The management of skin tears

During the ageing process the layers of the skin start to atrophy; the epidermis becomes thin and fragile, and dermal thickness decreases by 20 per cent (White et al, 1994). This makes skin tears a common problem among older people (Gurwitz et al, 1994).

Skin tears commonly occur on the dorsal sides of the hands and the tibia. They are caused by friction or combined shearing and friction forces, together with intrinsic changes to the skin such as decreased strength and elasticity and the flattening of the basement membrane zone (Branchet et al, 1990).

Systemic factors impede skin-tear healing, including age (Baronoski, 2000), immunological status and malnutrition (Asmussen and Sollner, 1993), oxygen intake and circulation. Management of skin tears is often painful, and wound healing can be prolonged.

Classification of skin tears

Category I
Skin tears without loss of tissue are subdivided into:
- Linear type (Fig 1) in which the epidermis and dermis are pulled in one layer from the supporting structures;
- Flap type (Fig 2) where the epidermis and dermis are separated, but the epidermal flap covers the dermis to within 1mm of the wound margin.

Category II
- Scant loss of tissue – maximum 25 per cent
- Moderate to large loss of tissue – more than 25 per cent of the entire flap lost during the trauma (Fig 3).

Category III
This type of skin tear involves the entire loss of tissue. It can be caused by the initial trauma, or necrotisation of the skin flap (Fig 4).

Risk factors
Corticosteroids can cause skin atrophy and increase susceptibility to tears (Norman et al, 1980). They slow the inflammatory reaction and formation of collagen, delaying healing (Degre et al, 1994).

Impaired pain perception increases the risk of tears because patients cannot feel the injury – as can malnutrition, dementia (Mason, 1997), reduced field of vision, limited mobility and confinement to bed.

Classic treatments
Removal of the skin flap immediately after trauma is outdated but still occurs, usually in categories I and II. Sutures are occasionally used to close these tears but cause additional trauma due to poor circulation of the surrounding skin. The inflammatory response, with associated erythema and oedema, can also cause the fragile skin to tear or necrotise near the sutures (Sutton and Pritty, 1985).

Wound borders can be approximated with steristrips (Cuzzell, 1990), although traction on the fragile epidermis combined with inflammation can still cause damage. Careful removal is essential as blood crusts may tear off the epidermis.

Polyurethane films or hydrocolloid dressings (Thomas et al, 1999; Everett and Powell, 1994) are used to secure the flap, although they must be changed daily due to the amount of exudate produced. Failure to do so increases the risk of necrotisation as the exudate prevents solid contact between the dermis and the epidermis. Moreover, removal of polyurethane film may tear a larger part of the epidermis (Thomas et al, 1999).

Using petroleum gauze as a primary dressing does not secure the flap and there is increased risk of flap displacement when changing the secondary dressing, increasing the risk of skin necrosis (Krasner, 1991).

Soft silicone-coated dressing
The aims of using a soft silicone-coated dressing to treat skin tears are to: stop bleeding; prevent infection; recover the skin integrity; minimise pain and promote patient comfort; and assist flap fixation with non-traumatic removal.

Traditional management of skin tears can cause new damage and slow down healing. This article discusses how to categorise these acute wounds and the significance of a study that used a soft silicone-coated net dressing on patients in a Belgian hospital

**Key Words**
- Soft silicone dressings
- Skin tears
- Friction
- Petroleum gauze

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**Fig 1. A linear category I tear; dermis and epidermis are pulled in one layer**

**Fig 2. A flap type category I tear, where dermis and epidermis are separated**

**Fig 3. A category II wound with loss of more than 25 per cent of the flap**

**Fig 4. A category III wound in which the entire skin flap has been lost**
**REFERENCES**


*An extended version of this article won the Clinical Innovation/Case Study category of the Journal of Wound Care/Molonyoke Best Practice Awards/Scholarship.*

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**WOUND CARE RESEARCH**

**Category I** The damaged skin tends to roll up on itself (Krasner, 1991), causing the wound borders to widen. The flap must be returned to its initial position to let the wound heal by primary intention. The wound is cleansed with physiological saline (0.9 per cent NaCl) (Krasner, 1991). Rinsing with saline promotes flap flexibility.

Once the wound is closed, it is covered with a soft silicone-coated net dressing (Meuleneire, 1998). Which adheres to the skin flap and the surrounding skin, but not the wound surface.

Exudate passes through the dressing, and is absorbed by a secondary dressing. Dressings are secured by a bandage exerting light pressure, which prevents further bleeding, removes exudate from under the skin flap and limits the formation of oedema. Care must be taken, however, in patients with arterial insufficiency. The secondary dressing is changed daily until day three or four (when exudate decreases), after which it can remain in place until day six or seven. A protective dressing is then used for four or five days to protect the newly healed wound.

**Category II** When a tear results in the loss of more than 25 per cent of tissue, the aim is to use what remains of the skin flap. As exudate production decreases, desiccation of the wound must be prevented. A hydrogel dressing over the soft silicone net dressing can hydrate the wound. After six or seven days, when the skin flap has grown into the wound, the treatment continues as for category I.

**Category III** If the flap has been ripped off or necrotised the wound requires a moderately moist environment. The dressing must protect the wound against bacterial invasion and reduce pain. The large amounts of exudate can be managed with foams (Everett and Powell, 1994), hydrofoils, alginates or silicone gauze dressings. As this decreases, the wound is hydrated with hydrogel. If there are no signs of infection, hydrocolloid foam or a fixed gel dressing can be used until epithelialisation is complete.

**Deep laceration wounds** If the skin is torn until just above the fascia, check if any crucial nerves, blood vessels or sinews have been damaged. Further tearing and separation can be prevented by securing with a silicone net dressing. Most deep lacerations are closed surgically with sutures or skin grafts (Platt et al, 1996) or they heal by secondary intention (Asmussen et al, 1993).

**Results** The average age of the patients was 81 years (range 63–93). Their pathology fell into specific groups:

- **High-risk** – those with vascular disorders and cardiac and pulmonary problems;
- Those with dementia;
- Those with visual impairments and eating disorders;
- Those who are on steroid therapy.

Patients with previous tears had an average of five although only 31 per cent used precautions such as protectors, bandages and woolen stockings. Only 30 per cent of the patients could offer clear statements about their previous treatment, which included:

- ointments: dry treatment (exposure to air, gauze dressing); wound closure strips; cutting away the skin flap; and hydrocolloid dressings.
- Causes of injury included: bumping against hospital bed rails; getting in and out of bed; bumping against furniture and falling; removing tapes and taking blood samples; and putting on and removing stockings.

Half the skin tears bled moderately, 30 per cent bled copiously and 20 per cent did not bleed. In half of the skin tears, the trauma caused an ecchymosis (bluish discoloration) in the surrounding skin after the injury.

**Healing rates** By day eight, 83 per cent of the wounds had healed. The remaining 17 per cent did not heal within that timescale as bleeding or infection occurred. Infection occurred when there was a delay between injury and dressing application: this was more than six hours in all wounds that became infected. During this delay there was a high risk of contamination and the skin flap dried, resulting in devitalised tissue.

**Prevention** We were surprised by the high incidence of skin tears and, therefore, drafted a prevention policy (Everett and Powell, 1994) (see Box).

**Conclusion** Patients with cardiac, pulmonary and vascular disorders constitute a special risk group. When this pathology is combined with dementia, balance and visual problems, and steroid therapy, the risk of skin tears increases (Degreel et al, 1994). The study demonstrates that the likelihood of healing is increased when an established procedure – the use of a soft silicone-coated net dressing – is followed, and in particular when treatment is given as soon as possible after injury.

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Draw up prevention guidelines for these wounds.

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Clinical research

A six-month trial was conducted involving 88 category I and II skin tears (scant tissue loss only) in 59 patients on medical, surgical and wards for older people.

Data was collected on each patient including: age; medication; nutritional status; treatment methods if they had previous tears; date and time of current injury; date and time the soft silicone-coated net dressing was applied; and wound location and cause.

Regular assessment of wound size, bleeding and exudate, were undertaken until day eight. In each case, the dressing was removed on day eight and the wound inspected to see how much it had healed. Healing chances were also correlated to risk factors in order to

THE PREVENTION POLICY

1. Protection of threatened skin
- Use emollient
- Encourage patient to wear long sleeves or stockings
- Apply bandages as a precautionary measure (in the absence of arterial insufficiency)
- Encourage patient to wear special leg protectors
- Apply a protective film before using adhesive tapes

2. Prevention
- Apply antiphlebitis stockings carefully
- Have short fingernails or wear gloves when caring for elderly patients
- Use tilt technique to prevent shearing forces
- Transport patients carefully
- Encourage patient to wear flat shoes to prevent falls
- Place, fix and remove venous catheters carefully
- When removing plasters, use glue solvent
- Cover the extremities with dressings, fixed with bandages
- Pay special attention to getting patients in and out of wheelchairs
- Be aware of the risk of self-mutilation

3. A safe environment
- Provide adequate lighting
- Look out for small furniture (night table, chairs) in the immediate surroundings
- Upholster sharp borders of furniture or bed surroundings with soft material

4. Education
- Inform patient about:
  - possible precautionary measures
  - the method of treatment
  - the healing process
- Train health professionals in prevention measures and the standard care plan

Leg Ulcer Forum

The Leg Ulcer Forum (LUF) was formed in 1993. It aims to advance clinical practice for the management of patients with leg ulcers and associated conditions through the education and support of relevant professionals. Membership is open to all health care professionals who are actively involved with the management of patients with leg ulcers and wounds, and is free due to the support of commercial sponsors and the success of the annual LUF conference.

The LUF website provides: membership details; back issues of the LUF journal; clinical articles and case studies; educational leaflets; information about conferences and study days; and links to other wound care sites. www.legulcerforum.org

Hand hygiene

The Hand Hygiene Liaison Group has launched a website with news, studies and information on skin integrity, hand-washing and skin care. The site is sponsored by GOJO. www.handhygiene.co.uk

Announcement of NT awards 2003

The Nursing Times Awards were relaunched in 2002 with more categories and a fresh, dynamic new look. Categories include Essence of Care in wound care, nutrition and continence and a new one on infection control. Other categories include: original research; cancer nursing; innovation in working with patients from different ethnic groups; and innovation in your specialty. Scholarships will also be awarded.

To request an entry pack for the Nursing Times Awards 2003 call Polly Read-Fleming on 020 7874 0542. Also look out for more information on www.nursingtimes.net

In this supplement, Sue Hayes, runner-up for the 2002 wound care award, reports on telemedicine for patients with chronic leg ulcers (see page 48)

Careers seminar

Wound Care: The Next Generation presented by Maureen Benbow, tissue viability nurse; 26 March, 12.00 and 14.00. Nursing Times Careers, 26–27 March 2003 Windsor Hall, G-MEX Centre, Manchester

Free ticket hotline: 0870 429 4392
Website: www.nursingtimescareers.co.uk

New dressing launched

Coloplast has launched a hydrocapillary dressing, Alione for use on low to high exuding wounds. It is available in 10cmx10cm, 12.5cmx12.5cm and 15cmx15cm sizes.