temperature range
  - is comfortable for the patient and suitable for fragile skin
  - conforms to the wound bed to prevent pooling of exudate and does not damage the wound or peri-wound skin on removal\(^3\)
  - is easy to remove and remains intact on removal.\(^3\)
- Patients with venous leg ulcers often have skin problems that affect the surrounding skin and lower leg.\(^3,5\) Implement a skin care regimen to reduce odour, promote healthy skin and minimise the risk of future ulcers.\(^5,7\) Encourage the patient to wash and dry the affected leg and apply an appropriate moisturiser at each dressing change.\(^5,7\)
- Usually antibiotics are not required. Confirmation of an infection by clinical signs and symptoms and microbiological investigation, will guide whether or not an antibiotic is needed.\(^5,7,8\)
Skin tears

The STAR Skin Tear Classification System* facilitates assessment of skin tear injury.

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**Category 1a**: A skin tear where the edges can be realigned to the normal anatomical position (without undue stretching) and the skin or flap colour is not pale, dusky or darkened.

**Category 1b**: A skin tear where the edges can be realigned to the normal anatomical position and the skin or flap colour is pale, dusky or darkened.

**Category 2a**: A skin tear where the edges cannot be realigned to the normal anatomical position and the skin or flap colour is not pale, dusky or darkened.

**Category 2b**: A skin tear where the edges cannot be realigned to the normal anatomical position and the skin or flap colour is pale, dusky or darkened.

**Category 3**: A skin tear where the skin flap is completely absent.

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Preparing the wound bed and dressing skin tears

- Clean the wound with saline or water. If the wound is dirty, clean with a surfactant wash product, for example Prontosan® wound irrigation solution, or apply a low strength povidone iodine solution, leave for three minutes, then wash off.  
- If the wound is bleeding, apply gentle pressure using a non-stick dressing. If bleeding does not stop, apply a haemostatic alginate dressing.  
- If the flap is pale or dusky when the dressing is applied, reassess within 24 to 48 hours, as debridement may be required if the flap is non-viable.  
- To prevent damaging the wound on removal, draw an arrow on the outside of the dressing to indicate which direction to pull when removing.
- Hold in place with a non-adhesive lightweight cohesive bandage or lightweight tubular bandage. Do not apply any adhesive tapes.
- If the flap is pale or dusky when the dressing is applied, reassess within 24 to 48 hours, as debridement may be required if the flap is non-viable.
- Ensure the clinician knows the correct way to remove the dressings before doing so.
- Consider a surgical review if there is full thickness skin injury, significant bleeding or haematoma formation.

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References

1. Therapeutic Guidelines Ltd. (eTG complete), 2017 Melbourne, Victoria, Australia.