

The challenge of skin tears and lacerations in an emergency environment

KEY WORDS

- ▶ Atraumatic
- ▶ Non-adhesive silicone foam
- ▶ Patient satisfaction
- ▶ Skin tear

Acute traumatic skin injuries are increasing in both acute and community settings. Multiple comorbidities, complex medication regimens and increasing age, all contribute to the risk of their occurrence (Bateman, 2012). Damage to the skin and underlying tissues poses an increasing challenge to the clinician due to ever reducing wound care resources and financial budgets, which in turn can have a detrimental effect on the patient and carer through increased pain, scarring and overall reduction of quality of life (Gardner, 2010). Effective and timely assessment and management, including accurate documentation and utilisation of the appropriate dressing products is paramount to reduce further tissue damage and risk of infection, improving the wound bed environment to ensure effective healing can occur (Stephen-Haynes and Carville, 2011). This product review evaluates ten patients who presented to an NHS nurse-led minor injuries unit within Wales with acute or chronic skin tears. It explores the benefits of Cutimed® Siltec non-bordered foam (with a non-adhesive silicone wound contact layer) with set outcomes pertaining to ease of product use, non-adherence to the fragile wound bed, atraumatic removal, wear time, absorbency and patient satisfaction.

The skin consists of the epidermis, dermis and hypodermis, which alter with the ageing process (Box 1). This increases fragility with loss of:

- ▶ Tissue thickness
- ▶ Skin lubrication
- ▶ Elasticity and strength
- ▶ Overall protective mechanisms.

This, in turn, increases the risk of tissue damage, infection and scarring (Stephen-Haynes and Carville, 2011; Bateman, 2012). As ageing tends to result in a change in the deposition of subcutaneous tissue in specific areas, such as the face, dorsal aspect of the hand, and bony prominences, such as the shin, knee and elbow, these are the common sites of trauma that are presented to the clinician (Benbow, 2009).

A skin tear is a traumatic wound where separation of the skin layers occurs (Fleck, 2007). The epidermis and dermis are connected at the dermo-epidermal junction via ridges that knit the two layers together. This area can become flattened, weakened with age and disease,

producing a vulnerable instability to the body's protective layer (Bateman, 2012). There are many interconnected factors that increase the risk of developing a skin tear that clinicians must be aware of when planning care for the patient (Box 2). When shearing, friction and moisture are present, the epidermis and dermis may divide (partial thickness) or the two layers may separate

Box 1. Ageing effects on the skin — aspects in decline (Tanji and Phillips, 2001).

- ▶ Epidermal turnover
- ▶ Immune function
- ▶ Wound healing
- ▶ Vascular responsiveness
- ▶ Injury response
- ▶ Thermoregulation
- ▶ Barrier function
- ▶ Sweat production
- ▶ Chemical clearance rates
- ▶ Sebum production
- ▶ Sensory perception
- ▶ Vitamin D production.

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Box 2. Factors that increase the risk of skin tears.

- » Ageing
- » Gender
- » Position
- » Levels of mobility
- » Mechanical and chemical trauma
- » Exposure to irritants and allergens
- » Medical conditions
- » Disease processes
- » Comorbidities
- » Medications
- » Overall skin conditions
- » Echymoses
- » Impaired senses and cognitive function
- » Poor nutrition and hydration
- » Dependence on others for showering, dressing and transferring.

Adapted from Ousey (2009), Stephen-Haynes and Carville (2011), Bateman (2012)

Box 3. Prevalence of skin tears.

- » 0.92% incidence rate reported in an elderly care facility in the USA reference (Malone et al, 1991)
- » 16% of the population sustained skin tears each month in a 120-bed facility in Australia (White et al, 1994)
- » 41.5% of known wounds were found to be skin tears in older care residents (mean age 80 years) in a 347-bed long-term care facility in Western Australia (Everett and Powell, 1994)
- » 8–11% skin tear prevalence reported in surveys in all Western Australian public hospitals in 2007, 2008 and 2009 (Government of Western Australia Department of Health, 2009)

Table 1. Payne and Martin Classification System (1993).

Category I	Category II	Category III
Skin tear without tissue loss	Skin tear with partial tissue loss	Skin tear with complete tissue loss

completely from the underlying structures (full thickness) (Payne and Martin, 1993).

The prevalence of skin tears is alarming and on the increase due to an ageing population (Box 3). This increase in skin tears occurrence can be, among other things, attributed to more falls and other age-related risks and diseases, such as diabetes, vascular insufficiency and obesity, all of which have a direct impact on the susceptibility of the skin and underlying tissue (Timmons, 2006).

Skin tears should be acknowledged as a significant wound aetiology that has a high risk of complication, increasing patient morbidity and mortality (Stephen-Haynes and Carville, 2011).

THE CLASSIFICATION OF SKIN TEARS

Skin tears can be classified in several different ways, although as yet there is no universally agreed system for assessment. The tools advocated by Payne and Martin (1993) and the Skin Tear Audit Research (STAR) team (2010) are valuable in aiding the clinician in the consistent diagnosis and classification of a skin tear and the application of appropriate management regimens (Table 1 and Table 2).

AIM OF IMPLEMENTATION

With the ongoing burden that traumatic wounds, such as skin tears, pose to the clinician and the

variance in management regimens, dressing choice and inconsistent practice across healthcare settings, the team at the minor injuries clinic agreed to aim at using one single product of choice.

The decision to evaluate Cutimed® Siltec foam (BSN Medical) dressings was taken following a review of current evidence, including several clinical evaluations that identified key performance parameters such as absorbency, non-adherence to the wound bed, atraumatic removal and cost effectiveness. (Stephen-Haynes and Timmons, 2009; Bateman 2014).

CUTIMED SILTEC

Cutimed Siltec foam dressings have a non-adhesive silicone wound contact layer, a super absorbent layer and a highly breathable top film layer. Clinical case studies demonstrated (Thomas, 2009; Süß-Burghart, 2009) that the product absorbs and locks away excess exudate within the dressing, promoting a moist wound environment. Clinical indications for this product include wounds with varying levels of exudate, venous and arterial leg ulcers, diabetic foot lesions, pressure ulcers, skin grafts, surgical and traumatic wounds (including skin tears), either as a primary or secondary dressing (Stephen-Haynes and Timmons, 2009).

Although there are several advanced foam dressing products available to the clinician in the

Table 2. STAR Classification System (Skin Tear Audit Research Team, 2010).

Category 1a	Category 1b	Category 2a	Category 2b	Category 3
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.	A skin tear where the edges can be realigned to the normal anatomical position (without undue stretching) and the skin or flap colour is pale, dusky or darkened.	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.	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.	A skin tear where the skin flap is completely absent.

Table 3. Patient demographics summary (100%) with skin tear injury.

	Male	Female	Total
Gender	6 (60%)	4 (40%)	10 pts (60/40)
Age	64–94	64–94	Mean age 79
Cardiac disease	2	2	40%
Respiratory disease	3	3	60%
Endocrine disease (hypothyroidism)	2	0	20%
Musculoskeletal disease	1	1	20%
Poor wound healing — age	3	2	50% over age 80
Warfarin therapy — clotting	2	1	30%
Steroid therapy — friable skin	1	2	30%
Periwound skin maceration/damage	3	5	80%

management of skin tears, not all products meet the needs or choice of individual patients and clinicians for a variety of reasons. Cooper (2006) emphasised that the most effective way to manage a skin tear is with a product that aids the skin flap to adhere back to the wound base where possible. With full-thickness tears that do not have a viable flap, a non-adherent product that protects the friable wound bed and periwound skin is needed. Within today’s advanced wound care arena, which constantly promotes improvements to dressing functions — e.g. absorbency, retention of fluids and wear time — it is essential that clinicians maintain an updated, holistic approach that includes the evaluation of new innovative products to ensure the patient receives best evidence-based practice.

METHODS

A total of ten patients, who were referred with traumatic skin tears were, recruited through an NHS nurse-led minor injuries unit in Wales. Inclusion criteria were:

- ▶ Aged 18 years or over

- ▶ Wounds that require dressing management only
- ▶ No evidence of neurovascular deficit
- ▶ Moist wound bed
- ▶ Able to attend the unit for follow-up appointments
- ▶ Wounds that were closed with adhesive paper strips, sutures or staples prior to dressing application
- ▶ Ability to give informed consent.

Exclusion criteria were:

- ▶ Evidence of neurovascular deficit
- ▶ A dry wound bed
- ▶ Wounds that required surgical intervention
- ▶ Concurrent malignancy
- ▶ Osteomyelitis
- ▶ Participation in previous studies within 28 days
- ▶ Inability to give informed consent
- ▶ Allergy or sensitivity to product components.

Those patients who met the criteria were approached for participation, provided with the appropriate information to enable an informed decision to be undertaken (Table 3). Wound care

Table 4. Wound summary — skin tears.

	Location	Pre-evaluation age	Size	Description (STAR classification)
Patient 1	Flap laceration to left dorsum	24 hours	4 cm × 0.2 cm	Category 1a
Patient 2	Flap left forearm	24 hours	5 cm × 0.2 cm	Category 2a
Patient 3	Linear laceration to right arm	24 hours	5 cm × 0.2 cm	Category 1a
Patient 4	Flap laceration to left arm	24 hours	5 cm × 0.2 cm	Category 1a
Patient 5	Flap laceration to lower left leg	24 hours	5 cm × 7 cm	Category 2a
Patient 6	Flap laceration to right leg	4 hours	5 cm × 0.2 cm	Category 2a
Patient 7	2 linear lacerations to right forearm	1 hour	8 cm × 0.2 cm	Category 1a
Patient 8	Flap laceration to left lower leg	24 hours	1.8 cm × 0.5 cm	Category 1a
Patient 9	Flap laceration to left lower leg	24 hours	4 cm × 1 cm	Category 2a
Patient 10	Flap laceration to left arm	1 hour	5 cm × 0.2 cm	Category 1a

data was collected using a standard wound care continuum proforma within the minor injuries unit at application of the new product and at each of the patient’s booked follow-up visit until discharge from the clinic. Data were collated by the senior nurse from the perspective of the clinician and patients experience in regards to dressing application, removal, pain, comfort and a free text section to capture comments that either felt appropriate.

ASSESSMENT

Following entry into the evaluation, each patients wound was cleansed and closed as is normal practice prior to being dressed with the Cutimed Siltec foam product. It is essential in any evaluation to reduce potential variables where possible, such as skin preparation and dressing techniques, ensuring that the only difference in the usual care is that of the product to reduce the unnecessary effects on wound care outcomes (Mayer, 2004). The wound assessment was carried out by the same minor injuries nurse to ensure consistent data collection. A total of 40 evaluations were undertaken and 50 dressing products used (Table 4).

RESULTS

The consecutive results from the evaluation of ten patients demonstrated positive outcomes with regards to exudate containment and maintenance of a moist wound bed, periwound skin healing (8 out of the 10 patients had damaged periwound skin) and protection, atraumatic application and removal. All ten patients continued with the product within their wound care journey; mean clinic time of 28 days across the patient group, with patients expressing their approval of the product, especially those that presented with friable tissue. All of the clinicians involved in the evaluation were happy to continue to use the product within the minor injuries unit. In line with current practice within the minor injuries unit, a crepe bandage was used for retention.

CONCLUSION

The optimal goal of effective skin tear management within wound care is containment of excess exudate; protection and healing alongside the promotion and maintenance of patient comfort; safety; quality of life; and a resulting positive wound care journey across all avenues of healthcare. Equally

important is the involvement of both the patient and clinician within the decision making process and subsequent choice of the most evidence-based, appropriate wound dressing product to facilitate concordance and achievement of satisfactory outcomes where possible.

The implementation and evaluation of a non-bordered foam product such as Cutimed Siltec for the management of friable, vulnerable traumatic damaged tissue is welcomed by both patients and clinicians. Although dressing products are only one facet of the holistic management of skin tears along with prevention, good skin care regimens and creating a safe environment, the use of Cutimed Siltec is a welcome addition to that package.

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ACKNOWLEDGEMENT

The data for this article was collated by Wendy Hopkins, Consultant Nurse; Melanie Noble, Team Leader/Emergency Nurse Practitioner, and Linda Gandy, Senior Healthcare Support worker.

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Figure 1. Skin tear Category 1a from a fall onto a hard sharp surface. Patient A on day 1 (a) day 3 (b) and healed at day 7 (c).

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