How to recognise, assess and control wound exudate

Pauline Beldon

Wound exudate plays a vital role in wound healing, preventing the wound from drying out and providing nutrients for cell metabolism, which enables the migration of epithelial cells and the separation of necrotic tissue from the wound bed by autolysis (World Union of Wound Healing Societies [WUWHS], 2007).

The production of wound exudate is a natural and, therefore, necessary part of wound healing. However, if the volume of exudate becomes excessive, there is a risk of periwound skin maceration (Figure 1), where the nutrient-rich wound fluid actually begins to break down the skin. This can complicate wound management for the nurse, as well as being distressing and uncomfortable for the patient. There are many pathophysiologies that can lead to excessive exudate production (Table 1).

**INDIVIDUAL WOUND ASSESSMENT**

The consequences for the individual with a highly exuding wound are varied and numerous, including:
- Personal distress caused by wet wound dressings
- Soiled clothing
- Malodour
- Self-imposed isolation due to embarrassment.

All of these factors can lead to poor quality of life, which, in turn, may cause depression and dissatisfaction with the care provided by nurses (Ousey, 2013). To prevent this, it is vital that nurses are able to assess patients holistically, including:
- Identifying any comorbidities that might contribute to their overall health
- Assessing the state of the wound and the level and type of wound exudate being produced
- Identifying any potential danger to the periwound skin.

Community nurses should be able to act appropriately to minimise the risk to the patient of factors such as skin maceration.

**THE SCIENCE — WHAT DOES EXUDATE LOOK LIKE?**

Exudate provides vital information on a wound’s condition — the volume, colour, viscosity and odour can all provide clues to factors that can impact on healing, such as bacterial load and infection (WUWHS, 2007). For example, a wound infected with the bacteria *Pseudomonas aeruginosa* may exhibit excessive fluorescent green wound fluid (Cutting, 2003). This is easily identifiable and treatment with systematic antibiotics and an antimicrobial dressing will help to resolve the infection and promote healing. Similarly, serosanguinous (thin, red-coloured) exudate may indicate bleeding within the wound bed, which could be due to trauma from dressing removal or infection (Best Practice statement [BPS], 2013). The appearance of recently removed dressings and their level of saturation with exudate also provides clues to the efficiency of the dressing and the state of the wound. For example, if the wound is infected, the exudate in the dressing will be purulent; similarly, the nurse will be able assess if the dressing is successfully absorbing any odour from the wound (WUWHS, 2007). It is important to discuss the appearance of any exudate with patients, who may be anxious about their wound’s progress.
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EXCESSIVE EXUDATE

When wound fluid is trapped against the skin for a prolonged period of time, the skin becomes softer and is at risk from proteolytic enzymes contained within exudate (BPS, 2013). It is good practice when managing highly exuding wounds to examine the periwound skin for evidence of (BPS, 2013):

- Maceration: skin has a pale or white, ‘soggy’ appearance
- Excoriation: breaks in the skin and erythematous (red-coloured rash-like) appearance; often painful
- ‘Spongy’ texture.

Any of the above elements should alert the nurse that the current

Table 1: Pathophysiological conditions leading to excessive wound exudate

<table>
<thead>
<tr>
<th>Condition</th>
<th>Result</th>
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<tbody>
<tr>
<td>Lymphoedema</td>
<td>If unmanaged can lead to wet ulceration (Rice, 2011)</td>
</tr>
<tr>
<td>Venous hypertension</td>
<td>Large chronic venous ulcers (Gardner, 2012)</td>
</tr>
<tr>
<td>Congestive cardiac, hepatic or renal failure</td>
<td>Oedema of the lower limbs and potential wet ulceration (Adderley, 2008)</td>
</tr>
<tr>
<td>Obesity</td>
<td>Venous hypertension and ulceration of lower limbs (WUWHS, 2007)</td>
</tr>
<tr>
<td>Malnutrition</td>
<td>High exudate volumes in wounds due to hypoproteinaemia (very low protein level in the blood (Collins et al, 2005))</td>
</tr>
<tr>
<td>Surgery</td>
<td>Examples include large dehisced abdominal wounds and split-skin graft donor sites, which, although superficial, exhibit substantial exudate initially (Beldon, 2007)</td>
</tr>
<tr>
<td>Fungating wounds</td>
<td>Usually causes an increase in wound exudate (WUWHS, 2007)</td>
</tr>
<tr>
<td>Infection</td>
<td>Highly exuding and malodorous (Adderley and Smith, 2007)</td>
</tr>
</tbody>
</table>

Red Flag Exudate changes

Exudate is a good indicator of the state of a wound. Changes in the colour, amount, viscosity or smell of the wound fluid can be a trigger to reassess the wound.
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wound regimen is not effectively managing the exudate, and that a review of the treatment by both nurse and patient is required. For example, has the nurse chosen the correct dressing and is the patient complying with the treatment?

MANAGEMENT OF EXCESSIVE EXUDATE

Frequency of wound dressing change can be vital when dealing with wounds that are leaking large volumes of exudate — a wound dressing may be classed as highly absorbent, but its fluid-handling capacity will still be finite, and, once this is reached, the dressing should be changed.

There is a danger that nurses become over-reliant on the absorbent qualities of certain dressings, resulting in their reducing the frequency of dressing changes, with the dressings becoming saturated and leaking exudate. In some cases, nurses and patients may assume that the responsibility for exudate leakage lies with the dressing itself, rather than less frequent changes (WUWHS, 2007).

Even if the most appropriate absorbent dressing has been selected, it will still need to be changed at regular intervals even if this places a strain on nursing resources. Relying on excessive padding as some nurses do, results in saturated, heavy dressings, which increases the potential strain on nursing resources. Relying on excessive padding as some nurses do, results in saturated, heavy dressings, which increases the potential strain on nursing resources. Relying on excessive padding as some nurses do, results in saturated, heavy dressings, which increases the potential strain on nursing resources.

It is short-sighted of nurses to reduce the frequency of dressing changes — if they are prepared to engage in an intensive period of frequent dressing changes — they can improve patient skin integrity, and progress the wound towards healing more rapidly.

DRESSING SELECTION

There are a plethora of wound dressings available to nurses, however, it is vitally important to select the one that is most appropriate for the individual patient. This means considering the characteristics of the wound, including:

- Wound site
- Shape
- Underlying aetiology
- Volume of exudate being produced.

The ideal properties of a dressing required to manage a high volume of exudate have been described as (Adderley, 2008; Stephen-Haynes, 2011):

- High-absorbency: helps to reduce dressing frequency
- Ability to ‘lock away’ exudate: prevents leakage between dressing changes
- Ability to prevent maceration/excoriation of the periwound skin
- Ability to be used under compression bandaging: does not become too ‘bulky’ when saturated with exudate
- Ability to minimise trauma and pain on removal
- Comfort and acceptability to the patient
- Conformity to wound site
- Cost-effectiveness.

Many different types of wound dressings are designed to absorb exudate, including:

- Foams, e.g. Alleyn® (Smith and Nephew); Biatain® (Coloplast); Mepilex XT® (Mölnlycke Health Care)
- Gelling fibre dressings, such as Excufiber® (Mölnlycke Health Care); (Aquacel® (Convatec)
- Superabsorbent dressings, such as Flivasorb® (Activa Healthcare); Sorbion Sachet® (BSN medical); Eclypse® (Advancis); KerraMax Care® (Crawford Healthcare).

PREVENTING PERIWOUND SKIN DAMAGE

There are many causes of periwound skin damage for patients with an exuding wound, the obvious one being maceration. However, indirect causes might also include:

- Inappropriate dressing choice leading to ‘pooling’ of exudate against the skin and maceration
- Trauma caused by frequent removal of adhesive-bordered products, usually referred to as ‘skin stripping’, where the adhesive repeatedly removes the outer layers of the skin and triggers an inflammatory reaction, oedema and pain (Langøen and Lawton, 2009).

Sensitivities to products such as moisturisers, emollients and creams that contain lanolin (also known as ‘wool wax’ or ‘wool fat’) parabens (preservatives used in pharmaceutical/cosmetic products), especially where they are used frequently, may also trigger an allergic reaction in some patients (BPS, 2013).

Barrier products can be used to protect the periwound skin — the use of a dimethicone-based barrier cream (e.g. Cavilon® [3M]; LBF® [CliniMed]) is helpful, and, if used correctly, can help to prevent dressings from adhering to the skin (WUWHS, 2007).

However, if the patient has already reported sensitivities to certain products, nurses should avoid using adhesive dressings altogether, rather than risk a skin reaction and distress to the patient.

Should symptoms of contact dermatitis such as erythema and irritation arise, the use of a steroid ointment/cream is useful in allaying the inflammation (BPS, 2013).

CONCLUSION

While a certain amount of exudate is necessary to aid the process of wound

Table 2: Management of highly exuding wounds includes

<table>
<thead>
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<td>Comprehensive medical assessment of patient underlying medical problems to ensure care is optimised</td>
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<td>Joint decision-making on treatment between nurse and patient/carer</td>
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<td>Wound and exudate assessment by a knowledgeable and competent nurse</td>
</tr>
<tr>
<td>Absorbent dressing, which is appropriate with concurrent treatment, such as compression bandaging</td>
</tr>
<tr>
<td>Dressing that is compatible with the patient’s skin assessment and unlikely to cause irritation</td>
</tr>
<tr>
<td>Concurrent skin protection treatment with washing, moisturising and emollient therapy</td>
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<td>Regular evaluation and re-assessment of treatment</td>
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Volume of exudate being produced.

Underlying medical problems to ensure care is optimised.

Joint decision-making on treatment between nurse and patient/carer.

Wound and exudate assessment by a knowledgeable and competent nurse.

Absorbent dressing, which is appropriate with concurrent treatment, such as compression bandaging.

Dressing that is compatible with the patient’s skin assessment and unlikely to cause irritation.

Concurrent skin protection treatment with washing, moisturising and emollient therapy.

Regular evaluation and re-assessment of treatment.

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healing, copious volumes can cause problems for the patient. The distress and discomfort of a patient whose dressings have become saturated should not be underestimated. If it is not addressed, the nurse risks destroying the therapeutic relationship necessary to ensure successful wound management.

Treatment must involve a multidisciplinary team approach, in which the patient plays a pivotal role. This involves selecting an appropriate dressing, deciding on the frequency of dressing changes, protecting the surrounding skin, and ensuring that the patient also takes responsibility for elements of their treatment, such as limb elevation.

Regular evaluation of the wound’s progress is also vital — always taking into account the patient’s perspective — to ensure the goal of exudate management is met by both patient and nurse working together.

**REFERENCES**


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**Expert commentary**

**Jenifl Strangley, lead nurse tissue viability, Royal Free London NHS Foundation Trust, London**

From the outset this article challenges the audience to revisit the importance of exudate assessment and management in wound healing.

Often, the characteristics and function of exudate can be overlooked in the whirlwind of day-to-day clinical work. However, the importance of classifying and treating exudate according to the needs of the wound, is essential. Excessive or uncontrolled exudate can have a devastating impact on a patient’s life and ultimately the wound itself. This is a wonderful article, which outlines the practicalities of exudate assessment and management and the fundamental impact on the patient and their role in managing their own wound.

I would invite community nurses to revisit their current practice with regards to exudate wound assessment and management with the useful guidance contained within this piece.
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