

# Cutimed® Sorbact® gel: a new infection management dressing

In the past decade there has been a great deal of focus on the issues surrounding wound infection and its treatment. The impact of infection on patients, relatives and staff should not be underestimated, and ensuring the most appropriate management strategy is essential. Both in acute and chronic wounds, infection can be difficult to diagnose and management is not always straightforward. Symptoms of infection include pain, swelling, increased exudate levels, odour and general malaise, which can be a cause of anxiety for patients. In addition, there is the potential for resistant organisms growing within the wound (Percival and Cutting, 2009).

Gail Pirie\*, Kristine Duguid\*, John Timmons

## KEY WORDS

Cutimed® Sorbact® gel  
Hydrophobic interaction  
Wound infection  
Bacteria

Recent media coverage of so-called 'super bugs' brings with it a stigma and increases the fear factor for patients and relatives. While in an ideal world we could prevent wound infection from occurring, the situation is such that patients present with increasingly complex clinical pictures including multiple pathologies and large chronic wounds which are likely to contain a great deal of bacteria. Multiple pathologies combined with age and environmental factors are also likely to negatively affect the host resistance and thus reduce the immune response (Dow, 2001).

Gail Pirie\* and Kristine Duguid\* are Tissue Viability Nurses, Department of Tissue Viability, NHS Grampian, Aberdeen; John Timmons is Tissue Viability Nurse Specialist, Department of Tissue Viability, NHS Grampian, Aberdeen  
\*author of the case reports

Treatment options in the past have included antimicrobial dressings which contain iodine, silver and honey. As with all wound treatments, clinicians require choice to meet the needs of patients with complex wounds. Wound type, position, tissue type, exudate levels and patient preference all need to be considered when choosing dressings. An holistic assessment of every individual patient is key to implementing the appropriate treatment regime.

A number of clinical papers have recently focused on the role of biofilms in the development of wound infection, and the importance in utilising products which can reduce the bacterial burden in these wounds to prevent biofilm formation (Cooper, 2009; Percival and Cutting, 2009).

Few products exist which can reduce wound bacteria without using chemical ions to do so, and therefore potentially reduce the risk of resistant strains of organisms developing.

There is also a need to create wound care products which can be used for patients with sensitivity to existing products, which is commonly the case when treating patients with leg ulceration.

BSN medical have launched a range of dressings based on hydrophobic interaction which attracts wound

pathogens and irreversibly binds them to the dressing, therefore reducing the microbial numbers in the wound bed. This type of product reduces the likelihood of bacterial resistance developing and is both clinically- and cost-effective.

This article will describe Cutimed® Sorbact® gel, a new variant of the Cutimed Sorbact sheet dressing which uses hydrophobic interaction in conjunction with a hydrogel.

## Cutimed® Sorbact® gel (BSN medical)

Cutimed Sorbact gel dressings consist of a Cutimed Sorbact dressing coated with an amorphous hydrogel. Cutimed Sorbact dressings are coated in dialkylcarbonylchloride (DACC), which gives the dressings hydrophobic properties. This hydrophobic interaction attracts bacteria and binds them irreversibly to the dressing fibres. The gel formulation of this dressing is ideal for providing moisture to dry wounds, which is needed to assist with debridement. The moist environment also facilitates the movement of bacteria into the dressing, where it becomes irreversibly bound.

Many bacteria and fungi have what is known as cell surface hydrophobicity, which, when in moist wound environments, causes the microbes to congregate or cluster together and colonise the wound.

Other antimicrobial products rely on the use of ions which infiltrate the wound and reduce the bacterial levels by killing the bacteria within the wound (Percival and Cutting, 2009). Iodine has been used as an antimicrobial agent for a number of years, and, used in low doses, can control bacterial levels without causing host cell damage. However, high doses may lead to toxicity (Akiyama et al, 2004).

Ionic silver has also been used to treat and prevent wound infection and is present in a number of formats. However, the amount of silver in dressings varies and there is a lack of clarity as to which concentration of silver ions is most beneficial clinically (Lansdown, 2004).

Honey has also emerged as an important product which can be used to treat infected wounds and has been shown to be effective against a number of pathological organisms (George and Cutting, 2007).

The use of inert products such as Cutimed Sorbact gel is a useful addition to the range of antimicrobial agents available and could provide a number of benefits over some of the other treatments used.

Figure 1 shows an electron microscope image of wound pathogens binding to Cutimed Sorbact. This hydrophobic interaction may help to reduce the risk of bacterial resistance as no actual antimicrobial compound is used in the dressing. In addition, there is a reduced likelihood of causing allergic reactions due to the inert nature of the dressing.

There is also no risk of cell toxicity as the dressing functions by attracting bacteria from the wound onto the dressing, where they become trapped. The dressing is not dependent on ions leaving the dressing and moving into the wound.

#### Indications for use of Cutimed Sorbact gel

Cutimed Sorbact gel is designed to be used in wounds with low to moderate exudate levels which may appear to be critically colonised or infected. Cutimed Sorbact gel can also be used to assist in the debridement of sloughy tissue.

Wounds on which Cutimed Sorbact gel could be used include:

- ▶ Surgical wounds
- ▶ Traumatic wounds
- ▶ Wounds after excision of fistulae and abscesses
- ▶ Leg ulcers
- ▶ Pressure ulcers
- ▶ Diabetic foot ulcers.

The following case reports are interim results from a UK-wide clinical audit evaluating the clinical performance of Cutimed Sorbact gel in relation to its ability to manage wound infection while facilitating wound healing. Further results of this clinical audit will be published in future issues of *Wounds UK*.

#### Case report 1

A 57-year-old gentleman who had suffered a stroke resulting in a left hemiparesis and cognitive impairment presented with a 4x2cm critically colonised wound (Figure 2), with low volume/viscosity exudate. The patient had no past medical history or known allergies. When the patient was found in a collapsed state following his cerebral accident, his arm was jammed in the banister. There was extensive swelling which was investigated and no compartment syndrome was noted. Blisters were deroofed and treated using Jelonet® (Smith and Nephew). Despite no obvious infection, healing did not take place and the patient was referred after

six weeks.

On examination, the wound presented as a non-healing wound of 4x2cm with evidence of hypergranulation and bleeding when touched. An initial diagnosis of critical colonisation was agreed. Cutimed Sorbact gel was prescribed with the aim of reducing the wound bioburden and returning the wound to a healthy colonised state, while maintaining a moist wound environment. An adhesive secondary dressing, Mepore® (Mölnlycke Health Care), was used to secure the dressing. Dressing changes were to take place every second day for seven days.

#### First assessment

Seven days later the wound had reduced in size to 3x2cm and had moved along the Wound Infection Continuum into a colonised state (Figure 3) (Gray et al, 2005). The hypergranulation had resolved. The patient remained on the Cutimed Sorbact regime for a further seven days as the treatment goals remained consistent.

#### Second assessment

After a further seven days the wound had further reduced in size to 3x1cm (Figure 4), with areas of epithelialisation across the wound bed. The wound had returned to a healthy colonised state. An occlusive moist wound healing dressing was used to encourage final



Figure 1. An electron microscope image of microorganisms binding to the Cutimed Sorbact dressing, which includes *Staphylococcus aureus* (yellow), *Enterococcus faecalis* (blue), *Pseudomonas aeruginosa* (purple), *Klebsiella spec.* (green) and *Candida albicans* (orange). Reproduced by courtesy of BSN medical.



**Figure 2.** The granulation tissue is swollen and the wound bed has a thin layer of slough across it, exudate levels are high and there are no signs of healing.



**Figure 3.** The hypergranulation has resolved and there is evidence of contraction to the wound bed.



**Figure 4.** Epithelialisation has taken place at the wound margins and is forming across the wound bed.

closure of the wound.

#### Conclusion

In this gentleman's case, Cutimed Sorbact gel met with the wound treatment aims and reduced the wound bioburden and hypergranulation, and promoted epithelialisation.

#### Case report 2

An 85-year-old lady with a history of reduced mobility, falls, multiple fractures, osteoarthritis, ischaemic colitis, pernicious anaemia, angina and a pacemaker *in situ* was admitted to an orthopaedic ward for approximately five months due to a fall. This had resulted in surgery for a fracture to her right fibula and tibia.

Three months after admission this lady was referred to the tissue viability department with a partially deroofed blister which was manually debrided to expose a yellow/red wound, displaying an indication of infection with high exudate levels.

#### Presentation

The heel ulcer (Figure 5) was 4x2cm. The high level of exudate had resulted in maceration on the wound margins and beyond this there was erythema indicative of a local infection.

Cutimed Sorbact gel, covered by a Mesorb® pad (Mölnlycke Health Care), was used to provide an antimicrobial presence in the wound, while also facilitating desloughing. Initially the dressing was changed daily. The patient commented that the dressing had a pleasant cooling effect on her wound when applied. The dressing was secured by toe-to-knee Comfast® (Synergy Health) and further damage was prevented by using a Repose boot (Frontier Therapeutics) when she was not mobilising.

#### First review

After 14 days the wound had reduced in size to 3.0x1.5cm (Figure 6) and the local infection had resolved. The wound bed was granulating with a small amount of slough present and the maceration had resolved with no maceration of the surrounding tissue. There was low volume/low viscosity exudate. The ward staff reported that the dressing had conformed well to the wound bed.

#### Second review

At the second review six days later the wound dimensions had reduced



**Figure 5:** The periwound area is macerated closest to the wound and is red as a result of localised infection.



**Figure 6.** The infection has now resolved and healing has started.



**Figure 7.** Contraction of the wound has taken place with the wound reducing in surface area by 50% in 20 days.

to 2.5x1.5cm (Figure 7). There was no evidence of infection and low volume/low viscosity exudate was present. The patient found it a comfortable dressing which caused no discomfort



**Figure 8.** Treatment was discontinued after this review, as the wound was free from infection and close to healing.

on application or removal. The decision was taken to continue with the current treatment plan and only to review the dressing on alternative days.

#### Third review

This lady was reviewed post discharge in her care home. The wound was found to be 2.0x1.0cm with no slough or evidence of infection and the decision was taken to discontinue treatment (Figure 8).

#### Conclusion

Cutimed Sorbact gel performed well on this patient. The wound was desloughed, and granulation was promoted with a reduction in wound size. A moist wound bed was maintained while preventing maceration of the surrounding tissue. Staff found the dressing easy to apply and remove. It conformed well to the wound bed and the patient found the product comfortable to wear, indicating that this was the appropriate dressing for this lady who was discharged home on this regime.

#### Case report 3

Mrs H is a 47-year-old patient who was admitted with cellulitis of the left lower leg. Her leg was red, hot, swollen, painful and producing bright yellow exudate.

Past medical history included several deep vein thromboses (DVT), for which she was on warfarin to prevent recurrence, breast cancer, asthma, angina, and obesity.

She stated that the wound had been present on her leg for several

weeks and had been treated by her community nurses with Silvercel<sup>®</sup> antimicrobial alginate dressing (Johnson and Johnson), honey and other plain dressings. Swab results taken by nurses showed *Proteus*, *Pseudomonas aeruginosa* and *Enterococcus*.

She was prescribed oral antibiotics by her GP, but no improvement was seen.

#### Presentation

At presentation the wound was 17.5x11cm, it was 25% yellow in colour and 75% dusky red (Figure 9). Exudate was medium volume, low viscosity. The surrounding area was red and inflamed and local infection was evident. Cutimed Sorbact gel dressing was prescribed. Two 15x7.5cm dressings were required for this wound, which needed to be changed every two days. A Mesorb<sup>®</sup> pad (Mölnlycke Health Care) was applied as a secondary dressing, secured with toe to knee Surgifix<sup>®</sup> (Smith and Nephew). Intravenous (IV) antibiotics were also prescribed.

#### First review

The wound measurements at first assessment were 15x8.5cm. The skin was intact and dark red with dry, yellow scabs over 75% of the wound (Figure 10). The wound was dry apart from one small area, 1.5x1.5cm, which was open and exuding a low volume of exudate. The leg remained red, hot and swollen.

The Mesorb secondary dressing

#### Key points

- ▶▶ Few products exist which can reduce wound bacteria without using chemical ions to do so, and therefore potentially reduce the risk of resistant strains of organisms developing.
- ▶▶ BSN medical have launched a range of dressings based on hydrophobic interaction which attracts bacteria and binds them to the dressing, reducing the bacterial numbers in the wound bed.
- ▶▶ Cutimed Sorbact gel is designed to be used in wounds with low to moderate exudate levels which may appear to be critically colonised or infected.
- ▶▶ The impact of infection on patients, relatives and staff should not be underestimated, and ensuring the most appropriate management strategy is essential.



**Figure 9.** Wound at first presentation.



**Figure 10.** At first review, wound is drier than before and reducing in size.



**Figure 11.** At second review showing 95% epithelialisation and a small area of yellow tissue.



**Figure 12.** Wound has almost completely healed, with no signs of infection present.

remained, but due to the width of the patient's leg the nurses felt a simple, light bandage toe to knee together with the Surgifix bandage gave more security to the dressing and prevented slippage.

A rash had developed over her body which was thought to be due to a drug reaction.

The patient was very happy with the treatment and improvement in her wound, and found dressings far less painful than previous regimes.

#### Second review

After two weeks of treatment, the wound measured 15x11.5cm. The skin was red and epithelialising (95%

granulating and 5% yellow tissue remaining) (Figure 11). The volume and viscosity of exudate was low. There were only a few small scabs over the wound. Overall, a great improvement was noted.

The secondary dressing was changed to Mepilex® Border (Mölnlycke Health Care) as most of the wound had healed and a smaller size of Cutimed Sorbact gel could be used to cover this area.

The patient was pleased with her wound and refused to revert to other conventional dressings prior to discharge.

#### Third review

After three weeks of treatment the main wound had epithelialised and only three small areas continued to leak exudate, these were 0.3x0.2cm, 0.2x0.2cm and 0.1x0.1cm. There were no signs of infection (Figure 12).

The patient stated that her practice nurses had also been pleased with the outcome.

#### Conclusion

Cutimed Sorbact gel effectively treated this patient's infected leg ulcer, showing an improvement each week in size and condition of the wound. This improved the patient's self-esteem and mood and enabled her to proceed on to having scheduled breast surgery, with no delays due to infection. Following her recovery from recent surgery, this lady will undergo a full assessment to develop a management plan for the chronic oedema in her lower limbs which will reduce the risk of recurrence.

#### Summary

Wound treatment can be problematic with each wound having its own subtle characteristics as a result of the patient's concurrent illness profile, which can impact on the outcome of the therapy.

The presence of sloughy tissue is both a physical barrier to healing and an ideal growth medium for bacteria,

and thus should be removed from the wound to facilitate healing and reduce the risk of infection. Sharp and surgical techniques of debridement require a degree of skill and expertise on the part of the clinician. In addition, for many patients these methods are neither acceptable nor practical.

Debridement using a hydrogel dressing is a safe and effective method, which has been used as a key therapy for the past twenty years. Cutimed Sorbact gel is a hydrogel dressing with hydrophobic interaction which can be used to assist in the debridement process with the ability to trap bacteria within the dressing at the same time.

The case reports within this article demonstrate the ability of Cutimed Sorbact gel dressing both to debride wounds and prevent wound infection during the treatment phase.

#### References

- Akiyama H, Oono T Saito M and Iwatsuki K (2004) Assessment of cadexomer iodine against *Staphylococcus aureus* biofilm *in vivo* and *in vitro* using confocal laser scanning microscopy. *J Dermatol* 31(7): 529–34
- Cooper R (2009) Biofilms: hard to detect, easy to underestimate, but most definitely here to stay. *Wounds UK* 5(1): 12
- Dow G (2001) Infection in chronic wounds. In: Krasner DL, Rodeheaver GT, Sibbald RG, eds. *Chronic Wound Care: A Clinical Source Book for Healthcare Professionals*. HMP Communications Pennsylvania: 343–56
- George NM, Cutting KG (2007) Antibacterial honey (Medihoney) *in-vitro* activity against clinical isolates of MRSA, VRE and other multiresistant gram-negative organisms including *Pseudomonas aeruginosa*. *Wounds* 19(9): 231–6
- Gray D, White R, Cooper P, Kingsley A (2005) Applied Wound Management. In: Gray D, Cooper P, eds. *Wound Healing: A systematic approach to advanced wound healing and management*. Wounds UK, Aberdeen: 59–99
- Lansdown ABG (2004) A review of the use of silver in wound care: facts and fallacies. *Br J Nurs (TV Supplement)* 13(6): s6–s19
- Percival SL, Cutting KF (2009) Biofilms: possible strategies for suppression in chronic wounds. *Nurs Standard* 23(32): 64–72