

SHOULD NECROTIC WOUNDS ALWAYS BE DEBRIDED?

Debriding wounds is considered to be an integral part of the management of chronic wounds and is recommended for the treatment and prevention of infection, and the management of exudate. This article looks at the definition of debridement, the different methods available, and when to debride and when not to debride.

“Appropriate debridement undertaken early is likely to accelerate healing, improving patient health and wellbeing and reducing the cost of chronic wound management.”

It is estimated there are around 200,000 chronic wounds in the UK. Chronic wounds are defined as wounds that have remained unhealed for more than 6 weeks (Collins et al, 2003). The cost of treatment and care of patients with these wounds is estimated at £2.3 billion–£3.1 billion based on 2006 prices, which is 3% of NHS budget (Posnett and Franks, 2008).

The routine care of non-healing wounds often comprises either cleansing or debridement (Strohal et al, 2013). Debriding wounds is often considered to be an integral part of the management of chronic wounds (Wounds UK, 2013), and is recommended for the treatment and prevention of infection, as well as the management of exudate (European Wound Management Association [EWMA], 2006; World Union of Wound Healing Societies [WUWHS], 2007).

Patients living with chronic non-healing wounds have to cope with major changes to their everyday life, which may include pain, unpleasant odours, leaky wounds and the inconvenience of having to attend clinics or have nurses visiting at home. These factors can

lead to psychological issues, such as anxiety and depression (Wounds International, 2012). Chronic wounds are also an expensive burden on the NHS. However, it is suggested that with proper diagnosis and treatment much of the disease burden can be avoided (Nherera et al, 2013).

Debridement is an integral part of wound care and essential as part of wound bed preparation. Appropriate debridement undertaken early is likely to accelerate healing, improving patient health and wellbeing, and reducing the cost of chronic wound management for the NHS (Wounds UK, 2013; Atkin, 2014).

However, is it appropriate to debride all devitalised tissue? It is important that the healthcare professional knows when to debride, when to refer to the specialist wound care team and when not to debride.

Debridement

Debridement in wound management means the removal of adherent, dead, non-viable/devitalised tissue from the wound (Wounds UK, 2013). Debridement should not be confused with wound cleansing, which is the removal of dirt, loose metabolic waste or foreign material (Atkin, 2014).

Devitalised tissue or non-viable tissue are terms that are used interchangeably and are used to describe tissue that has no blood supply, and will not improve with treatment or time, for example, necrotic tissue, callus or slough.

Depending on the hydration status of the tissue, devitalised/non-viable tissue can present as yellow, grey, purple, black or brown tissue that has a slimy consistency or as a hard leathery eschar (Wounds UK, 2013; Atkin, 2014).

There are several different methods of debridement available currently, which include autolytic, mechanical, larval therapy and ultrasound.

Autolytic debridement

This is a natural process where the body's own enzymes and moisture rehydrate, soften and liquify hard eschar and slough (Figure 1).

Occlusive or semi-occlusive dressings, such as hydrogels, hydrocolloids, Hydrofibers (ConvaTec), honey or alginates can be used to aid autolysis.

Advantages:

- ▶ Can be used before or between different methods of debridement
- ▶ Can be used on painful wounds
- ▶ Low skill levels required
- ▶ Can be used in any care setting.

Disadvantages:

- ▶ Slow
 - ▶ May cause maceration of surrounding skin
 - ▶ May increase risk of infection.
- (Wounds UK, 2013; Foot in Diabetes UK [FDUK], 2014).

Mechanical debridement

The traditional wet-to-dry method is not recommended. Wet to dry is the term used to describe a mechanical method of debridement. Using this method entails applying moist gauze to the wound, where it is allowed to dry. When it has dried out, it is removed and any necrotic

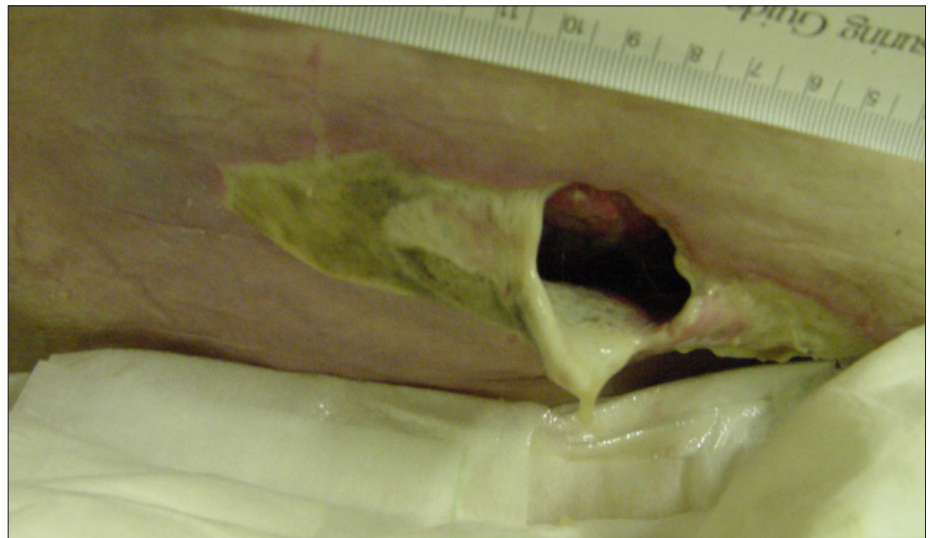


Figure 1. Wound ready for sharp debridement following autolytic debridement.

tissue adhered to the wound is also removed. It has the advantage of being quick and cheap but can be very painful for the patient and can also damage healthy tissue (Collins et al, 2002).

Newer methods of mechanical debridement use monofilament soft pads to gently remove devitalised tissue, debris and hyperkeratosis. Brands include Debrisoft® (Activa Healthcare).

Advantages:

- ▶ Selective
- ▶ Quick and easy
- ▶ Low pain
- ▶ Minimal training required.

Disadvantages:

- ▶ Not suitable on hard, dry eschar
 - ▶ Not suitable on already painful wounds.
- (Wounds UK, 2013; FDUK, 2014).

Larval therapy (biosurgical)

Larvae of green bottle fly (*Lucilia sericata*) are available loose or in a bagged dressing. Larvae remove moist, devitalised tissue and are also able to ingest pathogenic organisms present in the wound.

Advantages:

- ▶ Very selective

- ▶ Rapid
- ▶ Can be used on infected wounds
- ▶ Minimal training required.

Disadvantages:

- ▶ Will not remove callus. Therefore, larval therapy is not recommended as the only method of debridement in people with neuropathic diabetic foot ulcers
- ▶ Needs to be planned in advance
- ▶ More expensive than autolytic
- ▶ Not suitable for dry necrotic wounds with a hard eschar
- ▶ Use with caution in highly exuding wounds, wounds that require occlusion, in patients with clotting issues, malignancies or close to large blood vessels.

(Wounds UK, 2013; FDUK, 2014).

Ultrasonic

Ultrasound is used either directly to the wound bed or via an atomised solution. Low-frequency ultrasound provides a gentle maintenance debridement.

Advantages:

- ▶ Selective and immediate
- ▶ Can be used for excisional debridement
- ▶ Can be used for maintenance debridement
- ▶ Has some antimicrobial activity
- ▶ Low-frequency ultrasound

does not require specialist training and can be used in the community setting.

Disadvantages:

- ▶ Limited availability due to higher cost
 - ▶ Time consuming due to set-up time and the need for clean up and sterilisation of hand pieces
 - ▶ High-frequency ultrasound requires specialist training
 - ▶ Contraindicated in patients with vascular abnormalities, haemorrhagic conditions, malignancies and tissue previously treated with radiation, deep X-ray or irradiation.
- (Wounds UK, 2013; FDUK, 2014).

Hydrosurgical

Removal of dead tissue using a high energy saline beam which cuts and removes devitalised tissue.

Advantages:

- ▶ Selective
- ▶ Quicker than surgical debridement
- ▶ Short treatment time
- ▶ Capable of removing most devitalised tissue from the wound bed without compromising healthy tissue
- ▶ Removes hyperkeratotic tissue from wound margins.

Disadvantages:

- ▶ Specialist practitioner with relevant training
 - ▶ Only available in specialist units
 - ▶ Risk of aerosol spread of infection
 - ▶ Higher cost.
- (Wounds UK, 2013; FDUK, 2014).

Sharp

The removal of devitalised tissue using a scalpel, scissors and/or forceps to just above the viable tissue level. Often undertaken in conjunction with autolytic debridement.

Advantages:

- ▶ Selective and quick

Table 1. Decision pathway for debriding.

- ▶ Assess the wound – including cause, site, size and signs of infection
 - ▶ Assess the patient – including comorbidities and medication
 - ▶ Ask trigger questions – what are the risks, what are my options?
 - ▶ Question yourself – am I certain what to do?
 - ▶ Discuss with and involve the patient
 - ▶ Select the most appropriate debridement method
 - ▶ Understand when not to debride
 - ▶ Know when to consult with or refer to MDT
- (Adapted from Wounds UK, 2013).

- ▶ Can be undertaken in different care settings
- ▶ Can be repeated several times over a course of treatment
- ▶ Analgesia usually not required.

Disadvantages:

- ▶ Does not result in total debridement
 - ▶ Skilled practitioner required.
- (Wounds UK, 2013; FDUK, 2014).

Surgical

The excision or wider resection of devitalised tissue, including the removal of healthy tissue from the wound margins, until a healthy, bleeding wound bed is achieved.

Advantages:

- ▶ Selective
- ▶ Can be used on large areas when rapid removal is required.

Disadvantages:

- ▶ Skilled practitioner required
 - ▶ Performed in operating theatre
 - ▶ Painful
 - ▶ Anaesthetic required
 - ▶ Higher cost.
- (Wounds UK, 2013; FDUK, 2014).

When to debride

Undertaking debridement at an early stage is likely to accelerate wound healing by creating a healthy wound surface, improving patient care and quality of life, as well as reducing hospital stay and wound care costs (Wounds UK, 2013).

A healthy wound surface is created when biofilm infection, inflammation, exudate, slough and necrotic tissue are minimised to an extent where the host can dedicate physiological resources towards tissue regeneration (Wolcott et al, 2009). Removal of devitalised tissue can also improve assessment of the wound surface and improve the effectiveness of topical applications, such as antimicrobials or pain relief.

According to FDUK, debridement is a skilled procedure. The examples of debridement above demonstrate the different methods of debridement available and the skill required and the advantages and disadvantages of each method. However, debriding is complicated by many factors, including the patient's general health, systemic conditions, lifestyle, attitude, beliefs and behaviours (FDUK, 2014).

In order to provide the most appropriate care, the healthcare practitioner must have the knowledge, education and appropriate skill to undertake a holistic assessment of the patient, wound assessment and the ability to select the most appropriate method of debridement or to refer the patient to a specialist (Table 1; Wounds UK, 2013, FDUK 2014).

When not to debride

Although debridement is the recommended treatment for devitalised tissue, there are some exceptions.

For example, debridement is not appropriate for dry necrotic tissue or gangrene without infection, as found in the ischaemic diabetic foot, where the most appropriate decision may be to leave the devitalised tissue to dry to such an extent that the necrotic tissue separates from the limb (auto-amputation) (Figure 2).

In these cases, it is only appropriate to debride if the tissue is wet, or there is evidence of periwound autolysis where the edges of the devitalised tissue is starting to debride, or where there is underlying bogginess. However, unless the healthcare practitioner has the appropriate skill and knowledge specialist advice should always be sought (Wounds UK, 2013; FDUK, 2014).

Debridement is not appropriate in terminally ill patients, in particular if the necrosis is dry and not causing pain, or where there is damage to the surrounding skin (Anderson, 2006).

In some cases, debridement may be appropriate, but the location of the wound means extra caution is advised and debridement should only be undertaken by skilled practitioners. Extra caution is needed for:

- ▶ High-risk areas: face, hands, feet and genitalia
- ▶ Ischaemic limbs
- ▶ Wounds in close proximity to blood, vessels, nerves and tendons
- ▶ Wounds in patients with blood clotting disorders
- ▶ Wounds in patients who cannot give consent
- ▶ Wounds in patients with possible implants and/or dialysis fistulas
- ▶ Patients with inflammatory conditions, such as *Pyoderma gangrenosum*.

(Wounds UK, 2013).

Conclusion

Debridement is an essential component of wound care. However, it is not the recommended treatment for all wounds with devitalised, non-viable tissue.



Figure 2. Example of dry necrotic tissue which should not be derided with out specialist referral.

It is important, therefore, that the healthcare practitioner has the skill and knowledge to be able to assess and recognise where to and where not to debride. They must also be able to determine which method of debridement is most suited for a particular patient and wound. Importantly, they need to recognise their own limitations and refer the patient to the most appropriate specialist if they do not have the requisite skills.

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