Skin Tears: The Clinical Challenge

Skin tears are a painful but preventable problem for older patients.1 When the dermis separates from the epidermis, a partial thickness wound occurs, often causing a flap above the exposed dermis.1,2 This common problem has been reported to PA-PSRS 2,807 times—accounting for 2% of all reports from hospitals—during the first twelve months of mandatory reporting.

These skin traumas are not serious enough to extend the hospital stay but are painful, unsightly injuries for the patient. Skin tear dressing changes are time consuming and painful. If skin tear dressing changes are done poorly, the fragile wound bed may sustain further injury.

There is a “dearth of literature available to guide the clinician in the prevention and management of skin tears.”3 The literature predominantly focuses on the long-term care (LTC) experience with skin tears, and only a few published articles address skin tears in acute care settings.4-7

Skin tears can be sizeable and, in some cases, require more than the selection of the correct dressing as the following cases indicate:

While transferring the patient from the bed to the chair with a total assist, the left leg was lifted and a 10 cm x 10 cm skin tear resulted. The physician ordered Vaseline gauze and a dressing. Further discussion with the attending resulted in suturing and stapling the area.

Patient was found on floor after staff member heard bed alarm and thud. Skin tear assessed and treated, requiring suturing to left forearm.

When the procedure was done the drapes were removed and an IV infiltrate was noted. The tape over the infiltrate was removed causing an 8 cm skin tear which required suturing.

Use of equipment, patient transfers or falls, treatments and procedures all place the patient at risk of incurring a skin tear, as these cases illustrate:

When taking off the EKG lead the skin ripped off the patient (8 cm x 3 cm).

When removed from the bedpan a 2 cm x 1 cm skin tear occurred. Wound was dressed with a dry sterile dressing and tape.

Escort was moving stretcher into the room when the patient’s hand fell and became caught between door jam and the stretcher resulting in a 9 cm x 9 cm skin tear. Pressure dressing applied. Doctor ordered wet to dry dressings.

This article presents the results of PA-PSRS staff analysis of reports submitted by Pennsylvania healthcare facilities. We also present information from the clinical literature on risk factors, preventative interventions, and evidence-based treatment protocols.

Statistical Review of Skin Tear Reports

Reports describing skin tears in the PA-PSRS database were reviewed for demographic information, location or department where the event occurred, event type, and other variables. The majority (62%) of reports involving skin tears were categorized as Skin Integrity events. However, nearly one-third (32%) were categorized as Fall events, in which the skin tear was a result of falling or actions taken to prevent a fall.

Age and Gender

Not surprisingly, PA-PSRS data demonstrates that the risk of skin tears increases with age, as shown in Figure 1 on page 2.

Patients aged 65 and older account for 88.2% of all skin tear reports, though they account for only 31.2% of patient days. The largest proportion of skin tears (41.3%) were reported in the 75-84 age cohort, which only accounts for 18.1% of patient days.
Skin Tears: The Clinical Challenge (Continued)

Reports of skin tears were more commonly associated with male (51.7%) than female (48.3%) patients. This is contrary to the literature, which suggests that elderly women are at greater risk. This was consistent with the literature. Reports involving skin tears do not always identify the location on the patient’s body, but among those that do, the forearm was mentioned most frequently (425) followed by arm (415) and hand (308). The lower extremity or leg was mentioned 215 times. The seminal epidemiological study of nursing home residents done by Malone in 1991 found that skin tears occur on the upper extremity 80% of the time, most frequently on the forearm. Estimates from other reports of skin tears were more commonly associated with male (51.7%) than female (48.3%) patients. This is contrary to the literature, which suggests that elderly women are at greater risk. The incidence of skin tears increases for females as they age, but this is not true for males, according to Malone. The PA-PSRS data found the opposite—that men were associated with more reports of skin tears than women—for all age groups but the 0-4 year cohort.

Gender-specific differences have been reported in the literature. Decreased hormone levels in women are implicated in skin changes predisposing to skin tears. The incidence of skin tears increases for females as they age, but this is not true for males, according to Malone. The PA-PSRS data found the opposite—that men were associated with more reports of skin tears than women—for all age groups but the 0-4 year cohort.

Reports by Department/Unit
Skin tears are most frequently reported from general Med/Surg units, which account for 33.2% of reported cases. This is consistent with the fact that Med/Surg units are responsible for the largest number of patient days in a facility and deliver care to a cross-section of patients for numerous conditions, especially those that require a protracted stay, as with the debilitated elderly patient (Figure 2).

Injured Body Part
The upper extremities were mentioned as the site of injury more frequently than other body parts, consistent with the literature. Reports involving skin tears do not always identify the location on the patient’s body, but among those that do, the forearm was mentioned most frequently (425) followed by arm (415) and hand (308). The lower extremity or leg was mentioned 215 times. The seminal epidemiological study of nursing home residents done by Malone in 1991 found that skin tears occur on the upper extremity 80% of the time, most frequently on the forearm. Estimates from other
Skin Tears: The Clinical Challenge (Continued)

studies of the proportion of skin tears occurring on the arm range from 68 to 74%. The head, face, and neck were sometimes reported as sustaining injury, with the forehead more frequently mentioned than other locations on the head.

Equipment/Procedures Involved in Skin Tears

The hospital bed (792) is mentioned more than any other equipment or furnishing followed by chair (174) and wheelchair (144). Bedrails and wheelchairs are mentioned in the literature as contributing to skin tears. Inspection of surfaces with padding of bedrails and edges of equipment and furnishings is suggested as a precautionary measure to prevent skin tears. Intravenous catheters (164) are mentioned with skin tears more than any other tube or drain. Radiographic procedures (107) are the most frequently mentioned procedure.

Transfers/Positioning and Dressings

Transfers (240) are frequently mentioned in reports involving skin tears. The literature mentions transfers and positioning as a time of high risk for the patient with fragile skin. Proper lifting, turning, positioning and transferring techniques are urged to prevent skin tears. Dressing changes and procedures involving tape removal were also frequently cited.

Identified Risks for Skin Tears

McGough published nine patient risk factors after a six-month study in a VA nursing home. Over 65% of the sample (154 skin tears) studied had six of the following risk factors: advanced age (76% over 70), sensory loss, compromised nutrition (68%), history of previous skin tear (80%), cognitive impairment (77%), and dependency (total 82%). Bruising and poor locomotion were identified in 50% of the sample, and in 40% both polypharmacy and use of an assistive device in combination were thought to have contributed to their injury. Decreased vision existed in 39% of patients, and two or more sensory deficits existed in 37% of the sample studied. The risk factors frequently mentioned in the literature are summarized in Table 1.

Preventative Measures

Guidelines available from the National Guideline Clearinghouse (www.guideline.gov) provide a framework for initiating preventive skin tear measures in:

<table>
<thead>
<tr>
<th>Table 1. Recognized Risk Factors for Skin Tears Patient Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Malnourishment</td>
</tr>
<tr>
<td>• Sensory changes/loss</td>
</tr>
<tr>
<td>• Hearing</td>
</tr>
<tr>
<td>• Sensation</td>
</tr>
<tr>
<td>• Vision</td>
</tr>
<tr>
<td>• History of skin tears</td>
</tr>
<tr>
<td>• Assistance with ADLs</td>
</tr>
<tr>
<td>• Mental impairment</td>
</tr>
<tr>
<td>• Dementia</td>
</tr>
<tr>
<td>• Cognitive function</td>
</tr>
<tr>
<td>• Ecchymosis</td>
</tr>
<tr>
<td>• Immobility</td>
</tr>
<tr>
<td>• Pressure points</td>
</tr>
<tr>
<td>• Bedridden or chair confined</td>
</tr>
<tr>
<td>• Wheelchair confinement</td>
</tr>
<tr>
<td>• Self-propulsion</td>
</tr>
<tr>
<td>• Ambulating independently</td>
</tr>
<tr>
<td>• Neuromuscular changes</td>
</tr>
<tr>
<td>• Spasticity or stiffness</td>
</tr>
<tr>
<td>• Poor locomotion/balance</td>
</tr>
<tr>
<td>• Neuropathy</td>
</tr>
<tr>
<td>• Senile purpura</td>
</tr>
<tr>
<td>• Multiple actinic or seborrheic keratosis</td>
</tr>
<tr>
<td>• Dry skin, hydration</td>
</tr>
<tr>
<td>• Water temperature</td>
</tr>
<tr>
<td>• Use of soap</td>
</tr>
<tr>
<td>• Incontinence</td>
</tr>
<tr>
<td>• Pitting edema</td>
</tr>
<tr>
<td>• Hemiplegia or hemiparesis</td>
</tr>
<tr>
<td>• Agitation or restlessness</td>
</tr>
<tr>
<td>• Comorbidities</td>
</tr>
<tr>
<td>• Uremia</td>
</tr>
<tr>
<td>• Diabetes mellitus</td>
</tr>
<tr>
<td>• Hypothyroidism</td>
</tr>
<tr>
<td>• Hypoalbuminism</td>
</tr>
<tr>
<td>• Peripheral vascular disease</td>
</tr>
<tr>
<td>• Immunocompromise</td>
</tr>
<tr>
<td>• Medications</td>
</tr>
<tr>
<td>• Steroids</td>
</tr>
<tr>
<td>• Systemic</td>
</tr>
<tr>
<td>• Topical</td>
</tr>
<tr>
<td>• Anticoagulants</td>
</tr>
<tr>
<td>• Polypharmacy</td>
</tr>
</tbody>
</table>
Skin Tears: The Clinical Challenge (Continued)

Table 2. Preventative Measures

- **Assure a Safe Environment:**
  - Assessing the environment
  - Providing adequate light to aid visualization of furniture and equipment
  - Offering long sleeves or pants to protect extremities

- **Educate staff, patient and family the importance of:**
  - Maintaining adequate or improved nutrition and hydration
  - Using lotion two times a day especially on dry skin on extremities
  - Using an emollient soap for bathing
  - Obtaining a dietary consult
  - Offering fluids between meals
  - Exercising caution when handling limbs during transferring, transporting or positioning

- **Protection from Injury:**
  - Using a lift sheet to prevent sheering injury
  - Minimizing friction and shearing when: positioning, turning, lifting, sliding, transferring
  - Using pillows and blankets to pad and support body parts
  - Eliminating quick or harsh movements
  - Padding bedrails, wheelchair arms and leg supports
  - Supporting dangling arms and legs
  - Using non adherent dressing (gauze wraps, stockinettes, Kerlix)
  - Using only paper or cloth tape when unavoidable
  - Applying adhesive remover
  - Removing tape by applying counter pressure and rolling it off
  - Using emollient antibacterial soap
  - Using skin sealant (skin prep) with paper tape and any adhesive tape or dressing

Caution is especially important when applying or removing tape from an at-risk patient for skin tears. The recurrent use and removal of adhesive tape and adhesive backed dressings in acute care sets the stage for skin injuries. One hundred seventy eight PA-PSRS reports mention tape or tape removal in relation to a skin tear. When a patient has thin, friable skin, the smallest amount of paper tape is preferred. A common misconception is that paper tape will not damage the skin, which has been proven otherwise by the reports in the database.

*Patient allergic to adhesive tape so paper tape was used by anesthesia to secure ETT. The tape was removed and a 1” x 1/8” skin tear was noted on the patient’s left neck and cheek below the ear. Antibiotic ointment applied and covered with telfa.*

Tape is widely used in the hospital. It is a rare patient that does not encounter an intervention involving tape. Multiple procedures predispose the patient with fragile skin to a skin tear, as the following cases indicate:

*Skin tear on hip 17 x 2 x 0.1 from too much tape on dressing.*

*When removing tape from an intravenous site, a 4 cm by 1 cm skin tear resulted. Area cleansed and a sterile dressing applied. Skin tear on left antecubital area from removal of venipuncture tape on the patient’s arm. Wound care for skin tear required.*

*During dialysis treatment skin tear on the patient’s breastbone occurred, 3 cm x 2 cm with serous fluid. Wound cleansed with normal saline solution and Vaseline gauze and tape applied.*

Surgical services uses tape routinely for dressings, tubes, and drapes. PA-PSRS has received many reports of skin tears occurring in the operating room.

*Patient in the OR had tape removed from the endotracheal tube and a skin tear oc-
Skin Tears: The Clinical Challenge (Continued)

curred to the left cheek, 2 cm x 2 cm area. Treated with bacitracin and a bandaid was applied.

Skin tear found when surgical drape was removed. Adhesive tore skin off.

Patient eyes taped shut in OR for protection. Tape was removed in OR. In PACU, staff noticed bilateral eyelids had superficial skin tears.

When tape use is unavoidable, as with securing an endotracheal tube or closing the patient’s eyes, consider foam tape which provides a gentle bond to the skin. Skin sealant (skin prep) and adhesive remover are not recommended to be used near eyes. To facilitate tape removal apply careful counter-pressure19 to the skin near the adhesive dressing as the tape is slowly rolled off.20

In the acute care setting, awareness of a patient’s risk for skin tears and implementing preventive measures involves:

• Choosing the right products for care
• Managing the environment defensively:
  – Reducing friction and shearing
  – Using a draw sheet
  – Padding bed rails and equipment edges
• Using paper tape and skin prep4,14
• Removing tape with adhesive remover wipe12 and gently rolling off tape20
• Educating ancillary staff, patients and families in measures to reduce skin tear risk.

Selection of a dressing that minimizes the necessity for dressing changes and use of skin sealants prior to applying tape can help to reduce epidermal trauma.21

Skin Tear Assessment
Skin tears vary in size, location, depth of injury and amount of tissue lost. A common, uniform language4,9 describing and classifying skin tears is essential to deliver competent care, document the assessment and management4 and to be able to track1 the wound changes.

The Payne-Martin22,23 method is the accepted method of classifying skin tears (see Figure 3).1,3,5-12,15,24 This method has three levels of injury with increases according to the degree of skin flap or skin loss.22,23

Skin Tear Treatments in the Literature
The John A. Hartford Foundation Institute for Geriatric Nursing guideline “Preventing Pressure Ulcers and Skin Tears” summarizes treatment recommendations as follows:

• “Gently clean the skin tear with normal saline.
• Let the area air dry or pat dry carefully.
• Approximate the skin tear flap.
• Apply petroleum-based ointment, steri-strips or a moist non-adherent wound dressing.
• Consider putting an arrow to indicate the direction of the skin tear on the dressing to prevent any further injury during dressing removal.
• Assess the size of the skin tear and consider a wound tracing.
• Document assessment and treatment findings.”9

Though there is limited research on skin tear treatment, two recent small studies are encouraging in innovative treatments that reduce both the pain associated with dressing changes and the healing time:

• Category I and II skin tears were treated using a soft silicone-coated net dressing (Mepitel). The dressing adheres to the flapped skin and surrounding tissue, approximating the edges. A secondary absorbent dressing is applied to manage exudate and is changed when necessary. By the eighth day, 83% (73/88) of the wounds had healed.10

• Category II and III skin tears were treated with formulated 2-octylcyanoacrylate topical bandage (2-OTB). The product’s clear film dries in approximately 15 to 30 seconds, requires no secondary dressing and allows for routine inspection. Reapplication is done as needed if oozing of exudate occurs. Ninety percent of wounds (18/20) healed in one week with reports of minimal pain.24

These preliminary studies are encouraging in suggesting new, cost-effective, efficient treatments of painful, disfiguring skin tears.
### Skin Tears: The Clinical Challenge (Continued)

<table>
<thead>
<tr>
<th>Category I. Without tissue loss either linear, or with a flap that closes the tear to within an approximation of 1mm of the wound edges.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Category I - Linear Type" /> <img src="image2" alt="Category I - Flap Type" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category II. Partial tissue loss, considered scant when the loss is 25% or less and moderate or large when the tissue loss is more than 25%.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="Category II - Scant, tissue loss less than 25%" /> <img src="image4" alt="Category II - Large, tissue loss more than 25%" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category III. Complete tissue loss or no epidermal flap covering the injury.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image5" alt="Category III" /></td>
</tr>
</tbody>
</table>

### Summary
Identification of risk factors, implementation of prevention strategies, and standardizing assessment and treatment can reduce the incidence of skin tears in the acute care setting. The persistent problem of skin tears, while not life-threatening, is an injury that is painful and disfiguring to the patient. Treatment of skin tears consumes both staff time and other limited resources. Establishing policies and procedures to address skin tears and providing staff education with ongoing in-services is a good place to start.

### Notes
Skin Tears: The Clinical Challenge (Continued)


The Patient Safety Authority is an independent state agency created by Act 13 of 2002, the Medical Care Availability and Reduction of Error ("Mcare") Act. Consistent with Act 13, ECRI, as contractor for the PA-PSRS program, is issuing this newsletter to advise medical facilities of immediate changes that can be instituted to reduce serious events and incidents. For more information about the PA-PSRS program or the Patient Safety Authority, see the Authority’s website at www.psa.state.pa.us.

ECRI is an independent, nonprofit health services research agency dedicated to improving the safety, efficacy and cost-effectiveness of healthcare. ECRI’s focus is healthcare technology, healthcare risk and quality management and healthcare environmental management. ECRI provides information services and technical assistance to more than 5,000 hospitals, healthcare organizations, ministries of health, government and planning agencies, and other organizations worldwide.

The Institute for Safe Medication Practices (ISMP) is an independent, nonprofit organization dedicated solely to medication error prevention and safe medication use. ISMP provides recommendations for the safe use of medications to the healthcare community including healthcare professionals, government agencies, accrediting organizations, and consumers. ISMP’s efforts are built on a non-punitive approach and systems-based solutions.