

Preventing and Treating Skin Tears

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Q: What causes skin tears and how are they best treated?

A: Skin tears are traumatic wounds that result from a separation of the 2 major layers of human skin, the epidermis and the dermis. They represent a major problem affecting older adults and many compromised individuals. It is estimated that at least 1.5 million skin tears occur in institutionalized older adults each year¹ with prevalence rates between 14% and 24%.² Ultimately, they cause the patient to suffer pain, the caregiver to waste precious time, and the facility to lose money and resources.

The anatomy of the skin and the changes involved with aging are primary factors in the etiology of skin tears. Skin tears are generally thought to be difficult to prevent and to treat; literature to support either theory is limited.

Anatomy

Between the epidermis and the dermis is the basement membrane zone, a moving junction that both separates and attaches the epidermis and the dermis (also known as the dermal-epidermal junction). This junction provides structural support and also allows the exchange of fluid and cells between the skin layers³ (see Figure 1 for a schematic of the skin's layers and the 3 functional and anatomic layers of the skin).

The epidermis has an irregular shape, resembling downward, finger-like projections called rete ridges or rete pegs. The significance of this anatomical structure is that the dermis has upward projections. The upward and downward projections fit together, very much like a waffle iron. These protuberances connect, anchoring the epidermis to the dermis. This bond also helps to prevent the epidermis from sliding back and forth across the dermis with normal movement and skin manipulation. In healthy young skin, the 2 layers of skin move as one.

As the skin ages, the rete ridges begin to flatten between the dermal-epidermal junction. Such epidermal/dermal flattening typically appears by the sixth decade.⁴ With this anchoring now diminished, there is an increased potential for the epidermis to detach from the dermis, leading to tearing of the uppermost layers of the skin, especially in the older adult population.⁵ Table 1 lists the classification system for skin tears.

When developing plans of care, clinicians may find the Payne-Martin Skin Tear Classification System helpful.⁶ It can assist in providing more detailed documentation and in improving the tracking of outcomes. The system was developed in 1993 as a classification tool for skin tears, which groups characteristics and degrees of damage exhibited by these injuries into 3 categories.⁶

Skin tears need to be documented as separate occurrences and not grouped into the "pressure ulcer" category or documented on the pressure ulcer sheet. These are acute traumatic wounds and should be charted as such.

Risk Factors

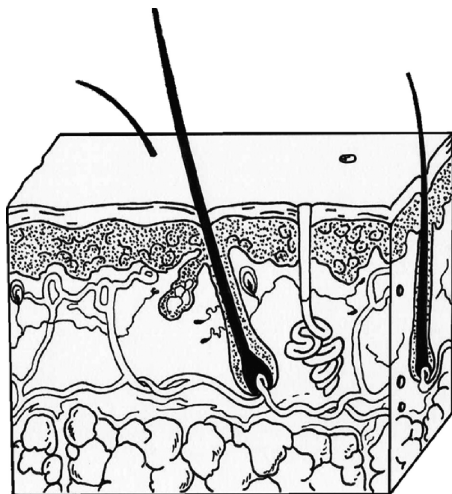
Older adults are at risk for experiencing skin tears, as well as those with a history of previous skin tears, compromised nutrition, fluid volume deficit, edema, confusion, limitations in mobility, lack of independence, and ecchymotic or bruised skin. Senile purpura of the skin often causes a decrease in pain perception, and certain medications make skin more prone to injury. For example, steroids cause further thinning of skin and suppression of the immune system.

In their retrospective study, Malone et al¹ found that skin tears occur most commonly in the upper extremities and commonly occur at the site of senile purpura. Many changes of the skin occur with aging. The often-seen thin, "tissue paper" appearance of aged skin occurs because dermal tissue loses 20% of its thickness.⁷ Wound healing progresses slower in older adults because of several factors, including decreased inflammatory response, delayed angiogenesis (ie, formation of new blood vessels), slower epithelialization, decreased function of sebaceous glands, decreased collagen synthesis, alternation in melanocyte function (resulting in skin discoloration), and thinning of all the skin layers. A reduction in adipose tissue decreases insulation and protection.⁷ In addition, subcutaneous tissue in specific areas, such as the face, hands, skin, and feet, typically atrophy.⁸

When injury occurs, an increase in energy is absorbed by the skin. Skin tears most commonly take place in the upper extremities, with 80% occurring on arms and hands. Skin tears of unknown origin comprise 50% of the total skin tear population. Of skin tears whose causes are known, however, 25% result from wheelchair/geriatric chair injuries.

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Figure 1.
A CROSS-SECTION OF THE SKIN'S 3 MAJOR LAYERS
AND THE 3 FUNCTIONAL ANATOMIC STRATA OF THE
HUMAN SKIN



Figure/Courtesy of Jim Falconio, Falconio Graphics (Breese, IL)

1. The epidermis (outermost layer composed of 5 separate strata);
2. The dermis (the thicker second layer that houses the hair follicles, sweat glands, and nerve intervention);
3. The subcutaneous tissue (the fatty layer beneath the skin that provides cushioning and protection)

Another 25% occur from accidents involving bumping into objects, and 18% to 24% occur due to transfers and falls, respectively.⁹ Tape removal is another culprit that can cause skin tear development. Use of a polymer-based alcohol-free skin barrier protectant can help decrease the incidence of skin tears caused by tape stripping. Stretch net can be safely used to attach dressings without tape and compromise to delicate skin (Figure 2).

Plan of Care and Treatment Choices

Basic strategies, such as clothing individuals in long sleeves and pants, padded garments, and gloves; using gentle adhesives; judiciously using pillows; and educating staff on using extreme caution when caring for patients, are good first steps in protecting the skin.¹⁰ Wrapping vulnerable arms and legs in rolled gauze may be a tempting approach to decrease the incidence of skin tears, but it could cause

added concern for family members. This could also become a visual indicator for surveyors in long-term care where skin care problems are present.

Patients and residents who are totally dependent on others for activities of daily living (ADLs) are at greatest risk for sustaining skin tears.¹¹ Health care providers must be very cautious when providing full or partial assistance with ADLs. These tasks increase contact with the skin, thus increasing the potential for the skin to tear.¹² Use of appropriate equipment, such as lifts, walkers, and transfer and turn aides, to assist with toileting and transferring, can be helpful in decreasing the chance of developing skin tears. Improper handling can cause an increase in skin tears from trauma. Gentle handling of the skin is important. Keeping the patient well hydrated by increasing fluid intake (unless the patient is fluid-restricted) can also make a difference between a bruise from a bump and that bump breaking open to become a skin tear. Frequent topical moisturization and soothing of the skin are necessary to maintain the skin's elasticity and resilience.^{13,14} This is especially important in older adults because mature skin has a decrease in the number of sweat glands, and the ability to retain moisture is decreased due to diminished amounts of dermal proteins.^{7,15}

Advanced skin care products that deliver endermic nutrition and antioxidants can provide nourishment for the skin, topically—even if the patient or resident is not receiving adequate nutrition from oral, enteral, or parenteral nutrition.¹³ A recent quasi-experimental study looked at skin tear incidence in a 100-bed long-term-care facility and showed a reduction from 180 skin tears to 2 skin tears in a 6-month period.¹⁶ The study facility used a gentle, advanced skin care line with pH-balanced soap-free and surfactant-free cleansers; moisturizers containing specially treated amino acids and free-radical scavengers, such as grapeseed extract, Vitamin C (ascorbic acid), and hydroxytyrosol (from olives); essential fatty acids like omega-3, -6, and -9; and tenacious skin protectants containing sophisticated combinations of silicones.

Table 1.

PAYNE-MARTIN SKIN TEAR CLASSIFICATION SYSTEM⁶

Category	Amount of tissue loss	Description
1	Skin tear without tissue loss	linear type flap type
2	Partial tissue loss	scarnt: <25% epidermal flap lost moderate: >25% epidermal flap lost
3	Skin tears with complete tissue loss	epidermal flap completely gone

Figure 2.**STRETCH NET DRESSINGS**

Further protection with polymer-based, alcohol-free products can provide for defense from skin tears by offering an extra layer or shield for any friction forces.

Effective Topical Products

There are several good topical products that can help alleviate the discomfort of skin tears, while protecting the area to allow healing. A traditional dressing option, transparent films, may not always handle fluid well. Because most skin tears tend to be wet the first 24 to 48 hours, the pooling and leaking of the fluid onto the surrounding skin can exacerbate problems. Transparent films are also adhesive. The skin where these dressings are being applied is extremely compromised and the adhesive can cause secondary epidermal stripping or tearing of the skin upon removal of the transparent film.⁵

Other imperfect, yet popular, dressing choices include nonstick Telfa-type pads with topical antibiotic or petrolatum-based ointment applied twice a day. One alternative dressing clinicians may consider is a hydrogel sheet. These advanced products look like a thin slice of sticky gelatin (Figure 3) and are gentle to the periwound skin, but can

manage the initial fluid from the wound during the early stages. Another option is a silicone-faced foam dressing that provides for atraumatic application and removal. Or, clinicians may select a biocellulose dressing, which provides for both absorption in the early phases and hydration and protection in the later stages of healing. It acts much like an extra layer of epidermis, protecting the healing skin tear.

Topical products to moisturize and soothe the skin can be applied right up to the wound margin before the application of the dressing. As a result, by the time the skin tear is healed, the skin will be in better condition, resisting future damage.¹²

The hydrogel sheet, silicone-face foam, and biocellulose dressings can remain in situ for up to 3 to 5 days, 7 days, and 7 days, respectively, and may be held in place with elastic net dressing, roll gauze, or a tubular-type dressing, minimizing the use of products such as tape, which can cause further trauma.

To provide antimicrobial protection for suspected local critical colonization or infection of a skin tear, a product such as an ionic silver powder or amorphous hydrogel may be safely applied under the atraumatic dressing. The choice of silver products should be made based on the wound's needs. If the wound is wet, a silver powder can provide for absorption. If it is dry, a silver amorphous hydrogel offers a moist healing environment. In addition, biocellulose dressings are available with broad-spectrum antimicrobial polyhexamethylene biguanide, if superficial infection is suspected.

The use of protective sleeves or elastic tubular support bandages that come on a roll is cost-effective and practical, offering the ability to hold dressings in place without making them the focus of the patient. Using elastic tubular support bandages and cutting a hole for the thumb, ensuring that the sleeves go all the way up to just below the axilla

Figure 3.**HYDROGEL SHEET ON SKIN TEAR**

Figure 4.
TUBULAR SUPPORT DRESSING ON ARM



(Figure 4), will help anchor the dressing and protect the wound from the patient who is prone to picking at the dressing.

If the skin tear has a flap of skin that is intact (Figure 5), approximate the edges and apply adhesive closure strips. Next, apply the hydrogel sheet, silicone-faced foam, or biocellulose dressing. Some skin tears are devoid of a “flap” with total loss of epidermis (Figure 6). To further protect the injury and assist health care providers who will be removing and applying the next dressing, indicate which direction the dressing should be removed by drawing an arrow on the top of the dressing and stating, “remove in this direction only.” Dressings should be removed in the opposite direction of the skin tear. If there is no skin flap, application of the hydrogel sheet, silicone-faced foam, or biocellulose dressing after gentle cleansing and patting dry is all that is necessary. It is recommended that clinicians avoid the use of any adhesives or advanced products that maintain a regulated moisture balance and remain in place over several days.

Conclusion

Hydrating moisturizing, soothing the skin, and making the appropriate dressing choice are the key objectives to healing

Figure 5.
SKIN TEAR WITH “FLAP”



Figure 6.
SKIN TEAR WITHOUT “FLAP” AND DEVOID OF EPIDERMIS



and preventing the recurrence of skin tears. Choose dressings that allow the wound to maintain optimal moisture without causing further trauma.¹⁷ Prevent skin tears by cleaning, moisturizing, and nourishing the skin with advanced skin care products. With proper patient handling and appropriate treatments, prevention and management of skin tears can be achieved. ●

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