Skin tears: a case-based and practical overview of prevention, assessment and management

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Skin tears are a common type of tissue injury, which often go unrecognised and misdiagnosed. Furthermore, classification and documentation of skin is often poor, resulting in chronic wounds with associated adverse patient outcomes. The International Skin Tear Advisory Panel (ISTAP) recently updated the International Best Practice Guidelines and definition of a skin tear based on emerging evidence and expert discussion and consensus. This article presents a discussion of the epidemiology, risk factors and causes of skin tears. In addition, the most recent best practice recommendations for the prevention, assessment, and management of skin tears is summarised.

KEYWORDS:
- Arterial leg ulcers
- Assessment
- Atypical
- Chronic wounds
- Differential diagnosis
- Leg ulcers
- Venous leg ulcers

Skin tears are common yet specific acute wounds, distinct from all other wound types with a complex aetiology (LeBlanc et al, 2018). They are one of the most prevalent skin complications found among the extremes of age (Lichterfeld et al, 2015). Those with aged skin who have comorbidities are at particularly high risk of developing infections, causing chronicity and complications (Baranoski et al, 2012). While some skin tears are unavoidable, most are preventable (LeBlanc and Baranoski, 2011; LeBlanc et al, 2018: 19).

The recent International Skin Tear Advisory Panel (ISTAP) Best Practice Guidelines (LeBlanc et al, 2018) provide healthcare professionals with an update on the definition, prevalence, risk factors and causes of skin tears, while guiding the assessment, prevention and management in aged skin.

Often unrecognised, misdiagnosed and underreported, with confusion in terminology, the ISTAP have proposed an updated definition of a skin tear to characterise the injury as:

A traumatic wound caused by mechanical forces, including removal of adhesives. Severity may vary by depth (not extending through the subcutaneous layer).

(LeBlanc et al, 2018: 2)

Pain and decreased quality of life have been reported by individuals suffering from skin tears (LeBlanc et al, 2013a). As acute wounds, healing of a skin tear should follow a timely trajectory, however, it is often delayed as a result of numerous intrinsic and extrinsic factors. In these instances, the skin tear can develop into a chronic, non-healing, complicated wound (LeBlanc et al, 2018), resulting in adverse patient outcomes, and raising both human and economic costs. This is borne out in the case report presented in this article.

PREVALENCE, RISK FACTORS AND CAUSES OF SKIN TEARS

Age-related skin conditions are increasingly prevalent. Ageing is associated with anatomical and physiological skin changes, such as flattening of the dermo-epidermal junction, loss of cutaneous collagen, drying, and reduction in subcutaneous tissue, rendering the skin more fragile and less elastic (Lichterfeld et al, 2017).

Besides age-related skin changes, other factors such as immobility, sensory impairment, functional and cognitive disorders, multi-morbidities, and incontinence may render individuals more susceptible to developing a broad range of skin conditions, with skin tears being one of the most prevalent (Lichterfeld et al, 2015).

Skin tears occur most often in neonates, children and older patients (Bermark et al, 2018). They can occur on any anatomical site and are particularly common on the extremities (Serra et al, 2018).
Although skin tears are among the most prevalent acute wounds in healthcare settings, their recognition as a unique condition remains in its infancy. Individuals are at risk of developing skin tears due to increased skin fragility and other contributing risk factors. In order to provide (cost-)effective prevention, patients at risk should be identified in a timely manner. Skin tears may be associated with prolonged hospitalisation, intensive care needs, and high healthcare costs (LeBlanc et al, 2018).

PREVENTION OF SKIN TEARS

To prevent skin tears, it is important to accurately identify who is at risk, and why, with a view to reducing the incidence of avoidable skin tears (LeBlanc et al, 2018). This requires comprehensive skin assessment at the initial visit, with follow-up assessments at subsequent visits, ensuring that the findings are fully documented (All Wales Tissue Viability Nurse Forum, 2015). The Skin Tear Framework (Figure 1) provides a helpful summary of the important factors to consider when determining risk (LeBlanc et al, 2011).

**SKIN TEAR DEVELOPMENT**

Mechanical skin trauma, i.e. shear, friction and/or blunt force trauma

Individual/caregiver/healthcare professional, i.e. knowledge of skin tear prevention strategies, attitude, practice, or approach to providing care

Physical environment/healthcare setting, i.e. skin tear audit programme, support for skin tear reduction programmes, interprofessional approach to care

**RISK FACTOR CATEGORIES**

- General health
  - Chronic/critical disease
  - Aggressive behaviour
- Mobility
  - Dependence for activities of daily living
  - History of falls
- Skin
  - History of previous skin tears
  - Skin changes associated with ageing
  - Sun-damage

**‘Skin tears are underestimated and trivialised, leading to suboptimal prevention and delayed or inappropriate management (LeBlanc et al, 2011).’**

Skin tears are underestimated and trivialised, leading to suboptimal prevention and delayed or inappropriate management (LeBlanc et al, 2011). The consequence of mismanagement can be serious, predisposing individuals to intractable pain, negative mood states (anxiety), delayed wound healing, infection, and diminished quality of life. From a health economic perspective,
In individuals with aged skin, emollient therapy might include the use of moisturisers (creams, ointments and lotions), bath oils, gels and soap substitutes (National Institute for Health and Clinical Excellence [NICE], 2015). Many of the simple emollients work by ‘trapping’ moisture into the skin and reducing water loss by evaporation — very helpful in aged dry skin. Whereas emollients that contain humectants (e.g. urea), work by actively drawing water from the dermis to the epidermis and compensating for the reduced levels of natural moisturisers in the skin (All Wales Tissue Viability Nurse Forum, 2015).

In addition to the use of topical emollients, the patient’s bathing regimen should be considered, i.e. use of soap substitutes and avoiding the use of traditional soaps. Use of warm rather than hot water and soft cloths and towels are also important for maintaining skin integrity.

### General health

Simple measures of improving the patient’s hydration level and nutritional status, considering those at the extremes of weight, can help to reduce the risk of skin tears. In addition, it is important to be aware of those patients with polypharmacy, who need particular attention, as do individuals with mental health issues, such as dementia or psychosis, where there may be associated aggression requiring additional measures to prevent skin damage.

### Physical environment: clinical and home

Assessment of the clinical and home settings should be undertaken to identify and mitigate any risks. Relatively simple measures that can be addressed include careful manual handling, padding furniture and removing any obstacles, and avoiding sharp fingernails (patients’, carers’ and healthcare professionals’) or jewellery. In addition, a falls risk assessment should be undertaken, and special attention paid to patients who may be confused (NICE, 2015).

### Use of emollients

In individuals with aged skin, emollient therapy is vital to maintaining skin integrity. In a study by Carville et al (2014), the application of an emollient twice daily in aged care residents (n=420 in the intervention group, n=564 in the control group) across 14 facilities in Western Australia resulted in a reduction in incidence of skin tears by almost 50%. In the intervention group, the average monthly incidence rate was found to be 5.76 per 1,000 occupied bed days (a total of 450 skin tears over six months) compared to 10.57 per 1,000 occupied bed days (946 skin tears over six months) in the control group (P = 0·004) (Carville et al, 2014).

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shows a self-care checklist that may be appropriate to give to suitable patients to monitor their own skin health (All Wales Tissue Viability Nurse Forum, 2015; LeBlanc et al, 2018).

Education of healthcare professionals
Prevention of skin tears relies on increasing awareness of the problem initially, and subsequently providing education to all members of the multidisciplinary team — not just nurses, but also doctors, occupational therapists, physiotherapists and dietitians. Such education should include information on general skin health and maintaining skin integrity, as well as recognising and minimising risk. Equally important is the involvement of patients, carers and relatives to support the prevention of skin tears.

SELF-CARE CHECKLIST FOR PATIENTS AT RISK OF SKIN TEARS
(ADAPTED FROM ALL WALES TISSUE VIABILITY NURSE FORUM, 2015)

- Have I been given an individualised skin care plan?
- Am I using an emollient every day?
- Am I eating sensibly and drinking enough water?
- Am I keeping as active and mobile as possible?
- Have I thought about wearing clothing to protect my skin, e.g. long sleeves, shin guards or tubular bandages?
- Has my environment been made as safe as possible, e.g. adequate lighting, no obstacles, padding of furniture?

IDENTIFICATION AND ASSESSMENT OF SKIN TEARS

Holistic assessment of the patient and wound
When a patient presents with a skin tear, initial assessment should include a full holistic assessment of the patient as well as the wound. It is also important to establish the cause of injury. The wound should be examined for the following factors and documented as part of wound assessment (LeBlanc et al, 2018):

- Cause of the wound
- Anatomical location and duration of injury
- Dimensions (length, width, depth)
- Wound bed characteristics and percentage of viable/non-viable tissue
- Type and volume of exudate
- Presence of bleeding or haematoma

Classification
Classification tools are currently available for healthcare professionals to use when assessing a patient sustaining a skin tear.

A systematic, standardised and validated approach is required, and as such the ISTAP classification system (LeBlanc et al, 2013a) is recommended for use. The ISTAP system was developed using a Delphi process and validated by 839 international healthcare professionals in practice. It uses a simple method to classify skin tears (Figure 2), categorising them

<table>
<thead>
<tr>
<th>Type 1: No skin loss</th>
<th>Type 2: Partial flap loss</th>
<th>Type 3: Total flap loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear or flap tear which can be repositioned to cover the wound bed</td>
<td>Partial flap loss which cannot be repositioned to cover the wound bed</td>
<td>Total flap loss exposing entire wound bed</td>
</tr>
</tbody>
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Holistic assessment of the patient is vital, as their skin integrity and general health status are important for ongoing management. This should include factors such as (LeBlanc et al, 2018):

- Patient’s medical history
- Past history of skin tears
- General health status and comorbidities
- Medications and polypharmacy issues
- Mental health issues
- Psychosocial and quality of life factors
- Mobility/dependence on assistance for daily living activities
- Nutrition and hydration (adapted from Wounds UK, 2012).
Total skin flap loss that exposes the entire wound bed.

The working definition of a flap in relation to skin tears specifically, proposed by ISTAP is:

A portion of the skin (epidermis/dermis) that is unintentionally separated (partially or fully) from its original place due to shear, friction, and/or blunt force.

MANAGEMENT OF SKIN TEARS

Where possible, treatment of skin tears should aim to preserve the skin flap and maintain the surrounding tissue, reapproximate the edges of the wound, and reduce the risk of infection and further trauma. Starting appropriate treatment as soon as possible will improve patient outcomes.

Using the ISTAP skin tear decision algorithm (LeBlanc et al, 2013a; Figure 3), it is important to consider the following initial goals of treatment (LeBlanc et al, 2018).

Control bleeding
- Apply pressure and elevate limb if appropriate
- Specialised dressings may be utilised to control bleeding (Table 2).

Cleanse and debride
- Remove haematoma or any debris and cleanse/irrigate the wound as per local protocol
- Debride skin flap if not viable (LeBlanc and Baranoski, 2011)
- Ensure viable skin flaps are intact and edges approximated
- Protect fragile skin
- Classify, measure and document appropriately.

Manage infection/inflammation
- Check tetanus immunisation and take further steps if necessary
- Distinguish wound inflammation caused by trauma or from infection
- Diagnose the stage of the continuum of infection, managing covert and overt infection with a topical antimicrobial, and spreading and systemic infection with both systemic and topical antimicrobials (International Wound Infection Institute [IWII], 2016)
- Continue monitoring the wound for signs of infection (LeBlanc et al, 2018: 13).

Consider moisture balance/exudate control
- Moisture balance is essential to promote wound healing
- Select an appropriate dressing to manage the characteristics of the wound bed and protect the peri-wound skin from maceration.

Monitor wound edge/closure
- Generally, skin tears follow an acute wound-healing trajectory of 14–21 days, depending on size and depth of the skin tear. If this does not occur, the wound/patient should be reassessed, ensuring all potential factors known to

Figure 3.
ISTAP skin tear decision algorithm (LeBlanc et al, 2013).
Table 2: ISTAP skin tear product selection recommendations

<table>
<thead>
<tr>
<th>Product categories</th>
<th>Indications</th>
<th>Skin tear type</th>
<th>Considerations</th>
</tr>
</thead>
</table>
| Hydrogels                                    | Donates moisture for dry wounds                  | 2, 3           | ☐ Caution: may result in peri-wound maceration if wound is producing a high volume of exudate  
☐ For autolytic debridement in wounds with low exudate  
☐ Secondary cover dressing required          |
| Foam dressings                               | Moderate exudate  
Longer wear time (2–7 days depending on exudate volume) | 2, 3           | ☐ Caution with adhesive border foams. Where possible, use non-adhesive versions to avoid periwound trauma  
☐ May need secondary cover dressing          |
| Non-adherent mesh dressings                  | Dry or exudative wounds                          | 1, 2, 3        | ☐ Maintain moisture balance for multiple levels of wound exudate  
☐ Atraumatic removal  
☐ May need secondary cover dressing          |
| 2-octyl cyanoacrylae topical bandage (skin glue) | To approximate wound edges                      | 1              | ☐ Use in a similar fashion as sutures within first 24 hours post injury, relatively expensive, medical directive/protocol may be required |
| Acrylic dressing                             | Mild-to-moderate exudate without any evidence of bleeding; may remain in place for an extended period of time | 1, 2, 3        | ☐ Care on removal  
☐ Should only be used as directed and left on for extended wear time |
| Calcium alginites                            | Moderate-to-heavy exudate; haemostatic           | 1, 2, 3        | ☐ May dry out wound bed if inadequate exudate volume  
☐ Secondary cover dressing required          |
| Hydrofiber                                   | Moderate-to-heavy exudate                        | 2, 3           | ☐ No haemostatic properties  
☐ May dry out wound bed if inadequate exudate  
☐ Secondary cover dressing required          |

Special considerations for infected skin tears

| Ionic silver dressings                        | Effective broad-spectrum antimicrobial action, including antibiotic-resistant organisms | 1, 2, 3        | ☐ Should not be used indefinitely  
☐ Contraindicated in patients with silver allergy  
☐ Use when local or deep infection is suspected or confirmed  
☐ Use non-adherent products whenever possible to minimise risk of further trauma |
| Methylene blue and gentian violet dressings   | Effective broad-spectrum antimicrobial action, including antibiotic-resistant organisms | 1, 2, 3        | ☐ Non-traumatic to wound bed  
☐ Use when local or deep infection is suspected or confirmed  
☐ Secondary dressing required                  |

Note: this product list is not all-inclusive; there may be additional products applicable for the treatment of skin tears (www.skintears.org)

delay healing have been managed appropriately, e.g. peripheral oedema, diabetes, etc.

If the skin tear occurs on the lower leg, full vascular assessment is required before applying compression therapy, e.g. ankle brachial pressure index (ABPI) should be measured and be at least 0.90mmHg.

It is important to refer to a wound care specialist when the skin tear is infected or extensive (LeBlanc et al, 2016).

Manage pain
Healthcare professionals should always assess the degree and nature of pain on an ongoing basis, using a validated tool to identify the most suitable treatment plan for the patient (Stephen-Haynes and Carville, 2011).

‘Skin tears should be covered with a topical wound dressing. The dressing selected should be removed in the direction of the pedicle... Indicating the direction for dressing removal is a useful graphic message to promote flap viability.’

Barriers to accurately assessing pain should also be identified, e.g. loss of sensation, with dressings selected that minimise pain on application and removal (Stephen-Haynes and Carville, 2011). Dressings should always be removed slowly with an adhesive remover to minimise trauma (LeBlanc et al, 2018: 10). Further research regarding skin tears and associated pain is required (LeBlanc and Baranoski, 2017).

Practice point
Accurate identification of skin tears, holistic assessment and documentation of both patient and wound, including skin integrity, general health and classification of a skin tear, utilising a systematic, standardised, validated approach, is imperative for setting appropriate treatment goals to optimise management and healing of skin tears in clinical practice.
Dressing selection

Skin tears should be covered with a topical wound dressing. The dressing selected should be removed in the direction of the pedicle, rather than against it. Indicating the direction for dressing removal on the dressing is a useful graphic message to promote flap viability (Holloway and Le Blanc, 2016) (Figures 4a and 4b).

It is vital that wound products chosen optimise wound healing and minimise the risk of further skin damage.

The ideal dressing should (LeBlanc et al, 2016):
- Control bleeding
- Be easy to apply and remove
- Not cause trauma on removal
- Provide a protective anti-shear barrier
- Optimise the physiological environment (moisture, bacterial balance, temperature, pH)
- Be flexible and mould to contours
- Provide secure, but not aggressive, retention
- Afford extended wear time
- Optimise quality of life and cosmetic factors
- Be non-toxic
- Be cost-effective (Carville and Smith, 2004; Wounds International, 2017).

Following a systematic review to reach consensus, ISTAP established a global product-selection guide (Table 2), identifying products which provide moist wound healing while protecting the fragility of the skin. ISTAP recognises that not all products are available or acceptable in every country and the guide is not all-encompassing.

Products not recommended for use with skin tears

These include:
- Iodine-based dressings, owing to their drying properties. Skin tears are usually dry by nature (LeBlanc et al, 2016)
- Films/hydrocolloid dressings, due to their adhesive properties (LeBlanc et al, 2016)
- Gauze (Meuleneire, 2003).

Honey dressings were not recommended in the original ISTAP guidance (2016) due to the increased risk of peri-wound maceration. However, there is emerging evidence to suggest that Leptospermum honey-based dressings can be effective without causing maceration (Johnston and Katzman, 2015).

CONCLUSION

This review has highlighted that skin tears are unique wounds with a complex aetiology often associated with a number of underlying comorbidities.

Generally, these types of injuries are commonly found in the extremes of age and are mostly preventable with judicious skin care.

When a skin tear does occur, appropriate assessment is required to classify the degree of damage and subsequently to implement the most appropriate management plan. Where possible, the viable skin flap should be maintained, and appropriate dressings used to protect the wound from further damage.

Of equal importance is the prevention of infection and management of pain. While it is not possible to recommend one dressing as being preferable to another, current recommendations are that iodine-based dressings, film and hydrocolloid dressings, skin closure strips and gauze should not be used.

REFERENCES


CASE REPORT

Mrs Jones is a 70-year-old female, living at home with her husband. She is a retired nurse, having spent the bulk of her career conducting research and mentoring other nurses. She describes herself as a fiercely independent person, who enjoys being organised and in control. She has no major medical complaints, but has had several squamous cell carcinomas removed from her arms and face and has noticed that her skin has become chronically dry and lost much of its elasticity. On 10 July 2018, she sustained a skin tear to her left lateral calf as a result of trauma caused by the corner of her car door. At the time of injury, she noted very little pain, despite having a semi-triangular area of tissue loss measuring 6x3.75cm (Figure 5). The wound extended to the subcutaneous layer of the skin. Her initial reaction was one of irritation. She applied a gauze pad secured with tape and checked her records to ensure that her tetanus vaccination was up to date.

Mrs Jones noted that in the days following the injury, the wound became very painful, especially during dressing changes. She noted no signs or symptoms of infection and became annoyed that such a simple wound should cause so much pain. Her annoyance increased when almost two months later the wound was still not healed (Figure 6).

At this point, Mrs Jones decided to speak with a colleague who specialised in wound management. She learned that her wound was a type 3 skin tear and that healing was delayed due to the type of dressing she was using and to her previously unrecognised lower leg oedema. Her ankle brachial pressure index (ABPI) of 1.2 demonstrated that she had adequate perfusion to support the use of compression therapy. Mrs Jones opted to wear 30–40mmhg compression socks. She also changed the dressing to a non-adherent silicone foam dressing, which she changed every three days. Her colleague also suggested that she moisturise her arms and legs two times per day in an effort to prevent future skin tears.

Mrs Jones remarked that her pain greatly decreased once she stopped changing the dressing daily and applied the silicone foam. One month later, three months since the time of injury, she noticed that the wound was almost closed. However, the new skin was very dry and looked as if it might tear easily (Figure 7). Mrs. Jones learned from this experience that skin tears are not inconsequential wounds, but rather painful wounds which can become chronic and complex if not managed appropriately.

Figure 5. Skin tear as of 10 July 2018.

Figure 6. Two months post-injury.

Figure 7. Three months post-injury.
KEY POINTS

- Skin tears are among the most prevalent acute wounds in healthcare settings.
- Skin tears are often unrecognised, misdiagnosed and underreported.
- Patients at risk should be identified in a timely manner in order to reduce impact on health and financial cost.
- Measures to prevent skin tears include discussing with patients the use of emollients to maintain healthy skin, and the importance of healthy eating and good hydration.
- Comprehensive skin assessment and follow-up assessments are important to identify those at risk. Outcomes must be well documented.
- It is vital that wound products selected to manage skin tears optimise wound healing and minimise the risk of further skin damage.


