

THE PRACTICAL USE OF FOAM DRESSINGS

Efficient and cost-effective management of excessive exudate continues to challenge clinicians. Foam dressings are commonly used in the management of moderate-to-heavily exuding wounds and can be applied to a variety of wound aetiologies. This article aims to explore the basic principles of foam dressings and describe their use in specific wound types.

Foam dressings have been used in wound care since the 1980s and continue to be a common choice in the management of moderate-to-heavily exuding wounds. This is due to their ability to retain fluid and transmit moisture vapour away from the wound, through the back of the dressings, via evaporation (Adderley, 2008).

While the mode of action varies for each product, the majority are designed to absorb and 'lock away' the exudate in their internal structure, therefore, providing high absorbency and increased wear times (Cook and Barker, 2012). Wound healing progresses most rapidly in an environment that is clean, moist, but not wet, as well as being insulated, while being protected from trauma and bacterial invasion (Brett, 2006).

Foam dressings are designed to create such an environment, and therefore, promote wound healing. Appropriate dressing selection relies on accurate wound assessment in combination with an understanding of the underlying conditions that caused the skin to break down.

Wound assessment involves determining the viability of the tissue on the wound bed — evaluating any evidence of infection, reviewing levels of exudate, assessing the wound edges and, additionally, the condition of the surrounding skin. Following accurate assessment, treatment aims can be formulated and, if it is identified that there are problems with moderate-to-high levels of exudate, foam dressings may be helpful in managing the exudate levels, therefore, preventing strike through and periwound maceration.

Effective management of wound exudate is key to promoting successful wound healing (White and Cutting, 2006). Wound exudate is produced in response to a complicated interaction between wound aetiology, wound healing physiology, wound environment and compounding pathological processes (World Union of Wound Healing Societies [WUWHS], 2007).

Wound exudate is often misconceived as a negative, when, in fact, it is known to assist wound healing by preventing the wound from drying out, aiding migration

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of tissue-repairing cells, providing nutrients, enabling diffusion of immune and growth factors and assisting in autolysis (WUWHS, 2007). However, excessive exudate levels can have a significant impact on a patient's quality of life and can ultimately delay wound healing.

Successful management of excessive exudate can also be challenging for clinicians and can be costly in terms of clinical time and dressing cost (Dowsett, 2011). A number of factors can influence the production of exudate, including the underlying pathophysiology, location of the wound, size of the wound, bacterial load and the presence of oedema.

Assessment of the exudate is vital to ensure appropriate wound management plans are formulated. The characteristics of the exudate should be assessed and documented, which should include the type, volume, odour, consistency and colour. The overall aim of exudate management is to achieve a moist wound bed that is neither too wet nor too dry. A multidisciplinary team approach

should be adopted to create an individualised management plan, (WUWHS, 2007).

In summary, effective exudate management must aim to:

- ▶▶ Treat the underlying cause
- ▶▶ Enhance patients' quality of life
- ▶▶ Optimise the wound bed
- ▶▶ Remove moisture using appropriate dressings
- ▶▶ Prevent and treat exudate-related problems, e.g periwound changes, odour and pain (WUWHS, 2007).

Foam dressings in the management of leg ulceration

Venous leg ulcers are often associated with increased wound exudate levels, as a consequence of increased blood volume in the veins of the lower leg (venous hypertension) and the subsequent leakage of fluid into the surrounding tissues.

Additionally, this can be exacerbated by:

- ▶▶ Wound inflammation/infection
- ▶▶ Lower limb dependency

- ▶▶ Reduced willingness or inability to cooperate with compression therapy
- ▶▶ Development or deterioration of congestive cardiac failure and peripheral oedema (International Wound Journal [IWJ], 2008).

The reasons for increased exudate levels need to be established and wherever possible addressed.

The main treatment for venous ulceration (following the exclusion of any evidence of peripheral arterial disease by calculating the patient's ankle brachial pressure index [ABPI]) is compression therapy. This will counteract the venous hypertension, therefore, promoting ulcer healing by reducing the congestion and oedema, which subsequently will result in decreasing exudate levels. If exudate levels are excessive, the use of foam dressings to adequately absorb the moisture preventing maceration to the surrounding skin can be helpful.

Figure 1 shows a highly exuding venous leg ulcer — the ulcer bed is sloughy and there is evidence of extensive maceration below the ulcer. This is as a result of the exudate not being adequately managed, therefore, being allowed to run from the ulcer into the surrounding skin resulting in significant maceration (evidenced by the white sore skin around the ankle). If the exudate levels are not successfully managed, the ulcer is at risk of growing larger.

Maceration will often exacerbate a patient's pain and the woman in *Figure 1* complained of a constant burning sensation on the skin at the bottom of her ulcer, which was painful and, as a result, her mobility was affected. Foam dressings were recommended, combined with a primary Hydrofiber dressing and



Figure 1 (above left). Shows a highly exuding venous leg ulcer, while Figure 2 (above right) shows the same wound following treatments with a foam dressings in tandem with a primary Hydrofiber® (ConvaTec) dressing —evidence that maceration has been eliminated.

this treatment plan was able to successfully manage the levels of exudate. Along with compression bandaging, there was evidence that the maceration had been eliminated after just two weeks (*Figure 2*).

Foam dressings in the management of skin tears

Skin tears are a common occurrence in older people who often have frail, paper-thin skin (Carville et al, 2007). They are often caused as a result of trauma (commonly, shear and friction) and are usually found to occur on the extremities (Carville et al, 2007). The management of skin tears can present a challenge for the practitioner who must ensure that the fragile skin on the wound bed and the surrounding skin is not damaged further during dressing changes. Changes in the skin occur as an individual ages, affecting the integrity of the skin and making it more vulnerable to damage (Cooper et al, 2006).

The severity of the skin tear needs to be accurately assessed. In 1993, Payne and Martin developed a classification system for skin tears dividing them into four categories:

- ▶ Category 1: Skin tear without tissue loss
- ▶ Category 2a: Scant tissue loss. Partial thickness in which 25% or less of the epidermis flap is lost and at least 75% or more of the dermis is covered by the flap
- ▶ Category 2b: Moderate to extensive tissue loss. Partial thickness wound in which more than 25% of the epidermal flap is lost and more than 25% of the dermis is exposed
- ▶ Category 3: Skin tears with complete tissue loss. Epidermal flap is absent (Payne and Martin, 1993).

The most effective way of treating a skin flap is, where possible, to use the flap of skin as a 'dressing' itself, in an attempt to bring the wound edges together (*Figure 3*)

(Cooper et al, 2006). The sooner this is performed following the initial injury the more likely that the damaged skin will become viable.

The overall aim of the treatment for skin tears is to achieve and maintain solid skin flap fixation, preserving the skin flap as much as possible while protecting the skin from further trauma and damage.

Meuleneire (2002) raised concerns about the use of steristrips in the fixation of skin tears, as the traction on the fragile epidermis, combined with the inflammatory action, can cause further damage to the surrounding skin.

Silicone-based foam dressings can be suitable for the management of skin tears as the gentle silicone wound contact layer provides a degree of traction, therefore, providing solid fixation of the skin flap. The foam backing has the ability to manage exudate levels, while providing the ideal moist wound healing environment. Additionally, the silicone contact layer ensures a non-traumatic dressing removal. Clinicians should be encouraged to draw an arrow on the top of the dressings, indicating in which direction the dressings

should be removed, thereby preventing the dressing from lifting up the skin flap on removal.

Foam dressings in cavity wounds

Cavity wounds can be either acute or chronic. An acute cavity wound is often the result of an injury or dehiscenced surgical wound, whereas chronic cavity wounds are often a result of deep tissue injury, such as pressure ulceration. Cavity wounds can be very distressing for patients and often present the practitioner with clinical management challenges. These challenges include: successfully managing exudate to prevent skin maceration, managing the infection risk associated with an extended duration of healing, managing wound odour and supporting healing.

Secondary considerations relate to the pain and inconvenience experienced by patients, which are often combined with reduced appetite and a negative effect on social activities, resulting in reduced quality of life (Benbow, 2008). Assessment of cavity wounds must start with complete holistic assessment of the



Figure 3 (left). Shows a skin flap, while Figure 4 (above) shows a dehiscenced surgical incision in the groin.

patient, identifying causation and contributing factors to the formation of the wound and identifying other elements that may delay wound healing.

Documented detailed wound assessment needs to be undertaken looking at the size, depth and condition of the wound bed. This will identify whether the wound bed tissue appears viable or non-viable, whether there is any evidence of infection or chronic inflammation, whether there are problems with the amount or type of exudate and whether there are any issues with the wound edges in terms of maceration, tunnelling or undermining. Following detailed assessment, treatment aims can be established.

There are a variety of therapies available for the treatment of cavity wounds, these include absorbent foams, alginates, Hydrofibers and negative pressure wound therapy (NPWT). The most appropriate therapy depends upon the results of the detailed assessment. For example, if the treatment aim is to debride the wound, choosing NPWT would not be considered the most appropriate. In this case dressing the wound with a Hydrofiber in combination with a foam dressing will debride the wound while providing the optimum environment for wound healing to occur.

In contrast, if the wound bed was clean with no evidence of infection and the aim was to promote granulation tissue and rapid wound closure, the use of NPWT would be appropriate. Foam dressings in large cavity wounds can offer an alternative management option where NPWT is contradicted.

Figure 4 shows a dehiscid surgical incision in the groin. There was damage to the lymphatic channel

resulting in a highly exuding wound and tunnelling to the level of the femoral artery at the upper aspect of the wound. The wound bed had evidence of superficial slough, but no signs of infection and the periwound skin appeared healthy. The cavity was large, but NPWT could not be used in this case due to the lymphatic damage and exposed vessels, therefore, the wound was treated with cavity foam dressings. The cavity foam dressings successfully managed the exudate levels, while encouraging autolysis through providing the optimum wound environment, resulting in a reduction of the size of the wound.

Conclusion

The most important aspect in the management of all wounds is ensuring that a complete and thorough assessment has been undertaken, establishing the reasons why the wound has occurred and identifying factors that could delay wound healing. Treatment/management of these factors is vital to optimise the potential for wound healing. An appropriate choice of dressing or therapy will support healing and must be convenient and acceptable to the patient.

Clinicians must have the necessary knowledge to make the right choice and to be able to execute their decision competently (Benbow, 2008). Wound bed treatment aims need to be realistic and clear to allow evaluation of the treatment plans ensuring that the dressing selected is the most appropriate in terms of promoting wound healing and patient comfort. **WE**

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