

OPSITE Flexifix Gentle: preventing skin breakdown in vulnerable skin

Fiona Downie and Robert Gannon

Abstract

For decades, the intact skin of patients has been at risk of damage from exposure to pressure or friction from devices used to support their treatment while in hospital. Device-related skin injury is a common cause of skin breakdown in the acute hospital environment. The use of clinical devices exposes patients to repetitive friction and light pressure that, if not recognised early, can lead to skin breakdown. Compounding this challenge of protecting skin is the use of adhesive tape that can cause skin stripping. A new dressing product called OPSITE™ Flexifix Gentle (OFG) is now available on the market. This product may support friction relief in these critical areas and prevent skin stripping and pressure ulcer formation while maintaining moisture balance and a healthy skin environment. This product focus outlines the clinical benefits from this silicone-based film roll. The performance of the product on a 34-bed cardiothoracic intensive care unit will be reviewed through three case studies.

Key words: Skin integrity ■ Pressure ■ Friction ■ Dressing ■ Silicone-based film roll

Healthy undamaged skin is critical in protecting the patient from the ingress of pathogenic organisms from the external environment (Dealey, 2005). Three protagonists are well documented as key causes of skin irritation and breakdown: unrelieved pressure, friction, and moisture imbalance (European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel, 2009; Banks et al, 2010). Unrelieved pressure from devices used to support patient recovery can cause pressure necrosis and skin breakdown (Redlin Lowe, 2009; VanGilder et al, 2009). These devices include oxygen masks, intravenous cannula, indwelling catheters, ventilator equipment and nasogastric tubes (Table 1). Such devices expose patients to repetitive friction and light pressure that, if not recognised early, can lead to skin breakdown. If these devices are not isolated from the skin, friction can occur that leads to the removal of skin layers, and potentially deep tissue can be exposed. Traditionally, dry dressings such as cotton gauze or sterile dressings such as hydrocolloids have been used to protect delicate areas from pressure and friction damage. Their use is not ideal. Certainly, both can be effective in achieving pressure

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relief, however, cotton gauze may cause drying and irritation of the skin while hydrocolloids can cause skin stripping on removal. Conformability is emerging as a key area in dressing design that aids a reduction in tissue trauma (Rippon et al, 2012), however, neither are conformable to skin contours or easily shape, to protect uneven contours such as behind the ear. Compounding this challenge of skin protection is the frequent use of adhesive tape on patients' skin to secure dressings or devices. The use of such tape can cause skin stripping and trauma (Morey, 2007; Gryson, 2012). Ultimately, associated skin breakdown can facilitate wound infection and delay wound healing (Fonseca, 2011). The maintenance of healthy skin is fundamental in achieving patient comfort and preventing pain. Removing adherent wound care products is a noted source of pain (Hollingworth, 2009; Gryson, 2012; Upton and Solowiej, 2012).

A newcomer to the market of skin protection is OPSITE™ Flexifix Gentle (OFG) by Smith and Nephew Medical. This product appears to overcome many of the disadvantages of traditional products used in this market.

Anatomy of the skin

The two main layers of the skin are the epidermis and the dermis. Between the skin and the underlying structures there is a layer of subcutaneous fat. The epidermis is the most superficial layer and is composed of stratified epithelium.

Table 1: Potential uses for OPSITE Flexifix Gentle

Protection from friction from oxygen tubing placed around ears and on face
Place under oxygen, CPAP and NIV masks with focus on bridge of nose and behind ears
Under endotracheal ties and tracheostomy ties
As a replacement for adhesive tape used to secure gauze following IV line removal where the patient has delicate skin
To secure primary dressings
Security of IV lines, relief of friction from IV giving sets
Place under three-way taps in contact with skin
Protection of delicate or dry skin in the elderly or diabetic population where exposed to frictional forces
Protect skin from the effects of induced hypothermia, i.e. in cardiac patients
Maintenance of intact skin in category one pressure ulcers
Protect skin from mechanical-foot and arm-splint friction
Under chest drain tubing where skin is dry or delicate
Under indwelling urinary catheter systems



Figure 1. OFG used as a primary dressing retainer in dry cracked skin

Hairs, secretions from sebaceous glands and ducts of sweat glands pass through the epidermis to reach the surface. The dermis is a tough and elastic layer. Located in the dermis are blood and lymph vessel, sensory nerve endings, sweat glands and their ducts, hair root and follicles, involuntary muscles attached to hair follicles and sebaceous glands.

The main functions of the skin are protection from environmental threats, regulation of body temperature, formation of vitamin D, sensation, excretion of some bodily wastes and absorption of some drugs and chemicals (Waugh and Grant, 2010).

In illness and during hospitalisation these functions can be threatened. Prolonged hypoperfusion, dehydration, oedema, catabolic states, malnutrition, immunocompromisation, drug therapies, comorbidities and unrelieved pressure and friction can increase the risk of skin breakdown (Redlin Lowe, 2009; Strand and Lindgren, 2010). Emaciation linked to

illness can lead to the loss of subcutaneous fat that can otherwise help dissipate pressure and protect underlying structures. Dealey (2005) notes that this loss of 'padding' is an intrinsic factor that can lead to skin breakdown. Advancing age, comorbidities, medications, use of soaps and skin disinfectants can also lead to deterioration in the health of skin as intrinsic hydration, slower regeneration and elasticity are all impaired (Lawton, 2007; Massa, 2010). Inflammatory and dry skin conditions can further jeopardise the integrity of the skin. Dry skin can become more problematic with age as the skin loses capability to rehydrate. It can be exacerbated in the presence of other inflammatory skin conditions such as eczema and psoriasis, as well as by bruising, which is more common in the elderly (Evans and High, 2011).

Product description and indications of use

OPFG is a silicone-based film roll for use on intact areas of skin that may be at risk of skin breakdown (see Table 1). It is a combination of the desirable traits of two existing dressing products: OPSITE Flexifix and ALLEVYN™ Gentle Border (Smith & Nephew Medical) (Blackburn, 2012). In addition to its light friction-reducing qualities, it can also be used in the fixation of tubing, as a primary dressing retainer and as a replacement for potentially more damaging adhesive tapes (see Figure 1). It comes in an easy-to-use and cost-effective roll (see Table 2), that can be stored in the dressing cupboard for use when needed. The product uses well-established hydrated silicone adhesive dressing technology (Blackburn, 2012). This product is not a traditional treatment dressing but is in a new generation of silicone adhesive technology rolls that are proactive in the maintenance of skin integrity.

Features of OPSITE Flexifix Gentle

OPFG has the potential to improve the quality of skin care during a patient's stay in hospital. This is through its role as a protector of intact delicate skin. Its adherent properties enable it to stay in the area required, even if the skin is already dry

Table 2. Application of OPSITE Flexifix Gentle

How to apply OPSITE Flexifix Gentle	Rationale
Wash hands before use	To maintain infection control
Take OFG from its box. The product should ideally be kept in a dedicated dressing cupboard or storage area	To increase cost effectiveness. It is not necessary to place a full roll at each bed space so long as universal precautions are followed
Bring the cut piece to the patient's bed space and place on a clean dressing trolley	To maintain a clean work area
Inform patient of your plan explaining rationale of treatment	Informed consent approach
Adopt universal precautions and decontaminate your hands one final time	Reduces risk of cross infection
Warm dressing in your hands for a few moments as this will make the silicone adhesive more flexible and conformable to the patient's skin	Silicone becomes malleable in the presence of warmth
Remove backing from the dressing and apply to area you wish to protect	
Date the dressing that is in place and document care	To cater for future evaluation of care
Inspect daily. The dressing can stay in place for up to 7 days and be repositioned if needed	To evaluate performance, cost effective and reduces workload

or delicate. The dressing is transparent, allowing for direct observation of the skin in contact with it (Cole, 2012). It is conformable to virtually any skin contour, meaning the area requiring protection is in contact with the dressing (Daubney, 2012). It can be lifted and repositioned without trauma or loss of adhesion (Smith and Nephew Medical, 2012) and is shower and bacteria proof (Dowler, 2009). OFG is a moisture vapour permeable dressing, facilitating breathability and minimising sweat trapped under the dressing that may macerate intact but vulnerable skin. This is particularly important for the patient who experiences temperature changes.

Friction protection

OFG is designed to protect skin from friction and for prophylaxis against pressure ulcers (Smith & Nephew Medical, 2012). The product has potential to offset friction from the natural movement of the patient, and may remove the need for unsightly padding of equipment with cotton gauze or other types of dry dressing. OFG can be combined with other silicone products such as ADERMA™ (Smith & Nephew Medical) to create a system that may reduce pressure over bony prominences. On removal of OFG, the silicone properties help minimise trauma to the skin. Patient comfort is maintained, and there is a low risk of pain on removal (Hurd et al, 2009).

Cost-effective

The product has much potential to be patient-friendly and cost-effective as the complications of skin breakdown can be avoided, and this would obviously reduce costs. In the longer term, OFG has the potential to reduce time spent on skin protection with better patient outcomes.

Other potential cost efficiencies relate to it being available in a non-sterile roll preparation. By having a long length of dressing on one roll that can be cut as required, there is no need to use full sterile dressing preparations to protect delicate skin. OFG can be left in place for up to 7 days (Smith & Nephew Medical, 2012). The dressing can be lifted and reapplied quickly and in this manner help eliminate waste if the dressing is not positioned correctly, or migrates during the 7-day period of application. This has potential to reduce clinician workload as a new dressing application can be avoided.

Packaging

At present, there is a risk of contamination of the whole product when it is opened in the clinical environment. However, this risk can be minimised if OFG is stored in a dressing cupboard in a dedicated treatment room, as was the case in this evaluation. Immaculate hand hygiene is essential before and after use.

During evaluation it was felt that the roll would benefit from being contained in a sealed tape dispenser to minimise any infection risk associated with the current product presentation. In the community setting, this approach may not be practical and consequently, some of the potential cost advantages may be diluted if a new roll needs to be dispensed for each patient in their home. The product may also benefit



Figure 2. OFG used after cannula removal in delicate skin

from being available in smaller pre-cut or packed individual pieces for use in the community setting or in a shorter roll.

Future uses

OFG could be considered for use in others areas of skin and wound care. There is the potential for use in the protection of delicate areas of diabetic skin (in poorly controlled diabetes the functions of the skin can be impaired (Lioupis, 2005)). OFG may also have the scope to protect fragile skin following radiotherapy and its use in the area of stoma care also warrants investigation.

Case study 1

The first case study involves a 50-year-old female patient in respiratory failure and septic shock. Peripheral vasoconstriction therapy (intravenous noradrenaline) used to maintain blood pressure during septic shock led to the skin on the patient's big toe becoming cracked and subsequent skin breakage. The location of the wound meant it was difficult to dress.

The primary dressing chosen was a non-adhesive foam. Standard sterile-retaining film dressings were found to be too adhesive and there was evidence on removal that their use was leading to further skin stripping. An acrylic tape was also tried as a retainer, as it was felt it was less adhesive. On removal, it was noted that the surrounding intact skin was becoming dryer and at risk of further breakdown. The primary dressing was then secured with OFG. It stayed in place for 7 days and was found on removal to be atraumatic and the skin beneath was adequately moist. There was no evidence of pain or discomfort on removal. The cost of using OFG use in this scenario was approximately £0.16 as the product did not need renewing at any point.

Case study 2

The case study involved a 68-year-old lady who was recovering from cardiothoracic surgery. The skin on her arm was dry and appeared very delicate. The patient required a venous cannula device to be removed. Instead of applying traditional cotton gauze secured by acrylic tape, OFG was applied over the gauze to secure it in place and prevent infection at the point where the cannula was removed (see Figure 2).



Figure 3. OFG placed under the endotracheal tube ties

The OFG was removed with gauze the following day in an atraumatic fashion. There was no skin stripping and comfort was maintained during removal. The cost of OFG application was approximately £0.08.

Case study 3

This case study involved a sedated and ventilated patient with an oral endotracheal device in place. OFG was placed under the endotracheal tube ties, which are firmly secured to prevent accidental removal of the endotracheal tube (see Figure 3). These ties can cause skin damage due to pressure and friction (Redlin Lowe, 2009). The endotracheal tube was removed 48 hours after application of the product. The product did not need replacement in this period, but was successfully repositioned when the endotracheal tube was retied as part of daily nursing care. No evidence of friction trauma or pressure damage was noted following removal. The cost of application was approximately £0.19.

KEY POINTS

- The patient's skin is at risk of damage from devices used to support clinical care
- The use of adhesive products such as acrylic tape can lead to further skin damage on removal
- OPSITE™ Flexifix Gentle is a new product that is designed for use on fragile skin and also reduce friction over vulnerable areas of skin at risk of damage from clinical devices
- This new product features silicone technology that can replace the use of traditional adhesive tapes often applied to delicate and dry skin

Conclusion

OFG presents as a low-risk, high-performing silicone tape that is cost effective. The authors found numerous uses for this product in their clinical area. In this small evaluation, OFG appeared to perform well in the areas of pressure ulcer prophylaxis, reduction of friction and maintenance of skin hydration. It is flexible enough to be combined with other thicker silicone tapes to create a pressure ulcer prevention system. OFG was found to protect delicate skin well, and aids prevention of damage to the skin that can be caused by medical devices. The product was easy to use, very conformable to skin contours and quick to apply. There was no evidence of trauma or pain on removal, and OFG appeared to be comfortable to wear. This product warrants further evaluation in the clinical setting. BJN

Conflict of interest: Smith and Nephew Medical supplied the OPSITE Flexifix Gentle that was used to evaluate its performance in the clinical area. No other assistance or intervention to note.

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