

# Skin tears: a case review

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## Abstract

Skin tear occurrence is known to be a problem in the elderly, particularly in residential care. Within the acute care setting, the risk of elderly patients sustaining skin tears also presents challenges for care. The management of skin tears varies considerably and is best determined by assessment of the patient and skin tear itself. Two cases with different categories of skin tears treated in the acute care sector will be discussed and will highlight some of the risk factors and alternative options for wound management.

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## Introduction

A skin tear has been defined by Payne & Martin<sup>1</sup> 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 (partial-thickness wound) or which separate both the epidermis and dermis from underlying structures (full-thickness wound)”.

It is known that the elderly are more predisposed to skin tears because of both changes to the structure and function of the skin and other functional abilities. The skin of elderly adults becomes thinner and more fragile due to a reduction in the collagen and elastin within the skin and flattening of the dermal-epidermal junction<sup>2</sup>. Capillary fragility also increases; visible signs of this may include purpura and ecchymosis of the skin following minor trauma<sup>3</sup>.

With advanced age, adults are also susceptible to disease processes that impair mobility, cognitive function and vision,

placing them at greater risk of skin tears<sup>3,4</sup>. Nutrition in the older adult may also be sub-optimal, impacting on wound healing<sup>3</sup>. Environmental factors also contribute and it is known that skin tears often occur during patient handling, or are related to equipment such as wheelchairs and bed rails<sup>4,6</sup>.

Skin tears vary considerably in size, location, depth of injury and amount of tissue loss. It is important that each wound or skin tear is assessed according to its aetiology, wound characteristics, and overall goal of care, including an understanding of factors impairing healing or contributing to further injury.

The Payne-Martin classification system<sup>1</sup> is outlined in Table 1 and relates primarily to the amount of skin loss sustained. A category 1 tear is the least severe, whilst category 3 represents skin tears with complete tissue loss. The management of skin tears varies according to the wound's characteristics and may include skin closure strips, vaseline impregnated gauze, films, hydrocolloids, alginates, foams, low adherent dressings, and even gels<sup>4,7-9</sup>. With such a range of product categories and brands available, it is unlikely that one dressing will suit all skin tears.

Two cases will be presented which had different classifications of skin tears present and different management strategies.

## Case 1

### Background

Mrs J, aged 80, was transferred to a tertiary teaching hospital from a smaller private hospital, with ventricular tachycardia,

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left ventricular heart failure, pulmonary oedema and mild pneumonia. She had also sustained skin tears on the evening prior to transfer, following a fall from a hospital bed. Her past history included hypertension, smoking, congestive cardiac failure, osteoporosis of L5/S1 and bilateral cataracts.

Mrs J was orientated to time, place and person, but was drowsy at times, dyspnoeic and lethargic. Her medications included Frusemide, Perindopril, Digoxin, Rofecoxib, Sorbitol, Potassium chloride, Nitrazepam, Paracetamol, Amiloride hydrochloride and Oxazepam. She had also commenced a course of antibiotics for her pneumonia. There were no known allergies or skin sensitivities.

On admission, she was bradycardic (heart rate 55 bpm) and her BP was 143/71. Blood tests indicated some nutritional deficits, with a total protein of 55g/l and albumin of 27g/l. Urea and electrolytes indicated some renal impairment and her white cell count was elevated  $17.5 \times 10^9/l$  on admission. Haemoglobin levels were normal at 133g/l.

Mrs J was admitted to the coronary care unit for cardiac monitoring and management. She was very breathless on admission and required intranasal oxygen. A number of skin

tears were present on her left arm, from her wrist to her antecubital fossa. On the second day of her admission, the CNC wound management was consulted to assist with the management of these tears.

She was a frail lady with poor tissue turgor and fragile, papery-thin skin. According to the Payne-Martin classification system<sup>1</sup>, the skin tears were predominantly category IB – flap type with less than 1mm tissue loss. The skin tears were found to have a thin hydrocolloid wafer dressing in place which needed replacement as exudate was leaking from the edges of the dressing. In addition, there was slight maceration of the peri-wound skin and lifting of the skin flaps from the dermal bed.

Mrs J had a number of risk factors for skin tears including age related skin changes, poor mobility, and impaired vision<sup>1</sup>. Intrinsic factors contributing to delayed wound healing included advanced age, poor nutritional state, poor tissue perfusion (related to cardiac output and respiratory function) and the long-term effects of smoking<sup>10, 11</sup>.

### Management

The skin tears were cleaned and skin flaps re-aligned and edges apposed. The skin was anchored with adhesive strips (Figures 1 & 2) and then sealed with a moisture responsive film dressing (Figure 3).

The film dressing used (Opsite IV 3000™), is a transparent polyurethane adhesive film dressing which has a high moisture vapour transfer rate (MVTR) and, although designed

Table 1. Payne-Martin classification system for skin tears<sup>1</sup>.

#### Category I

Skin tears without tissue loss (the wound borders are able to be approximated within 1mm)

- A. Linear type
- B. Flap type

#### Category II

Skin tears with partial tissue loss (incomplete tissue loss)

- A. Scant tissue loss type (25% or less tissue loss)
- B. Moderate-to-large tissue loss type (more than 25% tissue loss, but not complete tissue loss)

#### Category III

Skin tears with complete tissue loss

for use over intravenous cannulae, was considered by the author to have a place in wound care and, in particular, certain categories of skin tears. Thomas *et al.*<sup>8</sup> also supports the use of dressings with a high MVTR for skin tears. As an extra measure, a light tubular stockinette bandage was placed from the wrist to above the elbow to provide light support and act as an additional layer of protection against friction and shear.

Mrs J required insertion of permanent pace-maker to treat her cardiac problems. There were some post procedure complications, with a right pneumothorax requiring an

intercostal catheter and she also had a small left pleural effusion. During this admission, Mrs J's mobility was very limited, being mostly bed or chair bound.

The wounds were reviewed 8 days after initial treatment and the dressings were removed. The film dressing had remained intact and there was no pooling of exudate evident (Figure 4). On removal of the film (Figures 5 & 6), the majority of skin flaps had readhered and were revascularised; however, one of the proximal skin tears in the cubital fossa had not, with a non-viable skin flap requiring debridement.

Figure 1.



Figure 2.



Figure 3.



Figure 4.



Figure 5.



Figure 6.





The area of deficit remaining after debridement of the non-viable skin flap was resealed with the high MVTR film dressing and treated in the same way as initial management. The remainder was healed and did not require an additional dressing.

Instructions include the use of moisturisers to assist with skin hydration and the continued use of the tubular bandage for protection. Further follow-up of this wound was not possible due to the transfer of this woman back to the private hospital 2 days later.

Film dressings can be used over skin tears where only small amounts of exudate exist. Sometimes, the amount of exudate accumulating under the film dressings exceeds that required for moist wound healing to occur and can cause maceration of the peri-wound skin or, in the case of skin flaps, moisture may accumulate under the skin flap, preventing adherence and revascularisation of the skin flap. Adhesive occlusive dressings, such as films, have the advantage of reducing the risk of wound infection and being very cost effective, as well as allowing visualisation of the wound. Their wear time may be up to 14 days. It should be noted that these wounds were approximately 3 days post injury and the initial inflammatory response and expected higher exudate levels were likely to be subsiding at the time of dressing application.

### Case summary

This wound management plan offered a simple but effective solution to the management of these skin tears. A moisture responsive film dressing was chosen to counteract the problem with excess moisture and achieved this goal. The dressing was able to be left undisturbed for over a week, minimising the risk of secondary wound or skin trauma. Despite the

fragility of the skin, the film could be removed with the aid of adhesive remover wipes without causing any trauma.

This case study presents an alternative use of a moisture responsive film dressing with good outcomes for the client.

## Case 2

### Background

Mr R was a 74 year old man admitted to hospital for cardiac investigations and then scheduled for coronary artery bypass graft (CABG) surgery. His past history included myocardial infarction, ischaemic heart disease, cerebrovascular accident, transient ischaemic attacks, asthma, and previous CABG surgery. His medications included: Simvastatin, Aspirin, Eformeterol fumarate dihydrate inhaler, Prednisilone, Perindopril, Budesonide inhaler, Frusemide, Amlodipine, and Clopidogrel.

On admission to hospital, it was noted that there were multiple bruises and an old skin tear present on his right lower leg. On the morning of his surgery, having already had his premedication of Lorazepam, he was found after a fall in the toilet with skin tears to his right arm.

Mr R had been instructed not to get out of bed following his premedication. The skin tears were reviewed by medical and nursing staff and dressed at the time with an alginate dressing, combine and bandage, and he proceeded to theatre.

Following transfer back to the high dependency unit from ICU on the first day post surgery, the CNC wound management was asked to assess the wounds. On removal of the dressing, there was active bleeding as well as marked purpura of surrounding skin. Although Aspirin and Clopidogrel were

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ceased 3 days pre-operatively, it is likely there were some residual anticoagulant effects. The long-term treatment with Prednisilone would also have contributed to capillary fragility and atrophy of the skin<sup>12</sup>. According to the Payne-Martin classification system, these were category 3 skin tears with complete tissue loss.

### Management

The forearm wounds measured 9x3.5cm proximally and 7.5x4.0cm distally (Figure 7). The wounds were dressed with an alginate fibre dressing for its haemostatic effect, and then a secondary absorptive occlusive dressing was applied (Combiderm ACD™). In addition, a large combine and crepe bandage were applied for extra compression and protection.

The wounds were dressed third daily and reviewed prior to discharge (6 days post initial CNC review), showing marked improvement. The wound base had buds of granulation tissue evident, the bleeding had ceased, although there was still a moderate level of serous exudate, and the purpura of the surrounding skin had almost resolved (Figure 8). The wound care plan for discharge was not changed and the patient was referred to the hospital domiciliary nurses for ongoing care. It was envisaged that the domiciliary nurses would alter the plan of care as the wound characteristics changed.

Figure 7



Figure 8



### Case summary

It is clear that the medications Mr R was taking increased his risk of skin tears. Polypharmacy is cited as a concern in the elderly<sup>3</sup>, with increased susceptibility to side effects and drug interactions. In addition to anticoagulants and steroids affecting skin fragility, sedative drugs have an impact on cognitive function, as demonstrated in this case with the administration of a sedative premedication contributing to the injury.

### Conclusion

Regardless of the health care setting, elderly patients are indeed at risk of skin tears. The management of these skin tears will depend on individual assessment to identify an appropriate wound care plan. There may be a number of alternative strategies available and the clinician can identify primary goals of management and choose accordingly. Of importance, is the appropriate management of bleeding or exudate, management of residual skin flaps, care of the peri-wound skin, and protection from further trauma. Ultimately, recognition of those patients at risk of skin tears, and initiation of preventative strategies, should be primary goals.

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