How to...
Ten top tips for wound debridement

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Debridement of non-viable tissue from any wound is an accepted principle of wound care and is primarily aimed at achieving wound healing. However, a 2010 consensus document highlighted the fact that many clinicians undertake this process without adequate knowledge or preparation: 'Upskilling practitioners in the most recent advances in debridement tools and techniques will help to ensure that the appropriate and optimum treatment options are implemented, thus improving patient care and clinical outcomes'[1].

As it is recognised that there is a lack of standardised guidelines and that variations in practice exist, this article provides a simple set of tips for clinicians to bear in mind when considering the use of debridement.

METHODS

The debridement methods most frequently seen in current practice, and outlined below, include:

- **Mechanical**
- **Larval**
- **Sharp**
- **Autolytic**
- **Hydrosurgical**
- **Ultrasound**
- **Surgical.**

As with any treatment, it is important to explain the process to the patient and gain consent before attempting any of these procedures.

PRINCIPLES OF DEBRIDEMENT

The following are guidelines only and clinicians should always consult local and national protocols when considering the use of debridement.

1 Environment: the room chosen to be used for treatment should be suitable for the process and adequate disposal facilities and equipment should be available, for example, a sharps box in the case of sharp debridement, or the protective clothing and goggles required when undertaking hydrosurgical debridement. The windows and doors should be closed to prevent cross-contamination — the closed door will also allow the clinician to concentrate without distraction. Fans should also be turned off several minutes before the treatment commences to allow the air to settle.

2 Inspection of the wound: objectives should only be set following a thorough assessment of the wound bed, focusing on the tissue structures that are to be removed. It is vital to ensure that no organs, ligaments or blood vessels are involved with the necrosis or debris to be removed, thereby avoiding the risk of traumatic injury. Clinicians should ensure that the amount of tissue that requires removal is appropriate for the chosen method of debridement — the anatomical location of the wound will influence this decision.

3 **Competency:** it is important that the clinician's chosen method of debridement falls within their own competency. Clinicians should never attempt processes such as sharp debridement without undergoing structured training and fulfilling the appropriate competencies as outlined in local guidance[2].

Always assess if pain control is appropriate for the chosen technique and topical or oral top-up may be needed.

4 Autolytic debridement: this is performed with an occlusive or semi-occlusive dressing, such as a hydrogel, hydocolloid, alginate or film, and the aim is to rehydrate the necrotic tissue. This is a slow process and can safely be undertaken by the majority of clinicians following a structured wound assessment. It can, however, lead to malodour and maceration of the periwound skin.

This technique is usually used prior to another form of tissue debridement and

References

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4. Leaper D. Sharp technique for wound debridement. 2002. Available at: http://www.worldwidewounds.com/2002/december/Leaper/Sharp-Debridement.html (accessed 2 December, 2012).

softens devitalised tissue and encourages autolysis. It should be used with caution on arterial and diabetic foot wounds.

5 Mechanical debridement: this is a wet-to-dry technique where the dressing sticks to the top layer of the tissue, pulling it away when removed. However, mechanical debridement is not selective about the tissue it removes and can be very painful, removing healthy tissue at the same time as necrotic tissue. Mechanical debridement is very cheap, but can be time-consuming due to the frequency of dressing changes and can also be very traumatic for the patient.

A debriding pad (Debrisoft®; Activa Healthcare) has recently been introduced, which should be moistened and gently applied to the wound bed in a rotational movement. The fibres (monofilaments) or hoops of the pad retain the dead tissue and bacteria within pad, thus removing the debris.

6 Larval therapy: the larvae of the green bottle fly (*Lucilia sericata*) secrete an enzyme, which breaks down necrotic tissue into a liquid. This is then ingested by the larvae. This particular larvae do not touch healthy tissue and the technique can, therefore, be seen as a selective micro-debridement[3]. The larvae are available 'free range' or bagged and must be applied to a moist wound bed to keep them alive. For optimum results, the outer dressing should be moistened daily. The treatment can be used consecutively without a break, although it is important to make sure that patients are comfortable with the procedure as some can find it distasteful.

Free range larva can be used for digit removal if a bone is diseased and the patient is considered too high a risk for theatre. Larvae also have the capacity to lower bacterial colonisation within the wound.

Larvae need to be double-bagged and burnt for disposal.

7 Sharp debridement: this is usually undertaken by a specialist or surgeon with training in debridement. It can be performed in a treatment room or at the bedside. It is essential that the clinician knows which structures are to be removed to avoid complications, such as excessive bleeding or ligament damage. If excess bleeding does occur, it is useful to have an alginate dressing at hand to place upon the wound to aid haemostasis. If a limb is involved, it should be elevated. This process should only be performed where resources are available in case of complications[4]. It is not suitable as a home-based treatment.

The results of sharp debridement are fast, but may need to be repeated over time, for example, in the treatment of diabetic feet where off-loading of pressure points on planter surfaces is not adequate. Topical treatments will be ineffective against the repeated trauma of patients continuing to walk on wounds as they do not feel any pain.

Essentially this process relies on the practitioner's understanding of the patient's

Figure 1. Hydrosurgical surgery being performed on a mixed aetiology ulcer.

Page Points

1. *Mechanical debridement is a wet-to-dry technique where the dressing sticks to the top layer of the tissue, pulling it away when removed*
2. *The larvae of the green bottle fly (*Lucilia sericata*) secrete an enzyme, which breaks down necrotic tissue into a liquid, which is then ingested by the larvae*
3. *Sharp debridement is usually undertaken by a specialist or surgeon with training in debridement*

Useful links

Importance of wound debridement in management of diabetic foot ulcers

The autolytic debridement of venous leg ulcers

diagnosis, thorough wound assessment and the practitioner's clinical capabilities and knowledge of the process.

8 Surgical debridement: this process is usually undertaken within the confines of theatre, where large amounts of necrosis or septic tissue need to be urgently removed, for example, in cases of necrotising fasciitis. The process is not selective — healthy and necrotic tissue are often removed together as there is a need for clear margins and large wounds are frequently exposed using this method. Theatre time is expensive and the patient will need follow up treatments to achieve full healing. This process can be very painful and expensive, but is often necessary in the case of bacterial sepsis.

Following this treatment, topical negative pressure is often used to speed up wound healing, control exudate and prevent hospital-acquired infections, thereby allowing patients to go home quicker and reduce hospital bed occupancy.

9 Hydrosurgical debridement: this is a simple and effective process, which uses pressurised water or saline as a cutting/cleaning tool *[Fig 1]*. The pressure is controlled via a handpiece and should only be used by a trained practitioner. The hand-held units can be expensive to buy or rent while the feeder heads have to be bought separately. Disposal can also be costly.

The process is effective, however, protective clothing and goggles should be worn when undertaking this process to protect from 'splash-back' and cross-contamination. The technique is quick and can be used in most settings.

10 Ultrasound: there are two ultrasound techniques currently used and each has a very different mode of application. The first type works through 'agitating' the wound bed directly. It uses an ultrasound probe, which is applied to the wound via a single-use head, incorporating a cleaning system that removes debris and bacteria.

The second type uses an atomised saline solution or 'mist', where the gas-filled bubbles explode at the wound bed, lifting necrotic tissue and bacterial cells.

Again, this process can be expensive, however, the results are instant and effective. Protective clothing should also be used as mentioned above.

CONCLUSION

In today's changing healthcare environment it is essential that clinicians work within their own capabilities and are aware of the financial burden being placed upon services, with more expensive treatments being scrutinised for effectiveness.

Wound care debridement techniques are constantly developing and can, if used correctly, lower the use of antimicrobial products as well as the cost of dressing budgets.

AUTHOR DETAILS

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