

HOW TO IDENTIFY AND TREAT ALLERGIES TO WOUND THERAPIES

Patients with a wound are at an increased risk of developing an allergy to the dressings and topical products used to treat it. It is therefore important to know how to identify allergies and treat them in order to minimise their impact on patient care.

Modern wound dressings and ostomy products are described as hypoallergenic. They also contain many ingredients which patients may be sensitive or allergic to, including acrylates, silicones, rubber and latex (Cutting, 2008). Patients with wounds have an increased risk of developing a reaction to the wound dressings and topical products used. This reaction may be described by clinicians as allergy, eczema, sensitivity, hypersensitivity or dermatitis (Watts, 1996).

Allergies can cause unnecessary pain and discomfort to patients, and result in extended treatments, appointments and supplies. Allergies increase the risk of infection to damaged skin, and have a negative impact on quality of life. They may also increase anxiety for patients and clinicians, and have a financial implication for service providers (Romanelli et al, 2008). Potentially, allergies to treatment can lead to litigation.

According to Stone and Powell (2000), 20–30% of allergies are the result of topical wound care therapies. Areas exposed to the substance may become red, inflamed, swollen, blistered, and

dry, thickened or cracked. When the cause is due to wound dressings, the reaction is generally localised to the area of contact, with a clearly defined red demarcation line following the outline of the dressing.

Causes of allergy to wound therapies

Repeated dressing changes and removal of adhesive tapes may cause the epidermal layers to separate from each other or from the dermis. Even when dressings are removed carefully, without trauma, adhesive removal results in varying levels of superficial epidermal cells being detached, compromising skin barrier function (Dykes et al, 2001) and initiating an inflammatory response.

Wound care treatments and products applied to the skin can cause a contact dermatitis. There is an inflammatory reaction at the point of contact of the dressing.

Contact dermatitis can be divided into two categories:

- ▶▶ Irritant contact dermatitis is the most common reaction experienced, and does not involve an immune reaction. The skin barrier is disrupted, usually by

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a physical or chemical irritant (Fitzpatrick et al, 2013)

- ▶ Allergic contact dermatitis, although less common, can be serious and compromise patient safety. The patient's immune system registers a particular substance to be a threat, triggering antibody production and a systemic reaction. Typically, each exposure to the allergen will cause an increasingly more severe reaction. Treatment for allergic contact dermatitis may include topical corticosteroids and antihistamines (Watts, 1996). Watts (1996) claimed that thinning of the dermis is not associated with hydrocortisone 1%.

In both irritant and allergic contact dermatitis, removal of the causative allergen will result in improvement and skin recovery (*Table 1*).

There have been many cultural changes in pre-operative, interoperative and postoperative health care to reduce the incidence of harm from contact dermatitis:

- ▶ Alternatives to iodine as a skin preparation are available such as chlorhexidine
- ▶ Topical antibiotics were commonly used on surgical wounds but since these were found to contribute to the incidence of allergic contact dermatitis, they are now used less frequently
- ▶ Vinyl gloves have become more readily available in theatres and for carrying out wound care procedures, in order to reduce the incidence of latex allergies
- ▶ Alternatives to latex in medical devices such as catheters are available to reduce latex use in patients who may have previously unrecorded latex allergy
- ▶ To prevent contact dermatitis caused by antiseptics, detergents and elastic bandages, the National Institute for Health and Care Excellence (NICE) (2008) advocates the use of sterile

saline for wound cleansing up to 48 hours postoperative, and thereafter, tap water

- ▶ Low adhesive dressings and tapes are available to reduce medical adhesive-related skin injury
- ▶ Moisturisers free of fragrance, dyes, preservatives or additives are recommended for patients with sensitive skin or open wounds
- ▶ There are alternative hosiery and bandage options available which do not use latex or rubber
- ▶ Patients are no longer routinely shaved pre-operatively since shaving has been found to increase the incidence of irritant contact dermatitis and surgical site infection (NICE, 2008).

Risk factors

In healthy individuals, skin is strong, and able to repair itself. In patients with wounds, the periwound area is compromised and vulnerable to epidermal stripping owing to the constant removal of tape and dressing adhesives.

Reactions to adhesive dressings and tapes are underreported, occur across all areas of health care, and in all ages of patient from neonates to the elderly (McNichol et al, 2013). Patients at increased risk, include:

- ▶ The 70% of older people who have skin complaints which adversely affect their daily living (All Party Parliamentary Group on Skin, 2000) owing to loss of dermal matrix and subcutaneous tissue, epidermal thinning and moisture loss. This group are therefore at increased risk to skin damage from dressings and tapes
- ▶ All patients with underlying illness such as diabetes and coronary heart disease
- ▶ Those patients taking regular medication such as steroids, aspirin, and warfarin, who may be prone to bruising, and to superficial and fragile blood vessels
- ▶ Patients with diagnosed skin problems

- ▶ Patients with stomas regularly using ostomy products, who have an increased risk of maceration and skin stripping around the wound
- ▶ Orthopaedic patients, for whom large amounts of tape may be used to secure heavy dressings. Joint movement over the wound area increases friction and oedema to the wound site (Ravenscroft et al, 2006)
- ▶ Patients with chronic wounds such as leg ulcers, who may have had several sensitisers over time and therefore have an increased risk. Barbaud et al (2009) found that more than 80% of patients with chronic leg ulcers were allergic to at least one component of dressing products
- ▶ Radiotherapy patients, who often suffer skin damage and therefore are at increased risk when wounds are present at these sites.

Holistic assessment

All patients should have a thorough holistic assessment. This should include a detailed patient history and review of past and present treatment therapies. Previous skin reactions should be identified. Patients are frequently asked about any allergies to systemic antibiotics or medication, but to minimise the incidence of contact dermatitis, a detailed dermatological history should be made. Patients may need to be prompted about any previous skin reactions to tapes or dressings. Patient reports of specific skin reactions, e.g. from silver or nickel in jewellery, bra clips, watch straps or waistbands, provide useful information about potential allergens. Typically, patients may recall a reaction such as itching or hives on a specific area of their skin.

Patients generally know if they have had previous reaction to latex or bees, but may not realise the significance of this information. The assessment will inform the most appropriate treatment. For example,

silver dressings would not be the first dressing of choice in patients with an allergy to silver; honey would not be the first treatment choice if a bee allergy was reported.

Wound assessment

Nurses are in a unique position to assess the wound at the first postoperative visit, either in hospital or in the community. The periwound skin should be meticulously checked for changes in colour, texture and integrity at each dressing change.

Any site exposed to adhesives should be monitored for evidence of localised or systemic infection, increased pain, oedema, erythema, the presence of pustules, or folliculitis.

Table 1. Typical allergens in topical wound therapies.

Antiseptics, e.g. iodine
Skin preparations
Topical antibiotics, e.g. mupirocin, neomycin
Latex
Thiuram in rubber, common in hosiery and bandages
Components of detergents
Parabens in preservatives
Lanolin, fragrance and dyes found in moisturisers
Adhesives and tapes
Acrylates, found in dressings
Shaving.

Table 2. Differential clinical presentation of contact dermatitis and wound infection.

Contact dermatitis	Infected wounds
Itching, burning, stinging pain	New or increased pain
Erythema	Erythema
Oedema, swelling	Oedema, swelling
Dry skin, hyperkeratosis	Purulent discharge
Blistering	Abscess
Vesicles	Malodour
Delayed healing	Delayed healing
Crusting	Wound bed discolouration
Pruritis, eczema	Bleeding, friable wound
Weeping from the periwound	Increased wound exudate

Identifying allergic reactions

Contact dermatitis can be confused with wound infection or poorly managed wound exudate. The signs and symptoms of contact dermatitis should not be mistaken for those of localised infection (*Table 2*). Repeated courses of antibiotics or the application of antimicrobials will not resolve a problem of contact dermatitis and may exacerbate it.

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Dressings should remain in place over the wear time, and exudate from the wound should be managed without allowing leaking (World Union of Wound Healing Societies (WUWHS), 2008). A wet dressing on the wound and periwound area will also leave the skin red and angry, similar to a burn. This is maceration and not allergy. If the dressing is wet, consider applying a more absorbent dressing.

How to treat an allergy

There are many strategies that can be used if allergy is identified on the periwound skin and skin integrity is compromised. The specific treatment will depend on the anatomical position and dimension of the wound, and the thickness of the skin. The following actions are recommended:

- ▶▶ Discontinue use of the suspected product to allow the epidermis to recover
- ▶▶ Use appropriate dressings for wound exudate levels; so that exudate is managed effectively and thus the wear time is increased. This reduction in dressing change rates will result in decreased incidence of skin stripping.
- ▶▶ For wounds on the extremities, use a light retention bandage as securement, avoiding the use of adhesive or tape to the skin (taking care not to use in swollen limbs as they may cause a tourniquet effect)
- ▶▶ Where it is necessary to use adherent dressings or tape, consider using one of the gentler, low-adherent, hypo-allergenic or silicone varieties
- ▶▶ Protect the skin against friction and maceration
- ▶▶ Use a skin barrier preparation to reduce skin stripping
- ▶▶ Use medical adhesive remover at dressing changes to minimise trauma on dressing removal
- ▶▶ Use latex-free and rubber-free hosiery and bandages if these products are identified allergens. Consider using tubular gauze under bandaging to reduce friction and shearing.

Reporting

All allergic reactions should be clearly documented in the patient records. The patient should be informed of the reaction to the dressing and advised not to use it. For future outpatient appointments, it may be helpful to ensure that the patient has appropriate dressings with them to ensure that they are available for the dressing change. All members of the multidisciplinary team, including the tissue viability specialist and pharmacist, should be aware of the reaction and the actions taken to resolve it.

Most dressings are classified as medical devices. Reactions to both medical devices and to medications should be reported to the Medicines and Healthcare products Regulatory Agency (MHRA) online at www.gov.uk/report-problem-medicine-medical-device. Users are directed to the appropriate form to complete depending on the category of the product causing the problem.

Conclusion

Any reaction to wound care dressings or therapies may have an impact on patient safety, and delay or prevent wound healing. The reaction may be more painful than the original procedure. Clinicians attending to patients should consider allergy as a possible reason for wounds that fail to respond to therapy. A full history and holistic assessment can reduce the likelihood of an allergic reaction to wound care and ostomy products, including adhesives

and tapes used as securement. Ongoing assessment at dressing changes and taking appropriate action will ensure that problems are minimised, appropriate wound dressings are used, and healing is not delayed. **WE**

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