

# SKIN TEARS: AN INTRODUCTION TO STAR

Skin tears are a common occurrence in older people. When skin tears occur, the focus should be placed on appropriate assessment, classification, and management. Given that skin tears are largely preventable, clinicians should actively engage in the prevention of such wounds.

**S**kin tears occur in individuals with fragile skin, commonly neonates and older people. They are also considered to be largely preventable. Clinicians, healthcare assistants, and carers have a significant role to play in skin tear prevention, as well as in the assessment and management of this wound type.

The implementation of key principles in clinical practice can reduce the occurrence of skin tears and maintain skin integrity. The importance of skin tear prevention increases as populations age.

## *The skin*

The skin is the largest organ in the body and is made up of three layers; the epidermis, dermis, and hypodermis. It is the body's main protective barrier against invasive micro-organisms, toxins, and UV light. It protects the internal tissues and organs and helps maintain homeostasis (Sibbald et al, 2009). The skin has a number of important additional functions: sensation, thermo-regulation, secretion, and synthesis of vitamin D.

The dermo-epidermal junction attaches the epidermis to the dermis

and as skin ages this interface becomes "flattened". This flattening, along with the natural thinning of the skin that begins after 70 years of age (Desai, 1997), increases skin susceptibility to moisture and friction (Cooper, 2006), while reducing its resistance to shear forces (Voegell, 2010).


The dermis is made up of connective tissue, blood vessels, lymphatics, macrophages, endothelial cells, and fibroblasts. A reduction in collagen and elastin increases the susceptibility to friction and shearing forces. During the ageing process, there is around a 20% loss in the thickness of the dermal layer, which causes a reduction in the blood supply to the area, as well as a reduction in the number of nerve endings and collagen. This leads to a decrease in sensation, temperature control, rigidity, and moisture control (Cooper, 2006).

The subcutaneous layer (hypodermis) lies below the dermis and is composed of adipose and connective tissue. As the subcutaneous layer becomes thinner, the face, neck, and hands can become especially susceptible to skin tears (Resnick, 1993). The vascular

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Table 1. Examples of skin tears (categories I–III; Carville et al, 2007).

<p>▶ <i>Category I: These are skin tears without tissue loss. They may be linear-type lesions with separation of the epidermis and dermis, or flap-type where an epidermal flap covers the dermis to within 1 mm of the wound margin.</i></p>	
<p>▶ <i>Category III: The most severe type of skin tears with the loss of the entire epidermal flap. This may be caused by the initial trauma or necrosis of the flap.</i></p>	
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bed also becomes more fragile, which can lead to bruising (senile purpura) that may predispose to skin tears (White et al, 1994).

**Skin tears**

LeBlanc et al (2011) offered the following definition of skin tears: “A wound caused by shear, friction, and/or blunt force resulting in separation of skin layers. A skin tear can be partial-thickness (separation of the epidermis from the dermis) or full-thickness (separation of both the epidermis and dermis from underlying structures).”

Skin tears commonly occur on the extremities, including the lower limb, the dorsal aspect of the hands, and on the arms (Baranoski, 2001; Baranoski, 2003). While skin tears may occur on the front of the leg or on the shin bone, these tears are usually called “pretibial lacerations” and require careful assessment of the blood supply to the lower limb. Consideration should be given to the use of compression, as outlined by Beldon (2008).

Two groups of people are at increased risk of skin tears; older people (Payne and Martin, 1993; Baranoski, 2001; Morey, 2007) and the very young (Beldon, 2008). This is due to the ease of separation of the skin layers in these two age groups. The slightest bump or knock can cause skin damage and prevention must be prioritised.

**Skin tear risk**

Clinicians should assess where skin tears are most likely to occur and, where possible, should implement preventative strategies. Risk factors include:

- ▶ A history of skin tears.
- ▶ Mature/immature skin.
- ▶ Taking multiple medications, including steroids.
- ▶ Discoloration of skin caused by blood leakage into the subcutaneous tissue as a result of trauma to the underlying blood vessels (ecchy).
- ▶ Impaired mobility.
- ▶ Poor nutrition and hydration.
- ▶ Cognitive/sensory impairment.
- ▶ Comorbidities, including chronic

heart disease, renal failure, and cerebral vascular accident.

- ▶ High care dependency (i.e. require assistance showering, dressing, or transferring).
- ▶ Dry, fragile skin.
- ▶ Poor skin care, which has resulted in poor skin condition.

**Assessment**

Wound assessment should establish the type of injury with a focus on the prevention of further injury (Cooper, 2006; Lloyd Jones, 2010; Stephen-Haynes and Carville, 2011) and to determine location, dimensions (length, width, and depth), percentage of viable/nonviable tissue, degree of flap necrosis, presence of any haematoma, type and amount exudate, and integrity of surrounding skin.

**Classification**

The first skin tear classification tool was developed by Payne and Martin (1990) and was then updated in 1993 (Payne and Martin, 1993). Payne and Martin's tool classifies the lesion by degree of severity (categories I, II, and III; Table 1).

**STAR**

The Skin Tear Audit Research (STAR) classification system (Carville et al, 2007) is similar to the Payne and Martin (1993) system in that it also comprises three categories (two with subcategories). The system is concerned with levels of epidermal loss and the state of the epidermal tissue. The level of flap loss is important and should inform a care plan aimed at preservation of epidermal tissue. The state of the epidermal tissue is important as it may be indicative of further wound breakdown. The STAR classification system has been implemented in Australia, with evidence of limited implementation in the UK (Stephen-Haynes et al, 2011).

The STAR acronym is a prompt to the appropriate assessment and

treatment of skin tears (Stephen-Haynes and Carville, 2011): **S**elect appropriate cleanser to clean the wound; **T**issue alignment; **A**ssess and dress; **R**eview and reassess.

### **Management of skin tears**

The aim of skin tear management is to minimise the risk of infection and to close the wound. According to STAR, there is a six-point management regimen that should be adhered to, which involves wound assessment, cleansing, closing the wound edges, dressing application, protection of the skin, and prevention of further skin damage.

Saline or water should be used to clean the wound with attention given to removing dirt or grit, and controlling bleeding. Surrounding skin should then be gently patted dry. If the skin flap is viable, the edges must be brought together, with the flap gently eased back into place (i.e. the flap is used as a dressing) using tweezers or a gloved finger. Any approximation should be recorded (Cooper, 2006).

For flaps that are difficult to align, a moistened, non-woven swab should be applied for 5–10 minutes to rehydrate the area. Wound closure strips should be used to secure large skin flaps; sutures and staples are not recommended due to the fragility of the skin. A skin barrier product should be applied to protect the surrounding skin.

### **Dressing application**

Once the flap is secured, a nonadherent dressing should be applied, without tension. An appropriate dressing for the specific wound condition and category of skin tear should be selected, such as silicone foams, ensuring a 2-cm overlap around the wound. The wear time will be dependent on the type of dressing and volume of exudate.

Traditional adhesive strips should be

avoided where possible as they may cause traction and further trauma (Meuleneire, 2003). Gentle micro-adherent wound closure products may be considered, i.e. Mepitel® (Mölnlycke Health Care). Where the skin is very fragile, the dressing should be left in place for up to 5 days to avoid disturbing the skin flap. The dressing should be marked with an arrow to indicate the direction of removal.

### **Review and reassess**

At each dressing change (approximately every 3–7 days), the dressing should be gently removed, working away from the attached skin flap. Silicone-based adhesive removers can be used to avoid trauma to the surrounding skin (Meuleneire, 2003; Beldon, 2008).

On dressing removal, the wound should be evaluated, with care taken not to disrupt the skin flap. Changes in wound status should be monitored and where the skin or flap is pale, dusky, or darkened (healthy skin would be red granulation tissue and healthy epithelialising would be pink), it is important to reassess within 24–48 hours as further breakdown may occur.

Signs of infection must also be monitored and managed appropriately (European Wound Management Association [EWMA], 2005; 2006; World Union of Wound Healing Societies [WUWHS], 2008; Wounds UK, 2011). Treatment can be stopped if complete epithelialisation occurs. Digital photography should be used where possible to document the wound.

### **When is referral necessary?**

Some complex skin tears are full-thickness skin injuries, or involve significant bleeding or haematoma formation, that require surgical review and intervention. Caution should be exercised where there is concern regarding blood

clotting ability or blood supply. An interprofessional and collaborative approach to management is required to optimise healing outcomes for the individual.

### **Skin tear prevention**

As most skin tears occur during routine patient care activities (Everett and Powell, 1994), it is important to create a safe environment. Identifying and removing factors that cause skin tears can help to reduce such injuries, particularly in older people. Patients and carers should be made aware of the risk of skin tears.

To create a safe environment for the older person, clinicians should:

- ▶ Ensure adequate lighting and ease of reaching the light switches.
- ▶ Remove rugs and excessive amounts of furniture.
- ▶ Ensure any small furniture (night table, chairs) in the immediate surroundings is positioned carefully to avoid unnecessary bumps or knocks. Sharp borders on furniture or bed surroundings should be padded.
- ▶ Use appropriate aids when transferring patients and employ appropriate manual handling techniques according to guidance (e.g. lifting device or slide sheets). Bed sheet should *never* be used to move the patient as this can contribute to damage by causing a dragging effect on the skin (Beldon, 2008).
- ▶ Where possible, reduce or eliminate pressure, shear, and friction using pressure-relieving devices and positioning techniques.
- ▶ Encourage the wearing of appropriate footwear and clothing to reduce the risk of injury.
- ▶ Encourage the wearing of socks to protect the pretibial area.

### **Skin protection**

An essential aspect of skin protection is keeping the skin well-hydrated by

maintaining good nutrition and fluid balance. Cleansing, moisturising, and protection of the skin is vital in maintaining skin integrity. Individuals with dry skin on their arms and legs will benefit from the application of an appropriate moisturising cream twice a day (Hanson et al, 2005).

It is important for the patient to use pH-balanced soap, moisturiser, and cleansing solutions, and an emollient should also be applied. Skin-damaging fluids (e.g. incontinence) should be removed. Caution must be applied when applying adhesive tape to at-risk skin. Fragile skin should be protected with tubular or roller bandages, or long sleeved clothing.

### **Pain assessment and management**

It is important to assess and manage pain as skin tears can be painful due to trauma affecting the superficial nerve endings in and around the wound (Beldon, 2008). The clinician can be assisted in this by the use of a visual analogue scale (VAS) to grade the patient's pain and a number of factors can assist in pain management (WUWHS, 2004; Mudge and Orsted, 2010). The areas most pertinent to skin tears and pain management are:

- ▶▶ Involvement of the patient.
- ▶▶ Treating factors that may delay healing and prolong pain.
- ▶▶ Treating factors that may cause wound-related pain.
- ▶▶ Using warm cleansing solution to irrigate the wound.
- ▶▶ Selecting atraumatic dressings that minimise trauma and pain during application and removal.
- ▶▶ Using a silicone-based adhesive remover to remove adherent dressings.
- ▶▶ Identify and manage pain.
- ▶▶ Evaluate each patient's need for pharmacological and nonpharmacological strategies to minimise wound-related pain.

### **How to implement STAR in practice?**

A primary care trust in the UK has developed the STAR Box to encourage clinicians to assess and manage skin tears effectively. It includes details of appropriate dressings, a laminated STAR categorisation chart to aid decision making, guidelines, and care pathway. This allows clinicians to implement a care plan for a patient with a newly occurring skin tear in a timely manner without the need for referral to tissue viability, the A&E department, or minor injuries unit.

### **Conclusion**

The prevention of skin tears is an important aspect of skin care in older people and premature infants. It is important that the older person with a skin tear is treated promptly and appropriately to prevent complications and optimise healthcare resources. An awareness of the anatomy of the skin and the effects that ageing has on it can help clinicians in identifying these wounds and address factors that put the patients at risk of developing skin tears. It is important for the clinician to have a thorough knowledge of skin tear management with consideration given to the patient's comorbidities, social circumstances, mobility, continence, and psychological wellbeing. The clinician is required to assess and agree a plan of care for those with skin tears while more junior staff and healthcare assistants are ideally placed to assist in the prevention of skin tears. **WE**

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Reference: 1. Overgranulation tissue: a new approach, Sue Johnson, Clinical Nurse Specialist, Doncaster & Bassettlaw NHS FoundationTrust.

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