



Sharp Wound Debridement

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Sharp debridement is used to remove nonviable or infected tissue, slough, and bacterial burden, and to remodel wound base and edges. It is typically reserved for healable wounds. Only debridement to bleeding tissue can convert a stalled chronic wound to an acute wound and restart the healing cascade. Sharp debridement is usually *modus operandi*, the cornerstone of debridement in a wound care clinic, and is performed using sharp instruments (ie, scissors, scalpels, forceps, curettes, and razor blades). It can be combined with other types of debridement (eg, enzymatic). Aggressive wound debridement weekly or every 2 weeks improves wound outcomes.¹

Often both the wound and periwound are debrided. In addition to removing necrotic tissue and decreasing bacterial load, periwound debridement offers additional benefits. The condition of the periwound skin often mirrors what is happening to the wound itself and may even serve as a litmus test for patient adherence; For example, callused periwound skin may indicate inadequate offloading. Perform a vascular assessment prior to debriding heel eschars and other suspected vascular wounds. Further, exercise caution when debriding wounds in the vicinity of neurovascular bundles or in patients who are on anticoagulants.

Although wound debridement is a critically important skill for wound care practitioners, there is little formal training on how to perform sharp debridement. Consequently, the quality of sharp debridement varies among providers. The aim of this article is to familiarize wound care practitioners with the skill set and toolbox needed for sharp debridement and discuss the basics of remodeling the wound base and edges.

HOW TO DEBRIDE A WOUND

Initial Steps

Consent. Sharp debridement requires informed consent at the onset of treatment and must be within the scope of practice of the practitioner.

Cleansing. Cleanse the wound and periwound with 0.9% sodium chloride, tepid tap water, a wound cleansing spray, or an antiseptic.

Anesthesia. Unless the wound is insensate (eg, a diabetic foot ulcer), the area may need to be anesthetized

with a topical anesthetic prior to debridement. This can be achieved in several ways:

1) Place topical lidocaine (liquid or ointment) on the wound and periwound 30 minutes prior to the procedure.²

2) For minor wounds, lidocaine/prilocaine (EMLA) or ethyl chloride may be sufficient. Ethyl chloride provides anesthesia instantaneously.

3) If a topical anesthetic is not sufficient, a field block with lidocaine or lidocaine/epinephrine (adding epinephrine decreases bleeding and prolongs analgesia) may be needed. The same solutions can be poured on gauze and used to dab the wound, which will help with pain and bleeding. The concern that lidocaine absorption can cause systemic effects is not warranted as the maximal safe lidocaine dosage is 3 to 5 mg per kg.³

On rare occasions, patients may need to take analgesics an hour prior to their wound care visit. Often, several modalities can be combined for pain control (eg, topical ethyl chloride and injectable lidocaine with or without epinephrine).

Debridement

Periwound. Debride the periwound first to enable better wound inspection. If the periwound skin is hyperkeratotic (callused), it is best to resect the callus to the level of the surrounding skin using a curved scalpel (eg, #15) and/or a large curette (eg, #5 or #7). Curved scalpels are typically used to debride periwound calluses and significant amounts of necrotic or loose tissue at the base. They are safer for the patient and the operator and provide better fine-motor control for this delicate procedure. The scalpel is held stationary in the hand, with the index finger directing the instrument and middle finger serving as a pivot point (Figure 1). The debriding movement comes from bending the wrist.

Wound base. Although necrotic tissue in the wound base is usually easily recognizable, slough can be confused with adipose tissue (Figure 2). Adipose tissue is usually yellower than slough and is more plastic. Hypergranulation can be mistaken for granulation, especially when it is not protruding above the periwound. However, hypergranulation is often darker than granulation tissue and has a gelatinous consistency. When pressing a cotton swab against hypergranulatory tissue, it will often feel soft and

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Figure 1. DEBRIDING PERIWOUND USING A SCALPEL

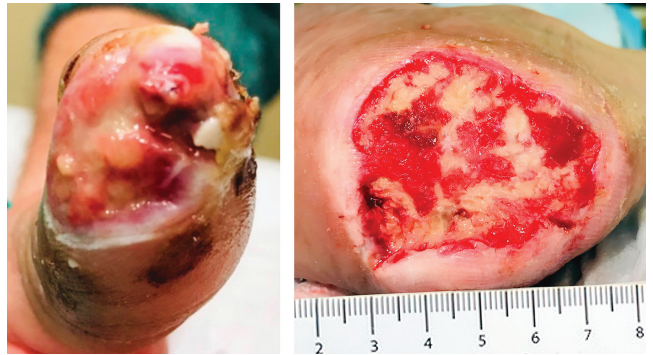


rubbery. Pressing and moving the cotton swab left to right may displace hypergranulatory tissues and produce a “giving” sensation that is not encountered when pushing on granulation tissues.

When using a scalpel for wound base debridement, one typically holds it like a pencil and not like a knife. However, most practitioners use curettes for wound base debridement because they offer more refined debridement than scalpels. Curettes come in different sizes, with numbers indicating the curette diameter in millimeters. Hold the curette perpendicular to the tissue that needs to be debrided and use a gliding, swiping motion (left to right; Figure 3). A good exercise is to glide the curette along your own skin without injuring it as if ice skating. Some loosely attached tissues (eg, scabs) that are above the surface may be removed using a curette as a rake. If a thick layer of tissue needs to be debrided, angulating the curette at a sharp angle of about 15° to 20° in a vertical downward motion (instead of a typical horizontal left to right motion) enables better tissue penetration.

A sterile razor blade can be useful when debriding larger wounds, especially when shaving off hypergranulation to ensure that the wound base is level with the periwound.⁴ (Figures 4 and 5). Serrated forceps with teeth are best for lifting tissue, and Iris scissors are best for cutting (especially in narrow spaces, undermining, and between layers of tissue). Bone cutting shears are occasionally

Figure 2. SLOUGH VS SUBCUTANEOUS ADIPOSE TISSUE



used to remove gangrenous toes or exposed parts of the osteomyelitic bone.

Wound Edges and Wound Remodeling

Even a perfectly debrided wound may not heal unless it is remodeled. Axiomatically, wound remodeling involves debriding edges at 45° or less to facilitate the migration of epithelial cells from edges across the wound base. If using a scalpel for edge resection, evert your wrist at approximately 45° to enable debridement at a proper angle (Figure 6). Rolled edges or undermined areas may need to be resected. If edge resection or unroofing of undermining is not possible or desirable, “edge trenching,” “soap scap” or “parallel pocket incision” techniques can be attempted.⁵⁻⁷ If the base is higher than the periwound, the wound will not close. Using a curette or a razor in a sweeping motion from the periwound to the wound

Figure 3. DEBRIDING USING A CURETTE

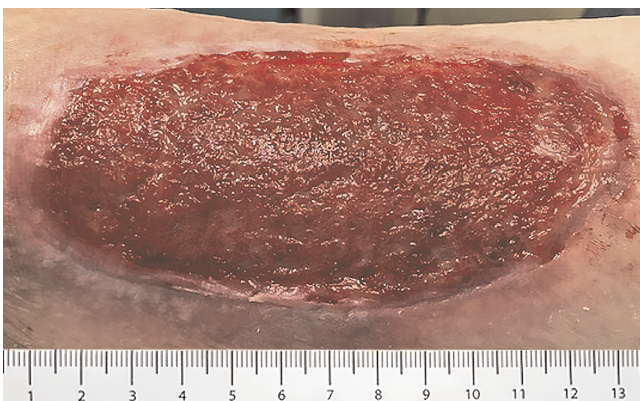


Figure 4. DEBRIDING A HYPERGRANULATORY WOUND USING A RAZOR BLADE

base at the end of debridement will ensure that the base is at the same level or lower than the periwound (Supplemental video, <http://links.lww.com/NSW/A192>).

Bleeding Control

If there is a venous bleed, elevating the extremity above the anterior axillary line is often all it takes to stop it. Apply pressure for 5 to 15 minutes, depending on the amount of bleeding; do not lift to look because this may dislodge the clot formation and initiate more bleeding. If these simple maneuvers are not effective, perform chemical cautery with aluminum hydrochloride (which does not cause tissue staining), silver nitrate (which can cause tissue staining) or oxidized regenerated cellulose (an absorbable hemostatic agent). A combination of pressure and chemical cautery is usually sufficient. However, if a field block was performed prior to the procedure and the patient does not have any pacemakers or defibrillators, electrocautery (eg, hyfrecator) can be used. If bleeding

Figure 5. RAZOR BLADE ENABLES RAPID DEBRIDEMENT OF LARGE WOUNDS AND FACILITATES MERGER OF THE PERIWOUND AND THE WOUND BASE**Figure 6. RESECTING WOUND EDGES AT A 45° ANGLE**

persists, apply gauze soaked with epinephrine/lidocaine to the wound with some pressure. Pulsating bleeding from an artery must be sutured via a figure-of-eight technique to halt the bleeding.

Dressing the Wound

After debridement, leave the dressing intact for the first 24 hours to achieve hemostatic effects. Absorptive bacteriostatic dressings are often used, although there is little evidence that any particular dressing type decreases surgical site infections.⁸ Subsequent dressing changes need to ensure a moist healing environment.

CONCLUSION

Sharp debridement is one of the pillars of wound management. Mastering this skill is crucial to improve wound healing outcomes. ●

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