A Tear Today, A Wound Tomorrow: Understanding Skin tear management

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The presentation used a real-world case study to illustrate best practices in skin tear assessment, management, and referral, with a particular focus on how lower leg skin tears can progress into chronic venous leg ulcers when not managed appropriately.

Key Concepts or Theories

- **Skin Tear Classification (ISTAP):** Type 1 (no skin loss/linear), Type 2 (partial flap loss), Type 3 (total flap loss)
- **Wound Infection Continuum:** Local covert, local overt, and spreading infection — each with distinct clinical signs
- **Moisture Balance in Wound Healing:** Appropriate dressing selection based on exudate level to maintain an optimal wound environment
- **Venous Insufficiency and Skin Tears:** Lower leg skin tears can progress to venous leg ulcers if venous insufficiency and edema are not identified and managed
- **Compression Therapy:** Use of compression (e.g., EdemaWear) to manage edema and promote healing in lower extremity wounds
- **Nutrition and Wound Healing:** Individualized nutritional assessment, including protein, hydration, vitamins C and D, and zinc, is essential for wound healing

Important Questions Raised

- When should suturing or steri-strips be used for skin tears, and why are they generally contraindicated?
- How do you select the appropriate dressing based on wound type, exudate level, and patient activity?
- How does venous insufficiency contribute to delayed healing and progression to venous leg ulcers?
- What are the signs of wound infection versus normal inflammatory response?
- When and how should compression therapy be safely applied in the absence of formal ABI testing?
- What nutritional interventions are evidence-based for wound healing?
- How quickly can Home Health see a patient for wound care, and what are the available referral pathways?

Key online resources:

- **CLWK (Connecting Learners with Knowledge):** http://www.clwk.ca — comprehensive resource for dressing product information sheets, best practice guidelines, and wound care education

- **ISTAP (International Skin Tear Advisory Panel):** International best practice guidelines for skin tear prevention and management

Key Takeaways and Summary of Learning Objectives

- Skin tears are traumatic wounds caused by mechanical forces and are classified into three types using the ISTAP framework; accurate classification guides management.
- Suturing and steri-strips are generally contraindicated for skin tears due to the fragility of the skin and the risk of further trauma.
- Early re-approximation of the skin flap (ideally within hours) using moistened Q-tips significantly improves healing outcomes.
- Dressing selection must be individualized based on exudate level, wound size, wound type, and patient lifestyle; key options include Tegaderm Absorbent, Mepilex, Mepitel, and cyanoacrylate (Marathon).
- Lower leg skin tears carry a high risk of progressing to venous leg ulcers if venous insufficiency and edema are not identified and managed with compression therapy.
- Signs of wound infection must be distinguished from normal inflammatory response; erythema greater than 2 cm beyond 72 hours, increasing pain, purulence, and odor are key indicators.
- Nutritional assessment and supplementation (protein, hydration, zinc, vitamins C and D) should be individualized to the patient and wound characteristics.
- Referral to VCH Community Home Health or wound care clinics is strongly recommended for wounds that cannot be managed in primary care.
- Prevention strategies include skin moisturization twice daily, pH-balanced cleansers, minimizing adhesive trauma, medication review (e.g., corticosteroids, blood thinners), environmental modifications, and use of protective sleeves.

Topic 1: Skin Tear Pathophysiology, Risk Factors, and Prevention

Skin tears are traumatic wounds caused by mechanical forces such as shearing, friction, blunt trauma, falls, equipment injury, and removal of adherent dressings or tapes. They are defined as wounds that do not extend through the subcutaneous tissue, though deeper injuries can occur. Prevalence rates are equal to or greater than those of pressure injuries, yet they receive comparatively less clinical attention. Populations at highest risk include the elderly, critically ill, pediatric, and premature neonatal patients.

Age-related skin changes — including thinning, loss of elasticity, dryness, and flattening of the dermal-epidermal junction (rete ridges) — significantly increase vulnerability to skin tears. Senile purpura and ecchymosis are common associated findings. Research also indicates that darker skin tones have lower basal water content due to differences in transepidermal water loss, which may affect presentation and assessment.

Common sites include the arms and legs, and 40–50% of skin tears have no observable cause. Lower extremity skin tears are particularly concerning, as healing may be impaired by arterial insufficiency, and venous insufficiency — if unmanaged — can lead to progression to venous leg ulcers.

Prevention strategies include:

- Daily skin inspection
- Moisturizing twice daily with water-based, non-perfumed products
- Use of pH-balanced, no-rinse cleansers for bathing
- Minimizing adhesive use; silicone tapes preferred over standard adhesives
- Medication review (corticosteroids, anticoagulants)
- Environmental modifications (removing rugs, sharp furniture)
- Use of protective sleeves (e.g., DermaSaver, skin sleeves)
- Encouraging long sleeves and long pants to reduce shear
- Caregiver and patient education on safe handling and transfer techniques
- Nutritional optimization (protein, hydration)

Topic 2: Assessment, Classification, and Treatment Goals

Skin tears are classified using the ISTAP (International Skin Tear Advisory Panel) framework:

- **Type 1:** Linear or flap tear with no skin loss; the flap can be fully re-approximated
- **Type 2:** Partial flap loss; the flap can be partially re-approximated
- **Type 3:** Total flap loss; the entire wound bed is exposed

Treatment goals include:

- Preserving the skin flap (the epidermis can regenerate back to the dermis)
- Re-approximating the wound edges as early as possible
- Maintaining the integrity of the periwound skin (cleanse at least 10 cm around the wound; recent guidelines suggest 20 cm)
- Reducing the risk of infection
- Reducing the risk of further injury

Re-approximation technique involves cleansing the wound with normal saline (minimum 100 mL, delivered at 8 PSI), then using moistened Q-tips to gently uncurl and reposition the skin flap. This should be done as soon as possible, as the flap begins to adhere and shrivel within 1–2 days, making re-approximation increasingly difficult.

Suturing and steri-strips are generally contraindicated because:

- Fragile skin cannot tolerate suture tension
- Steri-strips trap drainage, adhere excessively, and can cause further trauma upon removal
- Best practice emphasizes atraumatic dressings and alternative closure methods

Relevant Q&A

Question: "For Type 2 and Type 3 skin tears, can Tegaderm (transparent film) be used?"
Answer: Lauren clarified that the Tegaderm Absorbent (not standard transparent Tegaderm film) is appropriate for Type 1, 2, and 3 skin tears with small amounts of exudate. Standard transparent film is not recommended as a cover dressing for skin tears as it traps moisture and disrupts the moisture vapor transmission needed for healing. For wounds with moderate to large exudate, a silicone foam dressing such as Mepilex is preferred.
Question: "Where can Tegaderm Absorbent be purchased?"

Answer: Lauren advised that most pharmacies can order it. It is manufactured by Solventum (formerly 3M) and comes in multiple sizes. When selecting dressing size, always ensure a minimum of 2 cm of dressing pad extends beyond the wound edges in all directions to allow adequate drainage absorption.

Topic 3: Dressing Selection and Application

Dressing selection must be individualized based on exudate level, wound type, wound size, patient activity, and risk of re-injury. All dressings discussed are part of the BC Provincial Formulary and available through Vancouver Coastal Health.

Key dressings discussed:

Antimicrobial dressing only if high risk of infection ie. Immunocompromised or if signs of infection

Dressing	Indication	Notes
Tegaderm Absorbent (Solventum)	Type 1–3 skin tears with small exudate	Semi-permeable; can remain up to 3 weeks if exudate managed; transparent for monitoring
Marathon (cyanoacrylate)	Type 1 skin tears; low/no drainage	Single-use vial; applied as one layer over the tear; functions like medical-grade super glue
Mepitel (silicone non-adherent)	Minimal tissue loss; low drainage	Atraumatic; requires gauze cover and securing; less commonly used by Lauren due to securing challenges
Mepilex / Biatain (silicone foam)	Type 2–3; moderate to large exudate or bleeding	Change every 3 days; mark removal direction clearly ("Remove Here"); remove in the direction of the flap to prevent reinjury of the flap
Calcium Alginate	Bleeding wounds	Used as a secondary layer under cover dressing; must be soaked off at next change to prevent trauma

Key application principles:

- Mark dressings with "Remove Here" and an arrow to indicate the correct removal direction (away from the skin flap)
- Use silicone-based adhesive removers (not oil-based) to minimize trauma during dressing changes
- Remove dressings slowly while supporting the surrounding skin
- Avoid transparent film as a cover dressing over skin tears — it traps moisture and impairs healing

Relevant Q&A

Question: "When do you use Mepitel and gauze versus Tegaderm Absorbent?"
Answer: Lauren explained that Mepitel and gauze is used when there is minimal tissue loss and the clinician wants the flexibility to change the dressing more frequently. However, it does not provide moisture balance on its own. Tegaderm Absorbent is preferred for any Type 1, 2, or 3 skin tear with small exudate, as it maintains moisture balance and can remain in place longer. For wounds with moderate to large exudate (common in lower leg wounds with edema), Mepilex or a similar silicone foam dressing is the better choice.
Question: "Is Mepilex with calcium alginate a single combined dressing or two separate layers?"
Answer: Lauren clarified that Mepilex and calcium alginate are two separate dressings. Calcium alginate is a packing-type dressing applied directly to a bleeding wound bed, and Mepilex is applied as the cover dressing on top. The calcium alginate must be soaked off at the next dressing change to avoid re-injury.

Topic 4: Case Study — 76yo woman with skin tear on leg

A 76-year-old woman undergoing treatment for bladder cancer, sustained a Type 2 skin tear on her lower leg during a gym session. The case illustrates multiple common management errors and their consequences.
Timeline and key events:

- **Day of injury:** cleansed the wound with hydrogen peroxide (not recommended; normal saline, sterile water, or hypochlorous/hypochlorite acid preferred). A non-adherent gauze and transparent film were applied — the transparent film trapped moisture against the wound, creating an overly moist environment conducive to bacterial proliferation.
- **Day 3:** pt showed her dtr (a physician) the wound:
  The skin flap was no longer re-approximatable. No signs of infection were present at this stage. An over-the-counter antibiotic product and second skin moist gauze were applied — adding further moisture to an already over-moist wound bed.
- **Day 4–7:** The skin flap became non-viable. Erythema and induration developed, indicating local overt infection. The wound transitioned from a skin tear to a venous leg ulcer.
- **Days 12–13 onward:** The wound continued to deteriorate. Multiple clinicians applied varied dressings (including liquid iodine, which is not recommended due to systemic absorption). There was no consistent care plan. Antibiotics (Keflex) were prescribed but

insufficient. The patient was directed to the Emergency Department, then Urgent Care (which has no wound care clinicians), before eventually being referred to Home Health and the Pacific Spirit Wound Care Clinic.
- **At time of rounds:** The wound was healing well with twice-weekly wound care at Pacific Spirit and had been off antibiotics for some time.

Key missed steps identified:
- Failure to re-approximate the skin flap early
- Use of hydrogen peroxide and transparent film as initial dressings
- **No assessment for venous insufficiency or edema (dressing impressions on the skin were a visible sign of edema)**
- **No compression therapy initiated**
- Patient advised to stop exercising (calf muscle pump is essential for venous return)
- Inconsistent care plan across multiple care settings
- **Delayed referral to Home Health and wound care clinic**

Relevant Q&A

Question: "Is the wound infected at Day 3?" (posed to attendees)
Answer: Attendees correctly identified no signs of infection at Day 3. Lauren confirmed this and reviewed the wound infection continuum: local covert signs include delayed healing, bleeding/friable tissue, epithelial bridging, and increasing pain or odor; local overt signs include erythema greater than 2 cm, warmth, swelling, purulence, and induration; spreading infection includes lymphangitis, crepitus, wound breakdown, malaise, and systemic signs. Normal inflammatory response (erythema, swelling, pain within the first 72 hours) should not be mistaken for infection.
Question: "What dressing should have been used at Day 3?"
Answer: Based on small exudate and wound size, Tegaderm Absorbent was identified as the most appropriate choice, allowing transparent monitoring without frequent dressing changes. If unavailable, Mepilex applied lateral to medial would be an acceptable alternative.

Topic 5: Venous Insufficiency, Compression Therapy, and Lower Leg Wound Management

Lower leg skin tears require a lower limb vascular assessment because venous insufficiency — often subclinical — is common in older adults and significantly impairs wound healing. Unmanaged venous hypertension and persistent edema can cause a skin tear to progress into a chronic venous leg ulcer.

Signs of edema to look for:
- Visible sock or dressing impressions on the skin
- Pitting on palpation
- Edema may not always be visually obvious, particularly in thin individuals or those who are recumbent

Compression therapy principles:
- Minimum assessment before applying compression: CWMS (Color, Warmth, Movement, Sensation) plus palpation of pulses
- ABI is not directly linked to the level of compression; compression is contraindicated if ABI is below 0.4
- Assess for claudication, cardiac history, and other vascular risk factors

- Tubigrip provides minimal compression (~8 mmHg) and is difficult to apply correctly; Lauren prefers **EdemaWear** (~20 mmHg), which is easier to apply, more breathable, available in varied sizes, and accessible through all health authorities
- Plastic bag technique: place a plastic bag over the leg before applying compression, then remove the bag once the stocking is in place
- Patient instructions: remove compression if pain develops, toes turn blue, or feet become cold
- Patients should continue exercising to maintain the calf muscle pump — never advise cessation of activity

Topic 6: Nutrition and Wound Healing

Nutritional support is an important but often inconsistently applied component of wound care. When a wound has drainage, the patient is losing fluid, proteins, and vitamins, and supplementation is warranted. However, recommendations must be individualized rather than applied as a standard recipe.

General principles:

- Assess what the patient is actually eating, not just what is ordered or prescribed (how often is a patient in the hospital getting Ensure and it sits untouched on their tray?)
- Protein is essential for wound healing; many elderly patients, vegans, vegetarians, and pescatarians do not consume adequate protein
- Hydration is critical; many elderly patients do not drink enough fluids
- Supplements to consider when wounds are present: zinc, vitamin C (if no contraindications), vitamin D
- Collagen supplements are typically animal-derived; vegan alternatives should be sought for patients who do not consume animal products
- The larger the wound and the higher the exudate, the greater the nutritional replacement needed
- Consider laboratory investigations (pre-albumin, albumin, and other markers) to objectively assess nutritional status
- Avoid excessive sugar intake
- Ensure that nutritional intake is actually being consumed, not just placed on a tray

Relevant Q&A

Question: "The dietitian at my nursing home wants multivitamins and zinc for a 10-day course when wounds happen. Is there any evidence for this?"

Answer: Zinc, vitamin C, and vitamin D are reasonable recommendations when wounds are present, as wound drainage results in loss of these nutrients. However, supplementation should be individualized based on the pt's diet, wound characteristics, and overall health status, rather than applied as a blanket protocol. A 10d course may be insufficient for larger or more complex wounds. Dietitian involvement and laboratory monitoring are recommended for complex cases.

Topic 7: Referral Pathways and Resources

Clinicians should not hesitate to refer patients with wounds they cannot manage to appropriate wound care services. Within Vancouver Coastal Health, the following pathways are available:

- **VCH Community Home Health:** Wound care constitutes approximately 50% of their workload. Dressings are provided free of charge. Referrals are typically seen within 3

days; urgency noted on the referral form can expedite this. Home visits take longer to arrange than clinic appointments.

- **Private wound care clinics:** Available for patients who prefer not to use Home Health; a fee applies.
- **Wound clinicians are NOT present in Emergency Departments or Urgent Care Centers.**