Skin tear prevalence and management at one hospital

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Abstract

One organisation undertook a hospital-wide audit of skin tears to determine the type, location and current wound management practices in place. Prevalence varied greatly between wards, ranging from 0-3.8% in surgical wards to 27% in the palliative care ward. Using the Payne-Martin skin tear classification system, the majority of skin tears were categorised as 2A, partial thickness skin tears with less than 25% tissue loss. The audit discovered various management practices in places, some at variance with recommended wound care practices. To support consistency of practice, organisational practice guidelines were developed and are in the process of being disseminated to staff. Evaluation measures will consist of regular auditing practices, noting prevalence, location, causation factors and wound management practices, as well as staff knowledge.

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Introduction

Changes in the skin associated with ageing are many, and predispose the older adult to skin tears due to a reduced ability to withstand the forces of pressure, shear and/or friction [1, 2]. Changes include reduced dermal thickness, weakened dermal-epidermal junction, reduced Vitamin D, migration of capillary epithelial cells, epidermal turnover, increased fragility of capillaries, compromised inflammatory response, degeneration of the elastic fibres in the dermis, a reduction of the total amount of collagen, as well as concomitant illnesses and medications [1, 2]. In recognition of this interplay between the physiological changes in the skin and trauma from the external environment, skin tears have been defined as:

> *... a traumatic wound occurring principally on the extremities of older adults, as a result of friction alone or shearing and friction forces which separate the epidermis from the dermis or which separate both the epidermis and the dermis from underlying structures* [3].

Due to the varying depths and degree of tissue damage that may occur, a skin tear classification system was developed by Payne & Martin in 1990 and revised in 1993 (Table 1). The development of this classification system was thought to facilitate clinical judgement regarding diagnosis and treatment, and provide opportunity to evaluate the effectiveness of selected treatments [3]. However, a survey undertaken by White in 2001 which identified the opinions of registered nurses (RNs) in 120 high care residential aged care facilities across Australia, found that none of the RNs were aware of, could describe, or used the classification system to guide their treatment choice [4].

Determining the prevalence of an issue is calculated as a cross-sectional count of the number of cases at a specific point in time, and is an appropriate methodology when the goal is to identify the current size and characteristics of the population/topic under study [5]. However, the literature provides little guidance on the prevalence of skin tears in an acute care setting; a systematic search of the literature revealed only one

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unpublished study reported by White in 2001. A prevalence rate of 14% was found following an examination of patients in two wards in a hospital in Adelaide [4]; the details of this study are, however, unknown.

An examination of the literature citing the location of skin tear occurrence amongst patients in residential care settings identifies the upper and lower extremities as the most common sites of occurrence. Edwards *et al.* found that 60% (n=54) of skin tears were located laterally or anteriorly on the right lower leg [6], whilst Malone *et al.* found in a study examining staff documentation of instances of skin tears (n=321), that 80% occurred on the upper extremities [7]. White *et al.* provide a possible answer to the varied location of skin tears. This study found that the dependent patient primarily sustained upper extremity skin tears, which occurred during routine provision of activities of daily living, whilst the independently ambulatory patient primarily sustained skin tears on the lower extremity caused when transferring from chairs or tub chairs [8].

Dressing choice varies according to wound characteristics; products cited as suitable in the literature include steristrip™ and gauze, vaseline impregnated gauze, films, alginates, foams or hydrocolloid type dressings [4, 9, 10]. However, choice remains difficult for the practitioner as these appear contradictory to each other or do not fully articulate wound characteristics and additional factors that may have an impact upon wound healing times. For example, Edwards [6] demonstrated faster healing rate with steristrip™ /melolite™ compared to occlusive dressings (films and hydrocolloids), with two thirds healed by Day 7, whilst others have found films useful [10, 11]. Other authors, however, do not recommend the use of films, as removal may result in tearing of a larger part of the epidermis [6, 9, 12]. Use of hydrocolloids also appears contradictory in the literature and centres largely around the need for frequent changing due to the level of exudate produced by Category 2 and 3 tears [10, 12]. The use of a hydrofibre dressing may overcome this concern. Some research findings need to be read with caution; for example, one study reporting faster healing rates with steristrip™/melolite™ does not differentiate between the various skin tear categories when reporting healing times [6].

Consideration of dressing choice is not only dependent upon wound characteristics such as the classification of skin tear, and the degree and type of exudate. Organisations also need to consider the availability and cost of the dressing product, nursing knowledge, nursing time, stage of healing, ease of dressing removal, presence of infection, as well as the discharge destination of the patient as it is unlikely that the wound would have been completely healed on discharge. Whilst it is acknowledged that *"no single item is appropriate for all skin tears"* [13], it appears that there is a need for practice guidelines to assist nurses to make appropriate choices which promote healing with the least amount of trauma [14].

Table 1. Payne-Martin classification of skin tears.

Classification	
Category 1: Skin tears without tissue loss	
Linear	A full thickness wound which occurs in a wrinkle or furrow of the skin. Both the epidermis and dermis are pulled apart as if an incision has been made, exposing the tissue below.
Flap	Partial thickness wound in which the epidermal flap can be completely approximated or approximated so that no more than 1mm of the dermis is exposed.
Category 2: Skin tears with partial tissue loss	
Scant tissue loss	partial thickness wound in which 25% or less of the epidermal flap is lost and in which at least 75% or more of the dermis is covered by flap.
Moderate-large tissue loss	partial thickness wound in which more than 25% of the epidermal flap is lost and in which more than 25% of the dermis is exposed
Category 3: Skin tears with full tissue loss	
Full tissue loss	Epidermal flap is absent [1]

Project aim

This project aimed to identify both the prevalence of skin tears within a tertiary health care institution in Adelaide and the location and type of skin tear present and wound dressing in place. The intention of the audit was to quantify skin tear prevalence rates within all wards prior to the introduction of best practice skin tear prevention and management guidelines. This article presents an overview of the audit findings and the developed guidelines, including a rationale for practice choice.

Method

Two auditors, over a 2 day period in the month of December 2003, examined all patients for the presence of a skin tear. Included in the audit sample were all current inpatients, excluded were all day patients, outpatients and ambulatory psychiatric inpatients. Verbal consent was obtained prior to all skin inspections. Four patients in the palliative care ward refused consent due to their stage of illness.

Prior to the audit itself, auditors became familiar with the Payne-

Martin skin tear classification system and reviewed pictures of various skin tears categories. Both auditors viewed all skin tears and were required to reach a consensus on the category level. Both auditors had over 10 years' experience in wound assessment. Skin tears were classified using the revised Payne-Martin classification system. The location of the skin tear and dressing product in use were noted. The medical record was also examined for documentation of skin tear progress.

Results

A total of 187 patients were examined in 11 wards. Twenty patients had skin tears present at the time of audit, with five patients having more than one. Prevalence rates ranged from 4% in the orthopaedic surgical ward to 27% in the palliative care ward, with the overall hospital prevalence rate recorded as 11%. A breakdown of prevalence rates by ward type is provided in Table 2.

Classification of the skin tears using the revised Payne-Martin classification system was undertaken at the time of audit, with the majority of skin tears classified in Category 2A – partial thickness skin tears with less than 25% tissue loss (Table 3). Audit staff did not identify the cause of the skin tear at the time of the audit; however, a review of the patients' medical records and incident reports for the time period identified that 25% resulted as an outcome of a fall in hospital.

Table 2. Percentage of patient with skin tears.

Ward type	Total no. of patients audited	No. of patients with skin tears	Prevalence
Aged & extended care	27	5	18.5%
Respiratory medicine	23	5	21.7%
ICU/CCU	3	0	0
Cardiac medicine	19	1	5.2%
Orthopaedic/ urology surgery	26	1	3.8%
Vascular/general surgery	22	0	–
Psychiatry	2	1	4.5%
Palliative care	11	3	27%
Neurological rehabilitation	20	1	5%
Orthopaedic/vascular rehabilitation	20	2	10%
General rehabilitation	14	1	7.1%
Total	**187**	**20**	**10.69%**

Sixty three percent of skin tears occurred on the upper body and 36% on the lower body. A range of treatment modalities was identified at time of audit; a description of dressing by category type is presented in Table 4. Twenty four percent of skin tears did not have a dressing in place at time of audit and three of these were classified as Category 3 skin tears.

Discussion

It is clear from the audit findings that prevalence rates vary between wards and clinical specialties; this is most probably due to the varying dependency level which exists between medical and surgical wards in hospitals. However, the cause of this varied rate was not explored at the time of the audit.

The location of skin tears was consistent with previous studies [6-8, 13]. Whilst the skin tear group was too small to determine any statistical conclusions, a review of the patients' dependency and mobility levels did not identify any differences between patients who had skin tears on their upper or lower extremities. Of the 10 patients who suffered a skin tear to a lower extremity, six required two nurse assistants to perform any activity of daily living, whilst seven of the 13 patients who suffered a skin tear to their upper extremities also required two nurse assists. White, in 1994, concluded that ambulant patients sustain skin tears primarily to their lower extremities, whilst skin tears on wheelchair bound and bed-fast patients occurred primarily on the upper extremities [8]. The variance in this audit finding to that of White's may be due to the difference in patient population – White's study focused on patients in the residential care setting – or, more likely, that the sample size was too small to compare.

The lack of consistent dressing regimes was not unexpected. There are currently no skin tear dressing standards in place within the institution to assist practitioners and, as one can see from the range of products listed, practitioners are using a range of products; not all are conducive with optimal wound healing. The review of the medical record also identified that documentation of the skin tear, progression and outcome was scant to non-existent.

Development and implementation of best practice guidelines

Following presentation of the audit results to the organisation's Nursing Practice Review Committee, a decision was made to form a small working party to review the literature and articulate *Best practice guidelines in the prevention and management of skin tears* for dissemination to the wider nursing community. The group undertook a systematic review of

the literature, consulted companies marketing wound care products and drew on the experience of members themselves, who had a combined total of over 100 years' post registration experience. The developed guidelines were also reviewed by the institution's plastic surgeons.

Guideline components

The developed guidelines consider both prevention and management strategies. Preventative strategies focus on protecting the skin, movement without damage and additional general measures such as skin inspection daily and the provision of a nutritious diet.

Management strategies centred on the use of the Payne Martin classification system as its basis, as categories are dependent on degree of tissue loss and these types of wounds have some predictable characteristics. The developed guidelines match the dressing choice with the skin tear category. These guidelines do not negate the need for wound assessment; however, the novice nurse with limited wound assessment experience can safely use the guidelines, as they will provide the requirements of protection of the flap and surrounding skin and exudate management.

Management guidelines

All skin tears require cleansing by irrigation with normal saline to remove foreign debris, blood clot and excessive wound fluid, and promote flap flexibility. Use of moistened cotton tips allows for easier manipulation of the flap to ensure close approximation of flap edges [12].

Category 1 skin tears (without tissue loss – linear and flap types) are best managed with steri-strips to secure the repositioned flap in place [10, 12]; however, care should be taken to ensure tension is not applied as this will result in damage. The wound is then covered with a low adherent, acetate fabric dressing lightly impregnated with petrolatum emulsion solution (adaptic™/cuticerin™) followed by a non-adherent dry dressing (melolin™), held in place with tubifast™ (or crêpe bandage). It is expected that, following the initial trauma, wound exudate will be minimal and easily managed by the melolin™ dressing.

Table 3. Percentage of tears by classification type.

	Category 1		Category 2		Category 3
	Linear	Flap	<25% epidermal loss	>25% epidermal loss	Complete tissue loss
No of tears	3 (9%)	7 (21%)	12 (36.3%)	5 (15%)	6 (18%)

Table 4. Dressing type insitu by category type.

Dressing type	Category 1		Category 2		Category 3
	Linear	Flap	<25% epidermal loss	>25% epidermal loss	Complete tissue loss
Nil	1	1	1	1	3
Betadine paint	0	1	0	0	0
Steristrips	0	4	0	0	0
Film	1	0	5	1	0
Steristrips™ & melolin™	0	0	0	1	0
Melolin™/hyperfix (primapore™)1		0	0	0	0
Jelonet™ & melolin™	0	0	0	1	1
Steristrips™ and film	0	1	0	0	0
Hydrocolloid	0	0	0	1	1
Aquacel™ & hydrocolloid	0	0	6	0	0
Suture	0	0	0	0	1

O'Regan [15] suggests treating skin tears as skin grafts and using 'old style' Vaseline gauze and saline packs over Category 1 tears. It is possible that this treatment regime may lead to maceration of the flap and potential deterioration and subsequent loss of the viable flap tissue. Use of hydrocolloids, foams or more absorbent products would possibly be 'overkill' as the exudate levels are predictably minimal for this category of skin tear. Film dressings have also been reported by several authors as potentially causing trauma on removal [6, 9, 15-17] and therefore should be avoided on friable, fragile skin.

Initially, Category 2 & 3 tears are likely to produce moderate to large exudate and therefore require an absorbent dressing. A hydrofibre dressing such as Aquacel™, with a thin hydrocolloid as a secondary dressing, can provide absorbency and protection from maceration while being easy to remove, protective to the surrounding skin and waterproof. This can remain intact for approximately 3 days, unless leakage occurs. It is also important to mark the hydrocolloid to indicate the direction of the flap to ensure removal does not result in flap loss. Once exudate loss has lessened, a hydrocolloid ± hydrofibre dressing may be used until healing has occurred. Infected skin tears may require appropriate antibiotic therapy and may benefit from the application of topical anti-microbial dressings such as silver dressings, inadine™ or cadaxomer™ iodine products.

The guidelines have been formulated with consideration to discharge planning issues. As skin tears can take between 3 to 21 days to heal [6, 9, 16, 17] and can occur at any time during the inpatient period, it is crucial that the dressing regime can be adequately managed post discharge, regardless of the destination. Community nursing agencies, nursing homes and hostels all need to be familiar with the dressing regime chosen and have access to similar products to ensure continuity of care. Recent work in Europe [16] has highlighted the benefits of a soft silicone-coated net dressing (Mepitel™) in the management of skin tears. While having many advantages, current access to this in the South Australian community setting is limited.

Royal District Nursing (RDNS), which would be responsible for the ongoing dressing management for the majority of the non-institutionalised community patients in South Australia, was consulted during the drafting of the guidelines. While they will manage skin tears in accordance with their own policies, they were supportive of the hospital guidelines and welcomed a consistent, well communicated, well planned management strategy. RDNS and many of the hospital's feeder institutions currently use the products identified in the developed guidelines. On discharge, written dressing instructions consistent with the guidelines are provided to the community health care providers, while the patient receives a brochure explaining the ongoing management of the wound.

Education and guideline implementation

An education programme has been developed to promote the developed management strategies. This includes the provision of 15 minute education sessions to reinforce the guideline information, the development of an A3 colour poster with photos of the different categories of skin tears, flow charts guiding dressing choice and, lastly, the development of printed guidelines available in ward wound management folders.

Ward wound management resource nurses who have all undertaken at least a basic wound management course, will provide ongoing skin tear education and reinforce the guidelines at a ward level. The best practice framework has yet to be implemented organisationally as the working party is in the process of developing their evaluation measures.

Evaluation of outcomes

Six monthly auditing of skin tear prevalence has been integrated into the organisation's pressure prevalence auditing processes and future auditing practices will also review causation factors. Evaluation of uptake of the best practice guidelines will be undertaken via a staff questionnaire, which will be completed pre-post release of the best practice guidelines.

References

1. Pearson A & Wolford R. Management of skin trauma. Primary Care. Clinics in Office Practice 2000; **27(2)**:475-92.
2. Fenske N & Lober C. Structural and functional changes of normal ageing skin. Journal of the American Academy of Dermatology 1986; **15**:571-585.
3. Payne R & Martin M. Defining and classifying skin tears: Need for a common language. Ostomy/Wound Management 1993; **39(5)**:16-26.
4. White W. Skin tears: a descriptive study of the opinions, clinical practice and knowledge base of RNs caring for the aged in high care residential facilities. Primary Intention 2001; **9(4)**:138-148.
5. Defloor T, Bours G, Schoonhoven L & Clark M. Prevalence and Incidence Monitoring. In: European Pressure Ulcer Advisory Panel. Available: http://www.epuap.org/review4_1/page6.html
6. Edwards H, Gaskill D & Nash R. Treating skin tears in nursing home residents: a pilot study comparing four types of dressings. International Journal of Nursing Practice 1998; **4**:25-32.
7. Malone M, Rozario N, Gavinski M & Goodwin P. The epidemiology of skin tears in the institutionalised elderly. Journal of the American Geriatrics Society 1991; **39**:591-595.
8. White M, Karam S & Cowell B. Skin tears in frail elders: a practical approach to prevention. Geriatric Nursing 1994; **15(2)**:95-98.
9. Thomas D, Goode P, LaMaster K, Tennyson T & Parnell L. A comparison of an opaque foam dressing versus a transparent film dressing in the management of skin tears in institutionalised subjects. Ostomy/Wound Management 1999; **45(6)**:22-28.
10. Morey P. Skin tears: a case review. Primary Intention 2003; **11(4)**:197-202.
11. Coleman K. Practical management of skin tears. Woundcare Network 2001; **6**:2-4.
12. Meuleneire F. The management of skin tears. Nursing Times 2003; **99(5)**:69-71.
13. Everett S & Powell T. Skin tears: the underestimated wounds. Primary Intention 1994; **Feb**:28-31.
14. Baranowski S. Skin tears. Nursing Management 2001; **32(8)**:25-32.
15. O'Regan A. Skin tears: a review of the literature. WCET 2002; **22(2)**:26-31.
16. Meuleneire F. Using a silicone-coated net dressing to manage skin tears. Journal of Wound Care 2002; **11(10)**:365-9.
17. Krasner D. An approach to treating skin tears. Ostomy/Wound Management 1991; **32**:56-59.