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اصطلاحات اولیه در ارزیابی زخم

زخم، بیمار

اصول اولیه ارزیابی زخم

فرم ارزیابی

دربستان زخم

ارایه مقاله اسپانسر

1

پیک

دارو

ارایه اسپانسر

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مبتکران

سلامت

دنیای درمان

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عناوین تدریس

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اصطلاحات اولیه در ارزیابی زخم
Location is an important component of determining the wound etiology. It provides a summary of the characteristics of the four typical wound etiologies (arterial, venous, pressure, and neuropathic) and the location differences that are a significant aspect of determining the wound etiology. Location is described by **anatomical body part**, using medical terms to define specifics.
Location of wound on the hand

Location of wound on dorsal foot

Location of wound on lower extremity Wound
Dimensions

Wound size is a major outcome measurement and is used to document improvement or lack of response to interventions, or to predict healing potential. For example, diabetic foot wounds that decrease in size during the first 4–6 weeks of healing are more likely to have full closure. Periodic measurements give objective feedback about the efficacy of treatment and serve as indicators as to when interventions need to be changed due to lack of tissue response. Wound dimensions are also one of the primary indicators used by third-party payers to determine treatment efficacy. Wound surface area can be calculated in several different ways; however, electronic assessment is the only method that is absolute.
Perpendicular Method

The perpendicular (or ruler) method measures the wound length at its longest dimension and the width at the longest dimension perpendicular to the length. Measurements are recorded in either centimeters (cm) or millimeters (mm), and can be multiplied for a surface area (\(A = \text{length} \times \text{width}\)), although it would be approximate because wounds are rarely shaped like a rectangle. Elliptical surface area can also be calculated \([A = (\pi \times \text{length} \times \text{width})/4]\).

Volume can also be calculated with the ruler method \((V = \text{length} \times \text{width} \times \text{depth})\); the depth is measured with a sterile applicator perpendicular from the deepest area to the wound surface. The perpendicular method has been shown to have good reliability in wounds <4 cm\(^2\), and it is quick, easy, and inexpensive; however, it has the disadvantage of over-estimating wound surface area.
Clock Method

The clock method imagines a clock superimposed on the wound with 12:00 placed cephalically and 6:00 placed caudally. Measurements are then taken at any direction on the clock and documented (e.g., 6 cm at 12–6:00 and 2 cm at 3–9:00). When using the clock method, which is beneficial for sacral ulcers, the position of the patient is also documented in order to have consistency of wound configuration between measurements. For example, if a patient is positioned in right side lying for measurements at the time of initial evaluation and in left side lying...
Tracing uses a clear plastic measuring guide over the wound to trace the edges and is useful for wounds that have serpentine or uneven edges. A clear film is placed over the wound first, and then the measuring guide, and the wound is traced with a permanent marking pen. Some guides have 1-cm grids that can be used to calculate surface area by counting the number of cross-sections or the number of blocks within the wound tracing. Tracing has also been combined with planimetry software to determine more accurate wound surface: the wound is manually traced, scanned into computer software, and exact surface area calculated. The disadvantages of wound tracing are the following: sinuses, undermining, and depth are not measured; discomfort to the patient with pressure on the wound; risk of contamination; and edges can be obscured if there is moisture under the film.
Digital photography has become the standard for wound photography due to its availability and its ability to be downloaded into electronic medical records. High resolution allows excellent visualization of wound characteristics. Lists some recommendations for achieving optimal results when using digital cameras. Some photographs also have the 1-cm grid described above to assist in calculating surface area.
Undermining

*Undermining* is a result of necrotic hypodermal connective tissue that *disrupts* the attachment of the skin to the underlying structures. Dark discolored skin around the visible periphery of the wound may be an indication of undermining and is explored with a sterile instrument to determine the extent. Documentation includes the depth at the deepest point and the extent using the clock orientation.
Sinuses

Sinuses are extensions that run along a fascial plane and usually have a small opening that connects to a deeper area of tissue loss. Sinuses may contain fluid trapped in the deeper area, and may lead to abscess formation if not explored and cleansed thoroughly. Suspicion of a sinus is indicated by observation of a dark area at the edge of a wound and warrants exploration. Depth is measured with a sterile alginate-tipped applicator and location recorded using the clock orientation.
**TUNNELING**

*Tunneling* occurs when two cutaneous wounds connect. The two cutaneous wounds may initially appear to be two separate wounds, but when probed reveal that the subcutaneous tissue between the openings is necrotic and not connected to the under surface of the skin. In this case, the sizes of the two openings and the length of the tissue loss between the openings are measured and documented.
A fistula is defined as an abnormal connection between two epithelium-lined structures where a connection does not usually exist. Sometimes it is created for medical purposes, for example, in the case of an arteriovenous fistula between an upper extremity artery and vein for hemodialysis access. The type most frequently encountered in wound care is an entero-cutaneous or entero-atmospheric fistula that connects some part of the digestive system with the skin or wound surface. While the depth of the fistula is not appropriate to measure, the location is a component of the wound assessment. The type of drainage (eg, thin green, thick brown, or solid brown) can indicate the location of the digestive track where the fistula originates.
Eschar is non-viable or necrotic tissue that covers all or part of a wound base. It is composed of dead skin or subcutaneous cells and may vary in color (black, brown, gray, yellow, tan) and texture (hard, dry, rubbery, soft). Eschar is not synonymous with what is commonly called a “scab,” which is a result of blood and serum hardening over a fresh wound.
**Slough**

*Slough* is non-viable subcutaneous tissue, often found under eschar, and is a result of the body’s autolytic process to phagocytose dead cells. The usually soft and yellow substance has no real texture and is hard to grasp with forceps, unlike
Granulation tissue, the hallmark of the proliferative healing phase, is composed of extracellular matrix and capillaries. It is the tissue that the body produces to fill in a wound cavity and to support new epithelial growth, and has, as its name suggests, a granular appearance. Note that not all red tissue is granulation tissue; for example, immediately after surgery muscle and subcutaneous tissue may also be red but have a different texture. For this reason, describing wounds by color only (as is sometimes discussed in the literature) may be misleading in the documentation.
Muscle is identified by its location, its striated appearance, and its ability to contract with voluntary movement. In addition, healthy muscle bleeds when cut, is sensate and thus painful with stimulation, and is red. Conversely, unhealthy muscle is gray or brown, is insensate and therefore painless, does not bleed when cut, and has no contractibility.
Bone

Bone is identified by its location and its hard texture when probed with a metal instrument. The color is tan when healthy, and darker brown or black when necrotic. Usually bone is covered by periosteum, the bi-layer covering (composed of collagen and fibroblasts) of almost all bone, which contributes to bone repair and nutrition. Because of its importance in maintaining viability of the bone underneath, the periosteum should be kept moist and protected at all times. Necrotic bone usually requires surgical debridement; however, small, loose bone fragments may be removed during sharp debridement.
**Tendons**

*Tendons* are readily observed in full-thickness wounds of the dorsal feet and hands where there is less subcutaneous tissue between the skin and the tendons. An important component of healthy tendons is paratenon, the fatty synovial fluid that fills the sheath around the tendon and thereby provides moisture, nutrients, and glidability. The healthy tendon sheath requires a moist dressing to prevent dessication, defined as destruction by drying out. Non-viable tendon requires debridement for full wound healing to occur and is usually performed in surgery. However, sometimes fiber by fiber debridement in a chronic full-thickness wound is advisable.
Adipose (fat) tissue appears as **shiny globules when viable**, and **shriveled darker yellow tissue when non-viable**. Because of its poor vascularity, adipose easily becomes non-viable and infected and is very slow to vascularize and granulate. This can become very problematic in obese patients who have non-healing abdominal surgical incisions.
Foreign objects are sometimes visible within the wound bed (e.g., sutures, staples, dressing remnants, splinters, or shards of glass after trauma). If a foreign object remains in the subcutaneous tissue and the skin grows over it, a granuloma may form and cause a small reopening due to the exudate that develops as the body tries to autolyse the object. Persistent drainage from an otherwise closed wound is a red flag for a foreign object in the subcutaneous tissue. These objects are evaluated for the best method of removal (i.e., sharp versus surgical debridement), as well as for signs of infection.
Drainage - Serous drainage

*Serous drainage* is clear watery serum that normally appears during the *inflammatory phase of acute wound healing* and diminishes as healing progresses. It contains proteins but has no evident red blood cells or cellular debris to give it color. Common examples are the clear fluid in a blister and the drainage from an edematous extremity.
Sanguineous drainage

*Sanguineous drainage* is thin blood that drains from a surgical or acute traumatic wound, or from the wound tissue (eg, subcutaneous or granulation) of a patient who is prone to bleeding because of medications (eg, anticoagulants) or low platelet count. Excessive bleeding slows down the healing process because of the loss of platelets, growth factors, and other cells required for the healing cascade to progress. Bleeding that clots within the wound bed is termed *coagulum*. 
Serosanguineous drainage

**Serosanguineous drainage** is pink serous drainage because of the presence of a few red blood cells in the fluid.
Exudate

*Exudate* is pale yellow drainage composed of serum, dead cells, and lysed debris with a high protein concentration (specific gravity >1.015). It is usually present in the inflammatory phase as the body autolyses the dead cells that result from the injury. *Transudate* is serous drainage that has a low protein concentration (specific gravity <1.015).
**Purulence**

*Purulence* is thick, often *odiferous*, drainage that contains a large amount of *lysed debris and bacteria*. Commonly called *pus*, it indicates that a wound is critically *colonized or infected*. 
Lymphatic drainage

*Lymphatic drainage* is serous drainage that has a high concentration of protein and fat molecules that are too large to be resorbed by the capillaries; it is frequently seen in wounds that are in close proximity to lymph nodes (eg, the groin) or in wounds that are on extremities with lymphedema.
Chylous drainage occurs after abdominal surgeries, especially retroperitoneal ones, where there is trauma to the cisterna chyli or adjacent lymphatic trunks. The lymphatic system carries fluid with fat and protein molecules too large to return via the venous system; therefore, the chylous drainage that leaks from the wound is rich in triglycerides, giving it a thick, white, milky consistency.
Infected drainage

*Infected drainage*, in addition to being **thick and opaque**, may have a greenish tint with a distinct odor, indicative of a *Pseudomonas* infection.
Enterocutaneous or enteroatmospheric fistula drainage can vary from thin and watery to thick and formed, from green biliary to brown fecal matter, and from no odor to strong odor, all depending on the location of the fistula. If drainage is suspected to be from a new fistula, the referring physician should be notified immediately.
Erythema is defined as redness of the skin and can be caused by a multitude of conditions. It may be further defined as blanchable (meaning it turns white with pressure and recovers within seconds) or non-blanchable. Examples include inflammation, infection, Stage I pressure ulcer, allergic reaction, sunburn, frostbite, or reactive hyperemia (increased blood supply to an area that occurs after the blood supply has been absent and is then restored, e.g., after revascularization surgery). As with all abnormal characteristics, determining the cause of erythema is a necessary precedent to treatment.
Cyanosis is a blue-to-purple discoloration indicating lack of blood flow to the area. Initially it may be termed dusky, a visible early sign of hypoxia. Cyanosis usually occurs in the distal extremities as a result of severe peripheral vascular disease, emboli, or Raynaud’s syndrome.
Dark red discoloration is a result of capillary bleeding that occurs in the deep tissue as a result of bone shearing on the adjacent soft tissue. Suspected deep tissue injury and pre-ulcerative lesions on the diabetic foot are two examples where this type of discoloration is observed.
Hemosiderous staining is a brownish-purple discoloration most frequently seen in patients with chronic venous insufficiency. Red blood cells are trapped in the interstitial congestion, and when they die by apoptosis, the body lyses the dead cells and the hemoglobin attached to them. The by-products of this autolytic process migrate to the superficial cutaneous layers and cause the discoloration.