

Ten Top Tips...

Preventing orthopaedic surgery-related wound blisters



Author:
Warren
Gillibrand

Superficial wound blisters are an abnormal swelling (i.e. filling with fluid) in the epidermal layer of the skin in response to trauma [FIGURE 1]. Blistering in postoperative wounds may be caused by skin stripping from removal of medical tape removal, or prolonged exposure of the skin

to adhesive contact layers of dressings and associated with the presence of sutures. Deeper dermal blisters are generally associated with burns or direct trauma and can take longer to heal than superficial blisters. Postsurgical blistering can cause pain, wound leakage, delay healing of the wound, and increase the risk of postoperative surgical site infection, which ultimately can result in prolonged and costly hospital stays.^[1]

The incidence of postoperative orthopaedic wound blisters ranges from 6% to 24%, with blisters being second only to infection as a surgical incision-related adverse event following orthopaedic surgery.^[2-4] Studies, mainly of evaluative or audit design, suggest a possible association between post-orthopaedic surgery blisters and the use of adhesive wound dressings^[5] and adhesive tapes,^[6] particularly following knee arthroplasty and hip surgery.^[7] When blistering occurs, the patient may be at increased risk of longer term morbidity and mortality, reduced quality of life,^[8] and subsequently increase the cost burden.^[4]



Figure 1. An example of surgery-related wound blisters. [Image courtesy of Melissa Rochon, Carlos Morais, Feriel Mahiout. First published in *Wounds UK* 2014 (10:1).

Postoperative nursing teams – and nurses in primary care – are integral in preventing postoperative wound blistering. Given the range of wound dressings, and the lack of a standardised approach, it is important nurses implement strategies to prevent wound blisters developing, including careful patient assessment, and selection of the most appropriate dressing for each individual postoperative orthopaedic patient.^[4,5]

Drawing on current research-based evidence and expert consensus opinion,^[1,4] the following ten top tips outlines strategies for the prevention of orthopaedic surgery-related wound blisters.

1 PATIENT ASSESSMENT PRIOR TO SURGERY: THE FIRST STEP IN PREVENTION

A thorough patient assessment, taking into account age and type of surgery planned is important. The clinician should take and document a detailed medical and social history. Any pre-existing conditions or environmental issues that may adversely affect wound healing and skin integrity should be investigated.

Patient assessment should encompass the condition of the skin. Attention should be paid to the periwound area; friability, previous skin damage or trauma, fragility, loss of elasticity, and dehydration place the patient at increased risk of blistering.^[9]

The clinician should also be alert to certain drug therapies and drug combinations that increase the risk of wound blister development (e.g. steroids, non-steroidal anti-inflammatory drugs, antineoplastic chemotherapy).^[10]

2 PREOPERATIVE PREPARATION: THE SKIN MUST BE READIED FOR SURGERY AND HEALING, AND PROTECTED DURING SURGERY

Hygiene and skin integrity must be maintained. It is important that the skin is clean, and that during the preoperative hygiene preparation

Author details

Warren Gillibrand is Senior Lecturer in Adult Nursing, University of Huddersfield, Huddersfield, UK.



Don't let blisters ruin a perfectly good surgery

Dressing-induced blistering around the post-surgical wound is painful and distressing. Worse, it can lead to infection – delaying healing and potentially compromising the procedure itself¹. Mepilex Border Post-Op is designed to minimize post-operative blistering². It manages exudate very well, which can reduce the number of dressing changes³. Mepilex Border Post-Op is also designed to be very flexible, supporting patient mobility.

Don't let blisters determine the outcome of surgery. Start the post-operative journey to healing with Mepilex Border Post-Op.

Learn out more about Mepilex Border Post-Op and preventing post-operative blistering at www.molnlycke.com



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“Formulation of a patient care plan – based on the patients’ history and the condition of the perioperative wound area – is paramount in preventing wound blisters, particularly if the assessment reveals the patient is at increased risk.”

the skin remains intact. Presurgical procedures should be followed for the sterilisation of the skin surface, and sterilising agents used should be compatible with the intended postoperative dressing to be applied. Current guidelines indicate that the most appropriate skin preparation agents should be aqueous or alcohol based antiseptic preparations (e.g. povidone iodine or chlorhexidine) and ideally the postoperative dressing should have any compatibility issues identifiable in product information.^[11]

In order to minimise risk to skin integrity, policies for pressure relief and redistribution should be observed, particularly in older people who often have fragile, dry skin. These strategies should minimise friction and shear forces exerted on the skin.^[12]

Formulation of a patient care plan – based on the patients’ history and the condition of the perioperative wound area – is paramount in preventing wound blisters, particularly if the assessment reveals the patient is at increased risk.

3 WOUND DRESSING CHOICE SHOULD BE MADE AHEAD OF SURGERY AND IMPLEMENTED IMMEDIATELY AND CONSISTENTLY IN THE POSTOPERATIVE PERIOD

Some local practice guidelines may suggest that theatre and ward nursing staff should know – prior to surgery – which postoperative dressing has been selected for each patient (as per their care plan), so that the agreed, ideal dressing to prevent blistering is applied as the first dressing.^[1]

The surgical team and ward staff need to have up-to-date knowledge of wound dressing product types that have been proven to be effective in the prevention of blisters. Aide memoire’s to the most clinically appropriate choice of postoperative wound dressings should be available and visible in theatre and ward areas. Staff should be familiar with the wound care formulary.

4 THE DRESSINGS USED SHOULD BE FLEXIBLE

The wound dressing chosen should have optimum flexibility, however should be able to remain *in situ* for the optimum length of time.

Flexibility can be enhanced by using a dressing that has maximum conformity to the wound, therefore clear and accurate

assessment and documentation of the wound size, position and closure technique is important. Having components within the dressing, which are layered enables flexibility, for example, a soft-silicone dressing will enhance the dressings’ ability to conform to the wound shape and skin contours. A wound dressing that incorporates layers, however remains thin, will enhance conformity and flexibility. Other wound dressing types which are layered and have been shown to reduce blister formation include having a highly absorbent hydrofiber outer layer.^[5]

5 MAKE SURE THE DRESSING SELECTED IS THE MOST APPROPRIATE FOR THE WOUND TYPE AND SIZE

An easy-to-apply dressing that is self-adhesive and does not require the use of additional medical tape to secure it will aid in the prevention of wound blisters. On removal, the dressing should come away easily, without causing trauma or pain. Mepilex® Border (Mölnlycke Health Care), for example, incorporates a Safetac® wound contact layer, allows non-traumatic removal by preventing the dressing from sticking to the wound and therefore reduces the risk of blister formation.^[6]

6 LOW-FRICTION DRESSINGS SHOULD BE USED TO ALLOW PATIENTS TO MOBILISE EARLY WITHOUT RISKING BLISTERING

It is important that patients are mobilised early following orthopaedic surgery, to reduce risk of adverse postsurgical events (e.g. venous thromboembolism^[13]) and promote healing, however adverse frictional forces at the wound site should be avoided. Although there is limited randomised controlled trial research in wound dressings, friction-lessening choices should be made where possible, whereby the dressing has been designed to reduce the effect of friction and shear forces on the wound.^[14]

7 BALANCING PERMEABILITY AND ABSORBENCY OF THE SELECTED DRESSING

Considerable attention has been given to absorbent wound dressing research and development. To prevent blistering, a moist, foam-filled, absorbent dressing should be

used.^[5,9] The dressing should allow a small degree of evaporation while retaining a moist wound healing environment, yet be resistant to the entry of pathogens. The dressing should be able to allow for swelling of the wound and surrounding skin as the inflammatory stage of wound healing progresses, without affecting the permeability, conformity, or adhesion.

8 MINIMISE DRESSING CHANGES TO PREVENT BLISTERING

Studies into prevention of wound blistering show that the less frequently the dressing is changed, the lower the risk of blistering.^[7] For this reason, the wound dressing chosen for use postoperatively should have as long as possible *in situ* duration. Unless changing is required due to signs of excessive exudate and possible infection, keeping dressings in place should be favoured, however this will be determined on an individual patient basis, and as per local guidelines, which could be, for example, 24 hours or until the dressing begins to come away from the wound.^[2]

9 WHEN POSSIBLE, THE DRESSING SELECTED SHOULD ALLOW THE WOUND TO BE VISUALISED WITHOUT ITS REMOVAL

Postoperative wound inspection and evaluation is a mainstay of good wound care. The ability to inspect a wound without removing the dressing will aid in reducing the risk of wound blister formation by reducing the number of episodes of dressing removal / application, however the other required properties of the dressing should not be compromised. Examples of dressings that allow visualisation of the wound are OPSITE™ Post-Op (Smith & Nephew), OPSITE™ FLEXIGRID™ (Smith & Nephew), Tegaderm™ (3M), Mepore® Film (Mölnlycke Health Care).^[2]

10 SEEK EXPERT HELP WHEN NEEDED

The tissue viability team and nurse specialists are expert in providing support and guidance in complex wound care situations. These experts should be consulted when: the choice of dressing is not clear for a particular patient with a complex wound or needs; the wound is showing signs of infection; wound blistering has occurred and needs treatment; or closer liaison with primary care services is

required. Early signs of blistering include: pain in the periwound area; soft tissue swelling surrounding the wound; or redness.

The tissue viability team are a useful resource for policy, guidelines, training, education and knowledge of latest research and products, and can provide regular updates to all key staff.

CONCLUSION

Patient assessment preoperatively is extremely important, and of equal importance is the choice of dressing for a moving, orthopaedic surgical wound. Ideally, the dressings chosen in these circumstances should be thin, flexible, self-adherent without skin pulling, friction-reduced, absorbent, foam-filled, transparent, of soft-silicone manufacture, and anti-microbial.

The patient care plan and dressing selected must be communicated to all key healthcare professionals providing care to the patient in question prior to surgery, and acted on by the pre-, peri- and post-operative surgical teams. Much of the responsibility for reducing wound blister risk rests with the nursing team in acute and primary care settings, and excellent communication between and within these teams is needed.

Orthopaedic surgery-related wound blisters can be prevented, thereby reducing the budgetary burdens associated with adverse wound-related events and improving patient outcomes. ■

AUTHOR DETAILS

Dr Warren Gillibrand is a Senior Lecturer, Division of Podiatry and Clinical Science, University of Huddersfield, Huddersfield, UK.

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