

# Clinical challenges of differentiating skin tears from pressure ulcers

## ABSTRACT

### Background

Skin tears can have a profound impact on the health and well-being of an individual, the consequences of which are often underestimated. Those affected report that skin tears both increase pain and compromise overall quality of life. Persons at the extremes of age and the critically/chronically ill represent the populations most at risk for skin tears and ensuing complications, such as wound infections, impaired mobility, and social isolation. For individuals with health conditions, such as malnutrition, peripheral vascular disease, and/or compromised immunity, a skin tear can develop into a chronic, non-healing wound that leads to increased health care expenditures.<sup>1</sup> The International Skin Tear Advisory Panel (ISTAP) and previous studies have documented that pressure ulcers and skin tears share many common risk factors. Recent publications have also highlighted the clinical challenges of differentiating skin tears from pressure ulcers, as well as the importance of correctly diagnosing each as a distinct wound type.<sup>2</sup> In addition, there have been recent changes to the pressure ulcer staging system, removing friction as a descriptor for pressure ulcer development. Conversely, friction is one of the many risk factors for skin tears. This article will explore, using case studies, the clinical challenges of differentiating skin tears from pressure ulcers.

### Method

Three case studies were used to review the relationship between pressure ulcers and skin tears using demographic factors, co-morbidities, predisposing factors, cause of wound, description of the evolution of the wound, and other variables.

### Results

These cases highlight the challenges of differentiating between skin tears and pressure ulcers.

In all three cases, skin tears were misdiagnosed as pressure ulcers, and these misdiagnoses resulted in delayed implementation of skin tear prevention strategies.

### Conclusion

Skin tears and pressure ulcers share certain risk factors and clinical characteristics. Identifying and classifying these wounds as distinct, separate wound types can pose a clinical challenge to health care professionals. The National Pressure Ulcer Advisory Panel (NPUAP), European Pressure Ulcer Advisory Panel (EPUAP), Pan Pacific Pressure Injury Alliance (PPPIA), and ISTAP, maintain that despite the similarities in wound appearances and challenges in diagnosis, it is critical that pressure ulcers and skin tears are properly diagnosed. By differentiating these wounds, the most effective prevention and wound management strategies can be implemented.<sup>1,3</sup>

### INTRODUCTION:

The skin, which is the largest organ in the body, is a vital organ that is critical for the maintenance of health and well-being. Although there are many different aetiological factors that can compromise skin integrity, it is accepted that any disruption in skin integrity can potentially lead to infection, persistent pain, immobility, mental anguish, and may have a negative impact on quality of life.<sup>4,5</sup> With growing concerns for patient safety, quality of care, and health care resources, there is a need to reduce the incidence of skin breakdown and implement early treatment strategies to prevent progression of superficial skin damage to deep tissue traumas within a cost-effectiveness framework.<sup>6</sup>

Skin tears and pressure ulcers represent the most common wounds affecting older individuals, and these constitute a significant disease burden to healthcare systems.<sup>2,7,8</sup> In nursing, both wound



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aetiologies are considered as nursing-sensitive outcome measures and bench markers for quality of care. It has been hypothesised, and recent literature reports, that these wound types appear to share many common risk factors.<sup>1,8,9</sup> However, their clinical presentation and wound healing expectations may be markedly different.<sup>2,10</sup> In the recently updated International Pressure Ulcer Guidelines, the need to differentiate between pressure ulcers and skin tears has been highlighted.<sup>2</sup> In order to optimise the prevention and treatment of skin tears and pressure ulcers, one must be able to accurately differentiate and diagnose these wounds according to their aetiology and clinical presentation. This will allow for the implementation of interventions that target each specific wound type. The purpose of this article, through case study format, is to highlight the challenges of differentiating between these two wound types and to initiate a global discussion on how a bundled approach to care can be used for the prevention and management of these wounds.

## DIFFERENTIATING SKIN TEARS FROM PRESSURE ULCERS

It has been reported that skin tears, deep tissue injuries, and stage two pressure ulcers often mimic one another, and misdiagnoses may occur.<sup>2,8</sup> This can result in inappropriate and/or poorly timed prevention strategies, potentially resulting in re-injury. What is known is that all of these skin injuries have the potential, if pressure is present, to evolve into painful, and costly, full thickness tissue ulceration.<sup>2</sup>

## SKIN TEARS

A skin tear is 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 (partial thickness wound) or which separates both the epidermis and the dermis from the underlying structures (full thickness wound).”<sup>9</sup> Without appropriate management, skin tears have a high likelihood of evolving into chronic wounds,

Figure 1

ISTAP Skin Tear Classification System		
Type 1: No Skin Loss	Type 2: Partial Flap Loss	Type 3: Total Flap Loss
Figure 1a, 1b	Figure 1c	Figure 1d
Linear flap tear, which can be repositioned to cover the wound bed	Partial flap loss, which cannot be repositioned to cover wound bed	Total flap loss, exposing the entire wound bed

Figure 1a



Figure 1b

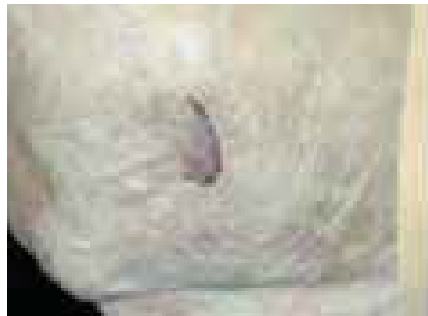


Figure 1c



Figure 1d



imposing a significant health burden both to individuals and the healthcare system.<sup>1,7</sup> According to existing literature, intrinsic and extrinsic risk factors for skin tears may include falls, poor nutrition, impaired mobility, cognitive impairment, and dry, fragile skin. These wounds are commonly observed in the extremes of age and in the critically or chronically ill. Although often under-reported, they are hypothesised to be highly prevalent and particularly troublesome for the elderly population.<sup>9</sup>

Individuals suffering from skin tears report increased pain and compromised quality of life. In addition, because the populations at the highest risk for skin tears often include those at extremes of age and the critically or chronically ill, these individuals are at a higher risk for developing secondary wound infections and for having co-morbidities, which can contribute to skin tears evolving from acute to chronic, complex wounds.<sup>1</sup> The consequences of skin tears are often underestimated, and misclassification can impede the implementation of appropriate interventions and further preventative strategies.

### ISTAP SKIN TEAR CLASSIFICATION

The International Skin Tear Advisory Panel (ISTAP) developed and validated the ISTAP Skin Tear Classification system, with the goals of raising the global healthcare community's awareness of skin tears and simplifying the identification and classification of these wounds. It is envisioned that the acceptance and utilisation of a common language and classification system for skin tears will facilitate best practices and research in this area. Skin tears are classified as type 1 (no tissue loss), type 2 (partial tissue loss), and type 3 (complete tissue loss).<sup>11</sup> (Figure 1)

### PRESSURE ULCERS

The NPUAP, EPUAP, and PPPIA define a pressure ulcer as a localised injury to the skin and/or underlying tissue, usually over a bony prominence, resulting either from pressure alone or in combination with shear. A number of contributing or confounding factors are also associated with pressure ulcers; however, the significance of these factors has yet to be elucidated. The PPPIA modified the definition of a pressure ulcer in 2014, to state, "Some of these factors include mobility limitations, perfusion and oxygenation, poor nutritional status, and increased skin moisture".<sup>3</sup> An international standardised classification system is used to describe and categorise pressure ulcers according to the type of visible tissue damage that is present. In this system, pressure ulcers are assigned a stage or category once the wound being assessed is diagnosed or determined aetiologically to be a pressure ulcer. Critically, this classification system was not designed for use in any other wound type. Assignment of a pressure ulcer stage is based on visual inspection to determine level of tissue involvement and wound depth, and staging requires an

understanding of the anatomy of the skin and underlying tissues.

Pressure ulcers most commonly occur over areas of bony prominence. When they form elsewhere on the body, an external source of frequent, constant pressure must be present. This external pressure source may be the patient's own limb, as in the case of contractures or orthopaedic abnormalities.<sup>12</sup> At other times, the external pressure may come from the patient's environment, such as broken or ill-fitting wheelchair parts, bed frames, or chairs. Tight or ill-fitting clothing, shoes, bra straps, and orthopaedic splints can also be sources of external pressure. An ulcer appearing on a body part that does not have a source of frequent, constant pressure is probably not a pressure ulcer, but rather, is a condition with another aetiology, such as a skin tear.<sup>7,12</sup> Deep tissue injury pressure ulcers are often misdiagnosed as superficial skin injuries, such as skin tears, incontinence-associated dermatitis, or stage II pressure ulcers.<sup>2</sup> A Suspected Deep Tissue Injury (SDTI) pressure ulcer can initially appear as a purplish or maroon-coloured area of intact skin or even as a blood-filled blister. The purplish and/or maroon colour can also be apparent in a skin tear, but the differentiating factor would be that the skin tear would not have intact skin and the discolouration would be found beneath the tear. Critically, the evolution of an SDTI can involve a thin blister, which eventually may peel, leading some clinicians who see it for the first time to question if it is actually a skin tear. Again, this highlights the point that the aetiology and evolution of the lesion provide important discriminating factors for the clinician's diagnosis.

### INTERNATIONAL NPUAP/EPUAP PRESSURE ULCER CLASSIFICATION SYSTEM

**Category/Stage I:** Nonblanchable Erythema. Intact skin with non-blanchable redness of a localised area, usually over a bony prominence. Darkly pigmented skin may not have visible blanching; its colour may differ from the surrounding area. The area may be painful, firm, soft, or warmer or cooler, as compared to adjacent tissue. Category/Stage I may be difficult to detect in individuals with dark skin tones. May indicate "at risk" individuals (a heralding sign of risk). (Figure 2)

**Category/Stage II:** Partial Thickness Skin Loss. Partial thickness loss of dermis, presenting as a shallow open ulcer with a red-pink wound bed, without slough. May also appear as an intact or open/ruptured serum-filled blister. Presents as a shiny or dry shallow ulcer without slough or bruising (bruising indicates SDTI). This Category/Stage should not be used to describe skin tears, tape burns, perineal dermatitis, maceration, or excoriation. (Figure 3)



**Category/Stage III: Full Thickness Skin Loss.** Subcutaneous fat may be visible, but bone, tendon, and muscle are not exposed. Slough may be present but does not obscure the depth of tissue loss. May include undermining and tunnelling. The depth of a Category/Stage III pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput, and malleolus do not have subcutaneous tissue, and Category/Stage III ulcers in these locations can be shallow. In contrast, areas of significant adiposity can develop extremely deep Category/Stage III pressure ulcers. Bone/tendon is not visible or directly palpable. (Figure 4)



Figure 2

**Category/Stage IV: Full Thickness Tissue Loss.** Full thickness tissue loss with exposed bone, tendon, or muscle. Slough or eschar may be present on some parts of the wound bed. Often includes undermining and tunnelling. The depth of a Category/Stage IV pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput, and malleolus do not have subcutaneous tissue, and ulcers here can be shallow. Category/Stage IV ulcers can extend into muscle and/or supporting structures (e.g., fascia, tendon, or joint capsule) making osteomyelitis possible. Exposed bone/tendon is visible or directly palpable. (Figure 5)



Figure 3

**Unstageable: Depth Unknown.** Full thickness tissue loss, in which the base of the ulcer is covered by slough (yellow, tan, grey, green, or brown) and/or eschar (tan, brown, or black). Until enough slough and/or eschar is removed to expose the base of the wound, the true depth, and therefore Category/Stage, cannot be determined. Dry, adherent and intact eschar, without erythema on the heels should not be removed as this serves as “the body’s natural (biological) dressing.” (Figure 6)



Figure 4

**Suspected Deep Tissue Injury (sDTI): Depth Unknown.** Purple or maroon localised area of discoloured intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear. The area may be preceded by tissue that is painful, firm, mushy, boggy, or warmer or cooler, as compared to adjacent tissue. Deep tissue injury may be difficult to detect in individuals with dark skin tones. Evolution may include a thin blister over a dark wound bed. The wound may further evolve and become covered by thin eschar. Evolution may be rapid, exposing additional layers of tissue, even with optimal treatment. (Figure 7)



Figure 5

## PREVALENCE RATES

The prevalence of pressure ulcers in North American long-term care (LTC) settings has been reported to be between 2.4–28%.<sup>13</sup> A systematic review of skin tear prevalence and associated risk factors revealed occurrence rates varying between 3.9–22%.<sup>14</sup>

A general wound audit of four Canadian LTC facilities identified prevalence rates of 14.7% and 15.8% for skin tears and pressure ulcers, respectively, and uncovered a possible association among risk factors attributed to pressure ulcers and skin tears.<sup>10</sup> What is unknown regarding that study are the numbers of pressure ulcers and



Figure 6



Figure 7

skin tears per individual, and another unknown factor is whether or not any of the skin tears led to a pressure ulcer.

While research on pressure ulcers in LTC spans over 30 years, skin tear studies are still in their infancy. Skin tears and pressure ulcers are often compared in the literature, as they frequently affect the elderly population, appear to have some associated factors in common, can result in costly and painful wounds, and create added strain on the healthcare system.<sup>7,8</sup>

Because skin tears and pressure ulcers share certain risk factors and clinical characteristics, identifying and classifying these wounds as distinct, separate wound types can pose a clinical challenge to health care professionals. The National Pressure Ulcer Advisory Panel (NPUAP), European Pressure Ulcer Advisory Panel (EPUAP), Pan Pacific Pressure Injury Alliance (PPPIA), and ISTAP maintain that despite the similarities in wound appearances and challenges in diagnosis, it is critical that pressure ulcers and skin tears must be properly diagnosed. By differentiating these wounds, the most effective prevention and wound management strategies can be implemented.<sup>1,3</sup>

The following three cases highlight the challenges of differentiating between skin tears and pressure ulcers. In all three instances, skin tears were misdiagnosed as pressure ulcers, and this resulted in delayed implementation of skin tear prevention strategies.

**CASE STUDIES**

**Case Study 1**

65-year-old female residing in LTC for greater than 2 years. Past medical history includes obesity, multiple sclerosis, wheel chair dependence, and history of multiple skin tears. Due to her obesity, the dietician follows her closely, and she is on a weight loss program that is high in protein. She developed multiple type 3 skin tears to her bilateral trochanter regions, extending to bilateral upper thighs, all secondary to unsuitable equipment for a bariatric patient. These wounds were misdiagnosed as Stage II pressure ulcers and became complex wounds secondary to anatomical location, obesity, immobility, external pressure to the area, and repeat trauma as the cause (inappropriate equipment leading to skin tears was not removed in a timely fashion). (Figure 8)

**Case Study 2**

75-year-old female residing in LTC for approximately 6 months. Past medical history of stroke with left side weakness, multiple sclerosis, incontinence of urine and stool, and wheel chair dependence. She had no history of previous pressure ulcers or skin tears. As a relatively new admission to the LTC facility, the dietician was following her to ensure optimal nutritional intake. She developed a type 3 skin tear over the left trochanter, secondary to ill-fitting incontinence briefs. The wound deteriorated and was subsequently misclassified as a Stage III pressure ulcer. Wound healing was delayed due to pressure, the patient’s general poor health status, and the failure to change the incontinence product for well-fitted briefs in a timely fashion. (Figure 9-10)



Figure 8



Figure 9



Figure 10



Figure 11



Figure 12



### Case Study 3

52-year-old male with a history of brain injury and complete immobility. He had a past history of stage II pressure ulcers to his coccyx area. It was noted by the registered staff that nutritional intake was an issue and that it had not improved, despite involvement of a dietician in his care. He was treated with antibiotics for a urinary tract infection and developed diarrhoea. The skin was damaged with chemical irritation from faecal matter and mechanical irritation from frequent cleansing. Small discrete skin tears, due to frictional force from the washcloth, were noticed in the injured area, as evidenced by partial skin loss. The area continued to deteriorate within a week and acquired a dark, purplish appearance with evidence of tissue necrosis and deep tissue injury. The standard hospital mattress was replaced with a low air loss mattress, and the patient was frequently turned to provide pressure redistribution and minimise shearing forces. (Figure 11-12)

### DISCUSSION

These cases highlight the challenges of differentiating between skin tears and pressure ulcers. In all three instances, skin tears were misdiagnosed as pressure ulcers, and this misdiagnosis resulted in delayed implementation of skin tear prevention strategies.

It is a clinical challenge for healthcare professionals to identify and classify skin tears when they occur in areas of the body where pressure ulcers also typically occur, such as over bony prominences. In addition, skin tears that develop over areas exposed to constant/unrelieved pressure may deteriorate rapidly and, thus, can be subsequently identified as pressure ulcers, especially as a stage II or SDTI pressure ulcer.<sup>2</sup> When skin tears occur over bony prominences, added pressure can result in additional tissue damage, which may manifest as a pressure related injury; however, this association has yet to be explored.

Bundled approaches to care allow healthcare professionals to prevent and manage several potential wound aetiologies (pressure related injuries, moisture associated injuries, and skin tears) with one prevention program, which can potentially save money and time, but more importantly, also enhances patient comfort. It should be cautioned, however, that healthcare professionals must be cognizant of the fact that these programs need to be flexible to allow for specific and individualised prevention programs. The cases above illustrate that there are shared risk factors among skin tears, deep tissue injury, and stage two pressure ulcers. However, skin tears have the added component of friction and trauma that may not be present with pressure related injuries.<sup>8</sup> It is imperative that skin tears be differentiated from pressure ulcers, in order to facilitate appropriate prevention strategies, such as the removal of the cause of trauma or friction.

### CONCLUSION

The three cases discussed here highlight the challenges a healthcare professional may encounter when skin tears occur in areas of the body where pressure ulcers are commonly identified. The updated International Pressure Ulcer Classification System documents that skin tears should not be classified as pressure ulcers. Therefore, proper identification and classification of skin tears, and the implementation of interventions aimed at preventing these wounds from occurring, are essential. Further research is needed to identify risk factors that are associated with skin tears, in order to facilitate the correct diagnose this wound type. ■

#### KEY TAKE AWAY POINTS:

1. The prevalence of skin tears is reported to be equal to, or greater than, that of pressures in the aging population.
2. Skin tears are acute wounds, which have a high risk of becoming chronic and more complex.
3. Clinicians must be aware of the importance of differentiating between skin tears and pressure ulcers to ensure the use of prevention and management strategies that are appropriate for the given wound aetiology.
4. There is a possible link between the risk factors associated with pressure ulcer development and those associated with skin tear development. Further research is required to establish if such a link exists and if a bundled approach to prevention and management is best practice.

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