Tielle® Packing for the treatment of heavily exuding and cavity wounds

Cavity wounds and those with heavy levels of exudate feature highly when discussing complex wounds which are difficult to manage and to heal. The effects of excess exudate can create added discomfort for the patient, particularly if the wound is not managed well and fluid is allowed to leak onto the surrounding skin causing maceration. Due to the demands of complex wounds, wound contact layers have to be absorbent, aid healing and be easy to apply and remove. Tielle Packing® hydropolymer dressing is a viable option when the patient requires a product with these properties.

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KEY WORDS
Tielle technology
Tielle packing
Exudate
Cavity wounds

A cavity wound is a hollow area created by a degree of tissue loss which extends into the dermis and may go beyond this into the sub-cutaneous fat and muscle layers (Bale and Jones, 1997).

A combination of pressure, shear and friction in chronic wounds may create deep vascular damage, leading to disruption of the blood flow and, ultimately, cell death. This cell death will result in tissue loss and a cavity will form, usually pre-empting the development of a pressure ulcer (Bouten et al, 2003). In some cases, the cavity will only be exposed once superficial necrotic tissue has been removed.

In acute wounds, a cavity can develop following infection, abscess formation and wound dehiscence (Swan and Banwell, 2003). Foot wounds may not be physically deep, however, the damage may extend through the muscle layer to bone, which is of particular concern in patients with diabetic foot ulceration (Apelqvist, 2007).

Dressing selection for cavity wounds has to consider products which can actively assist in debridement and maintain a moist wound healing environment which supports autolysis and is conducive to healing.

It should also be noted that cavity wounds may extend to bone or other underlying structures, which need to be protected, both physically and from the risk of infection. It is therefore essential to bear this in mind when treating these wounds.

To complicate the situation further, there may be areas of undermining (*Figure 1*) which reach deep into the tissues beyond the visible margins of the wound. When areas of undermining are suspected, these can be probed gently using a sterile wound swab (Cooper, 2006). The depth should be recorded in the patient's chart and this should be assessed each time the wound is redressed. When there are areas of undermining present, there is a risk that wound care products may be left in situ which may, in time, lead to infection. Products which are designed to be inserted into cavities and areas of undermining, should have a high wet strength and be able to be removed in one piece.

Any type of tissue may be present within the cavity, and often there will be a mixture of sloughy, necrotic and granulation tissue. Dressing selection for cavity wounds has to consider products which can actively assist in debridement and maintain a moist wound healing environment which supports autolysis and is conducive to healing. Cavity wounds can produce varied volumes of exudate, depending on the number of micro-organisms present, the amount of tissue loss and the anatomical location of the wound.

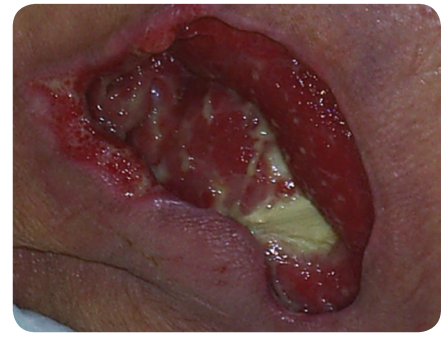

Figure 1. A cavity pressure ulcer showing damage to muscle and some areas of undermining.

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For example, in an infected sacral pressure ulcer with sloughy tissue present, exudate levels will be high, however, in a heel ulcer, exudate levels may be comparatively low as there is less tissue destruction involved.

Management of cavity wounds

The management of cavity wounds should begin with holistic patient assessment. Treating the patient and their concurrent illnesses must be the priority, as wound dressings are only a small part of the patient's overall treatment. Pressure-reducing mattresses and seating systems will be necessary for patients with pressure ulceration, and good nutritional support is essential for all patients with wounds. Patients with diabetes should ensure good control of their condition in order to help maintain blood sugar levels and reduce the impact of their condition on wound healing (Khan, 2005).

If it is suspected that the wound is infected, the patient may require systemic antibiotics and topical antimicrobial therapy depending on the extent of the infection. Accurate patient and wound assessment is essential to ensure that infection is either prevented or dealt with quickly to avoid further complications.

Cavity wounds should be allowed to heal from the bottom of the wound upwards. If epithelialisation occurs before the wound bed has healed, there is a risk of infection and wound breakdown. If conditions are right, cavity wounds should fill with granulation tissue. The use of an absorbent, low-adherent wound contact layer can maintain a moist wound healing environment while removing excess exudate, and prevent maceration. It is important to select an appropriate product.

Potential problems which clinicians may face when treating cavity wounds include:

- Dressings may break down within the wound leaving material behind, either through fibre shed or larger sections of dressing, which may become a focus for infection
- The wound dressing may not be absorbent enough, leading to maceration of the surrounding skin
- If the dressing is not secured adequately it may fall out of the wound
- The dressing may cause the wound to dry out resulting in pain on removal
- The dressing is packed too tightly into the wound which can cause discomfort for the patient and may interrupt local blood supply.

Management of cavity wounds begins with patient assessment. Treating the patient and their concurrent illnesses must be the priority, as wound dressings are only a small part of the patient's overall treatment.

Oldfield and Burton (2007) also suggested that the following factors relating to dressings should be considered:

- Alginate dressings can cause problems as adherence to the wound bed can lead to discomfort and may act as a potential focus for infection
- Dressings should maintain integrity on removal, i.e. have a strong wet tensile strength
- Dressings which need to be cut to an irregular shape may not be appropriate for the wound size and may cause discomfort for the patient
- Care needs to be taken as there is a risk of cross-contamination when cutting and preparing dressings to fit into the cavity.

Central to the treatment and management of cavity wounds is the need for dressings which can be placed into the cavity and fit into the narrower areas of the wound, with an ability to absorb large volumes of exudate.

Tielle® Packing hydropolymer dressing

Tielle® (Systagenix, Gargrave) hydropolymer adhesive dressings have been used as absorbent dressings for almost two decades. Tielle dressings offer a variety of absorbency levels, from Tielle® Lite to Tielle® Plus, thus enabling them to meet the demands of exudate levels in most wound types.

Tielle® Packing is a hydropolymer dressing manufactured from polyurethane, which is highly absorbent and maintains integrity once applied to the wound due to its high wet tensile strength. The dressing absorbs fluid and exduate from the wound and gently expands as it does so, while maintaining a moist wound-healing environment.

The hydropolymer in Tielle Packing dressing absorbs fluid in two ways. First, fluid is absorbed into the open cells of the dressing and, second, the chemical bonding of the fluid molecules with the polyurethane molecules causes the dressing to expand. Thus, the cavity should not be overpacked with Tielle Packing to allow room for the dressing to expand. Once the exudate has entered the structure of the dressing, it cannot be squeezed out (Mellor and Boothman, 2005).

The high tensile wet strength of Tielle Packing dressing is a key attribute for products used to treat cavity wounds, as there is less likelihood of dressing material being left in the wound on removal, which, as said, could act as a focus for infection (Boothman, 2009). This gives added security for the clinician and for the patient. Tielle hydropolymer also has low adherence and conforms easily to the wound bed. The hydropolymer is not coated but naturally has these qualities, making it a suitable dressing choice when the clinician is concerned about pain and trauma.

Indications for use

Tielle Packing is indicated for use in the management of chronic and deep, exudating wounds.

These wounds may include pressure ulcers, venous ulcers and diabetic foot ulcers. The absorbency of Tielle Packing hydropolymer dressing is useful when treating patients with damage to the skin surrounding the wound as its absorbency and ability to

hold fluid into the dressing means that exudate will not leak out and result in further damage.

Tielle Packing dressing is not indicated for full-thickness burns and lesions with active vasculitis. Also, it should not be used when signs of acute infection are present, unless the patient is receiving appropriate medical and nursing care.

A secondary dressing will be necessary when using Tielle Packing hydropolymer dressing. Decisions on which product to use should be based upon volume of exudate and the condition of the surrounding skin.

Tielle Packing hydropolymer dressings are available in one size, 9.5x9.5cm, but can be cut to suit the size of the wound.

Key points

- Patients with complicated wounds may also have concurrent illnesses which can affect the healing process.
- Wound management is only one part of their care and other treatments such as nutritional support must be implemented in order to try and improve outcomes.
- Heavily exuding and cavity wounds require dressings which can manage fluid levels and encourage healing.
- Tielle Packing hydropolymer dressing can be used for the management of chronic and deep, exudating wounds.
- By providing a moist wound healing environment, a high tensile strength and excellent absorbency, Tielle Packing hydropolymer dressing is a viable alternative to traditional cavity wound products.

Case report

An 89-year-old nursing home resident presented with a wound to her leg caused by trauma. The wound had been static for two months and the nurses were concerned that it was not progressing. The wound had areas which appeared to be like small sinuses leading from the surface of the wound (*Figure 2*). There were moderate levels of exudate and it was decided to apply Tielle Packing hydropolymer dressing to the wound. Three layers of the dressing were applied. Tielle Plus was used as a secondary dressing.

Following four weeks of treatment with the dressing being changed every 49–72 hours, the wound was re-epithelialising and had almost completely healed (*Figure 3*). The wound continued to progress and was completely covered five weeks later.

The Tielle Packing dressing had managed the exudate levels well and healing was achieved. The dressing was also comfortable for the patient and easy to apply and remove.

Conclusion

Cavity wounds can be complex and need to be treated with wound dressings which conform to the wound bed, absorb exudate and encourage tissue growth. The ideal cavity wound dressing should be easy to apply and remove, causing minimal trauma to the wound bed. In addition, it should have a high tensile wet strength to minimise the risk of dressing material remaining in the wound. The dressing should trap fluid to avoid maceration within the wound and damage to the surrounding skin.

It is also essential to ensure that patients have appropriate medical and nursing care, good nutritional support and, if appropriate, pressure-relieving equipment to support the wound healing process.

Tielle Packing is a new type of dressing which offers the absorbency and gentle qualities of a hydropolymer product in a form which can be applied to a variety of wound types.

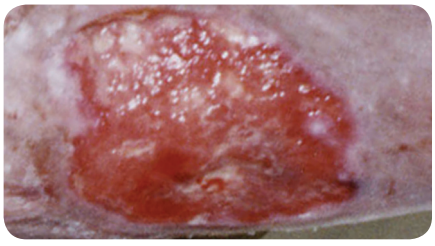

Figure 2. Wound before treatment. Despite appearing healthy, the wound was not progressing to healing.

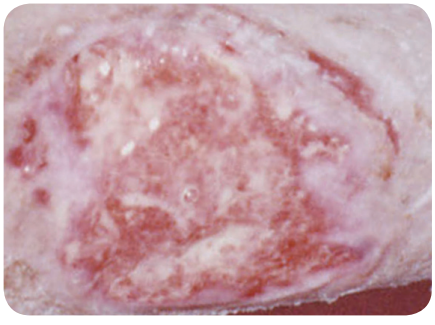

Figure 3. Wound after four weeks of treatment with Tielle Packing hydropolymer dressing.

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