Your guide to wound debridement and assessment

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Debridement is the removal of dead tissue (also known as non-viable or devitalised tissue), infected or foreign material from the wound bed (Wounds UK, 2013). It is undertaken to produce a viable wound bed and so facilitate healing. Methods of debridement available to general nurses include mechanical, larval (maggot) and autolytic. Other methods, such as sharp and surgical debridement, require specialist skills and training. When selecting a method, the clinician must be aware of all the options and determine whether or not he or she has the skills and knowledge to undertake it, and assess any potential risks for the patient (Wounds UK, 2013). If the clinician does not have the skills, he or she should refer the patient to a specialist. Mechanical debridement is regarded as the fastest method of debridement (Strohal et al, 2013).

**Types of non-viable tissue**

**Sloughy tissue:** This is a build up of dead white cells in the wound. It can also include bacteria and rehydrating necrotic tissue. Slough can act as a locus of infection and so should be removed (Kingsley, 2001).

**Necrotic tissue:** This is dead tissue. It may present as soft, black tissue, or as a black eschar, or be grey or off-white (Strohal et al, 2013).

**Wound assessment**

Wounds should be assessed by a knowledgeable practitioner using a framework that incorporates wound bed preparation (such as the TIME framework), as this will maximise the potential for healing. Debriding devitalised tissue can make it easier
Aspects to consider during assessment:

- Pain
- The wound bed
- The wound margins
- Surroun ding skin

(EWMA, 2008; Ousey and Cook, 2012; Stephen-Haynes, 2010)

Failure to debride devitalised (non-viable) tissue:

- Increases the risk of infection
- Prolongs inflammation
- Impedes wound assessment
- May increase pressure within the wound bed
- Increases metabolic demand
- Obstructs contraction and delays epithelialisation
- Results in poorer quality healing
- May impede wound drainage

(EWMA, 2004; Stephen-Haynes and Callaghan, 2012; Wounds UK, 2013)

to see and therefore assess the wound bed (Stephen-Haynes and Callaghan, 2012).

Wound cleansing
This aims to create the right wound bed environment to facilitate healing. It has been suggested that automatically cleansing all wounds is outdated and ritualistic (Young, 1995; Lloyd Jones, 2012). The aim is to remove debris or microorganisms in infected wounds, foreign bodies, superficial slough or rid the wound bed of dressing materials (Main, 2008). Sterile water or 0.9% saline has always been the solution of choice, but a Cochrane review concluded that tap water is safe and may reduce the risk of infection (Fernandez and Griffiths, 2010). Cleansing solutions should be warmed to 37°C (body temperature) before use as this assists mitotic cell division and wound healing (Watret and Armitage, 2002).
The TIME framework

**T = tissue**
Dead or devitalised tissue (slough or necrotic tissue) prolongs the inflammatory response (the first stage of healing). This slows down wound healing, can act as a focus for infection, and will delay the subsequent stages of healing (Falanga, 2000). Its removal will therefore facilitate healing.

**I = infection or inflammation**
All chronic wounds contain bacteria, but the extent to which this affects healing depends on the amount and type of bacteria present, as well as the wound aetiology. Removal of slough and necrotic tissue will reduce risk of critical colonisation and infection.

**M = moisture imbalance**
Moisture is needed to assist autolytic debridement; it also contains essential growth factors needed for epithelialisation. If the wound is dry, a crust or scab may form that acts like a ‘brick wall’ and the new epithelial cells will have to dig beneath this wall to migrate across the wound. If the wound becomes too wet, the exudate will damage the periwound skin and may lead to maceration.

**E = edges of wound**
A wound’s failure to progress may be due to reasons including infection, presence of excess exudate or inappropriate treatment. The wound edges may be undermined and the wound itself may appear unresponsive to treatment. In such instances, the clinician should reassess the wound, attempt to identify the cause for the failure to progress to healing, and then regularly reassess the tissue, infection and moisture levels.
Debridement methods for general clinicians
These are listed in order of speed of action (Strohal et al, 2013).

Mechanical debridement
Old methods involve the use of dry gauze dressings, wet-to-dry gauze dressings, impregnated gauze/tulle dressings. These methods are no longer considered acceptable (Strohal et al, 2013). A new method involves the use of a monofilament fibre pad to remove devitalised tissue from the wound bed.

Monofilament debridement pad
A monofilament soft pad (Debrisoft, Activa Healthcare) offers a safe alternative for removing slough and hyperkeratosis (thickened outer layer of the skin). This pad is reported to cause minimal pain and can be used by novice clinicians. It can be used in most environments, including the bedside, in clinic or in the home. It is selective, so will not remove healthy granulation tissue, and can be used in conjunction with other methods—for example, before or after larval therapy or sharp debridement or in addition to autolytic debridement. It is not suitable for painful wounds or on hard, dry eschar (Wounds UK, 2013).

Larval (maggot) therapy
Live maggots are placed on necrotic or sloughy tissue. The maggots produce a proteolytic enzyme that degrades and liquefies the devitalised tissue, which they then ingest.

Autolytic
Autolysis uses the body’s enzymes and moisture to rehydrate, soften and liquefy hard eschar and slough. Products capable of supporting moist wound healing or donating fluid to the wound can assist this process. Most clinicians can safely undertake this method, but it is the slowest option (Wounds UK, 2013).
Case 1

**Presentation:** This patient was referred to a tissue viability nurse with a venous leg ulcer that was leaking serous fluid. The wound measured 47 x 33mm and the wound bed comprised 70% slough and 30% granulation tissue; there was slight maceration on the surrounding skin (*Figure 1*).

**Outcome:** After one debridement session with Debrisof (which lasted 5-10 minutes), the slough reduced dramatically, showing healthy granulation tissue (*Figure 2*).

**References**

Case 2

Presentation: A vascular consultant referred this patient to the tissue viability service for assessment of recurrent mixed aetiology leg ulcers. The wound on the left medial malleolus measured 46 x 24 x 5mm. It contained approximately 90% superficial slough (Figure 1).

Outcome: Following one short debridement session with Debrisoft, there was only a minimal amount of slough present and the wound margins were visible (Figure 2).

Lloyd Jones M (2012) Wound cleansing: has it become a ritual or is it a necessity? Br J Community Nurs 17(12 Suppl.): S22-6
Main RC (2008) Should chlorhexidine gluconate be used in wound cleansing? J Wound Care 17(3): 112-4
Case 3

Presentation: This patient had a deteriorating venous leg ulcer that was leaking serous fluid. The ulcer was circumferential, with the ankle measuring 31 cm and the wound length 13.2 cm. The wound bed comprised 100% slough (Figure 1).

Outcome: Following a single use of Debrisoft lasting 5–10 minutes, only a small amount of superficial slough was present, which was removed by autolytic debridement. The condition of the surrounding skin improved considerably (Figure 2).