Silflex® soft silicone wound contact dressing

It is hard to believe that it has taken so long for the message to get through, that dressings and dressing removal should not cause additional pain or trauma to the patient. However, the field of wound-related pain, its assessment and management has now been recognised (European Wound Management Association [EWMA], 2002; World Union of Wound Healing Societies [WUWHS], 2004, 2007). This collection of case reports will demonstrate the importance of using non-adherent wound contact layers to minimise trauma to the wound bed and/or the surrounding skin.

Potential causes of wound pain
Wound pain is mostly described as either nociceptive or neuropathic pain (Johnson, 2008). Nociceptive pain is experienced as a result of the body’s response to injury, and can also be caused during traumatic dressing removal (World Union of Wound Healing Societies [WUWHS], 2004, 2007). Neuropathic pain occurs when nerve endings are damaged and continue to cause pain over long periods of time. Such pain may be related to wound aetiology, ischaemia, venous disease, vasculitis, hypersensitivity, infection and dermatitis (Hollinworth, 2005).

Different types of pain are outlined in the WUWHS document, ‘Minimising pain at wound dressing-related procedures’ (2004), namely:

- Background pain: this is the pain which a patient feels at rest, when there is no interference with the wound. It is related to the underlying cause of the wound and related wound pathologies such as arthritis, vascular disease or diabetes
- Incident pain: this is the pain which the patient experiences when carrying out day-to-day activities, mobilising, coughing or driving
- Procedural pain: this results from the removal of dressings, cleansing or dressing application
- Operative pain: this is associated with specialist intervention such as debridement or application of topical negative pressure (TNP).

Psychological/social and environmental factors such as fear of pain, previous experiences, gender, socioeconomic factors and the patient’s attitude to pain will also have an impact on the level and intensity of the pain felt (WUWHS, 2004).

Pain initiated by wound-related procedures
Dressing removal can cause pain and/or skin trauma or stripping for a number of reasons:

- Many dressings contain adhesives as retention is an important feature to reduce the need for dressing renewal. However, some products contain aggressive adhesives which strip skin cells when they are removed from the wound, leading to trauma (Rippon et al, 2007)
- The application of highly absorbent dressings to dry or low exuding wounds may lead to adherence within the wound bed. An example would be the application of an alginate dressing to a donor site, as such wounds bleed excessively initially but do not produce a large volume of exudate
- Failure to moisten wound adhesives prior to removal of the dressings
- The use of dressings which cause a ‘drawing’ effect.

Assessing pain
Regular, structured assessment of wound pain is a necessary part of overall wound management (WUWHS, 2004, 2007).
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Managing wound pain
Management of wound pain should consider all aspects, including local and systemic factors. Local factors may include dressing choice, skin irritation and excess exudate levels.

Pharmacological treatment should be considered for both background pain and in anticipation of dressing changes. Combinations of analgesics may be necessary to help maintain the analgesic effect throughout the day. Treatment may include adjunctive therapy with antidepressants and anticonvulsants to help reduce neuropathic pain.

Analgesia should be given 30 minutes before dressing changes to ensure maximum benefit during painful procedures.

Removal of the dressing is possibly the most painful part of the procedure. The patient will require a full explanation of the procedure and what you are doing; good communication can help to lessen pain by reducing fear and anxiety (Holden-Lund 1987). Using products which do not adhere to the wound bed or strip the surrounding skin is essential. If the product appears to be adhering, warm water can help to break down the adhesive in the dressing and moisten any remaining dressing in the wound (Hollinworth, 2003). If dressing removal is proving too painful, time out can help the patient relax before beginning the procedure again.

Dressing selection
Dressing choice should be based on the wound type, tissue type, level of exudate, presence or absence of infection, and the presence of pain in the wound. There may be situations when the patient will not tolerate the dressing which is regarded as the optimum choice for wound healing; however, this must be weighed against the needs of the patient.

It is vital to ensure that the dressings used are absorbent enough to handle exudate from the wound and minimise the risk of maceration and skin irritation. The surrounding skin should also be protected using a barrier film which will help to minimise trauma during dressing removal or due to exudate.

If dressings used are causing trauma, pain and/or bleeding from the wound, the clinician should reconsider the choice of dressing.

Atraumatic dressings will help to reduce the adherence of the product both to the wound bed and the surrounding skin.

Silflex® soft silicone wound contact dressing
Silflex® soft silicone dressing (formerly known as Siltex®) from Advancis Medical is a silicone mesh dressing which is designed to be used as a non-adherent wound contact layer; which allows secondary dressings to be removed without causing trauma to the wound bed.

The dressing consists of a polyester mesh which is coated with Silfix soft silicone which gently contours to the wound bed and allows the passage of exudate into the secondary wound dressing.

Silflex soft silicone contact dressing is indicated for use on:
- Skin tears
- Skin abrasions
- Surgical wounds
- Second-degree burns
- Lacerations
- Leg and pressure ulcers.

The case reports which follow were carried out in a number of clinical centres and demonstrate the effectiveness of Silflex soft silicone wound contact dressing.

Case report 1
First review and treatment
A 57-year-old lady with a complex past medical history was referred to the department of tissue viability after several operations. Her initial surgery was a popliteal bypass grafting to her right leg (27 March, 2009). This failed and she had to have a below-knee amputation (31 March, 2009). She was experiencing lower abdominal pain (1 April, 2009) and, as she had a history of ulcerative colitis, her medication was being reviewed at this time. Unfortunately she needed surgery (16 April, 2009) as she had a perforated colon and required a sub-total colectomy, ileostomy and mucous fistula.

Post-surgery the surgeon left the wound open as she also suffered from peripheral vascular disease and type II diabetes. Her condition at this time was poor. She was ventilated and there were signs of peripheral shutdown of her circulatory system. She was to be commenced on total parental nutritional therapy (TPN). The tissue viability nurse reviewed her wound with the consultant on 20 April, 2009 (Figure 1). The sub-mucous fistula was in the base of her wound. Due to the complexity of her condition, dressing options were discussed and it was decided to use topical negative pressure (TPN) therapy with Silflex to occlude the sub-mucous fistula at the wound base. The wound measured 23.4x4x2.5cm. The wound bed had a dark blue colouring with a fibrinous covering. The Talley-Venturi™ pump system was
used at a setting of 80mmHg continuous therapy. Dressings were changed every three days.

Second review
At second review (13 May, 2009) the wound measured 19x6.5x5cm. The wound bed consisted of 40% slough and 60% granulation tissue. Exudate levels were medium volume with medium viscosity and there was no odour coming from the wound. As before, the Silflex dressing had proved a good dressing for occluding the sub-mucous fistula without effecting the promotion of granulation tissue to the wound bed. The wound had continued to progress with the topical negative therapy. There was a plug of tenacious slough that was slightly slow at debriding (top of wound near sternum; Figure 3). Larval therapy may be an option at the next review to remove this. The patient was now breathing independently with limited ventilation assistance and was tolerating small amounts of diet with enteral supplements.

Conclusion
The purpose of Silflex soft silicone wound contact dressing was to occlude the sub-mucous fistula without causing any trauma to the surrounding tissues. The dressing was easy to use and performed the task required of it in this complex wound.

Case report 2
A 65-year-old man presented with a surgical excision to his left neck/cheek area following successful bone graft of fibula to his mandible. In preparation for a flap, the wound required debridement and development of granulation tissue. Figure 4 shows that the wound cavity has been debrided using surgical debridement and larval therapy to reveal bone, tendon and granulation tissue. At the upper part of the wound there exists sinus into the oral cavity and an exposed bone graft. The decision was taken to start negative pressure wound therapy (NPWT) to aid the development of granulation tissue. However, it was also recognised that the exposed bone needed to be protected and so a Silflex soft silicone dressing was applied (Figure 5). To maintain the seal the sinus between the oral cavity was closed using Stomahesive paste (ConvaTec) (Figure 5).

The wound had previously been surgically debrided and had become infected and further necrotic tissue had
developed. Larval therapy and surgical debridement were used to clear the area and systemic antibiotics were used.

Negative pressure wound therapy was delivered with the V.A.C.® Freedom™ system (KCI Medical) using black foam and the dressing was changed every 48 hours. At each dressing change Silflex was used to cover the exposed bone graft (Figures 5 and 6).

**Initial review**

At first review the wound dimensions measured 5x4x1 cm with evidence of granulation growth in the wound bed (Figure 5). There was no evidence of wound infection and the bone graft remained undamaged (Figure 7).

**Second review**

At the second review one week later, the wound bed was seen to be granulating well with some minor bleeding associated with foam dressing removal which resolved in minutes. The Silflex dressing had offered protection to the bone graft and the Stomahesive paste while the V.A.C. Freedom system was in situ. At this review the wound dimensions had remained static, with the exception of the wound depth which had reduced to 0cm.

**Conclusion**

Following the treatment regime combining Stomahesive, Silflex silicone wound contact dressing and the V.A.C. Freedom system, the patient underwent a successful pectoral flap to cover the defect.

**Case report 3**

An 89-year-old lady with a history of dementia suffered a fracture to the right neck of her femur. The fracture was resolved by an open reduction and internal fixation with a hip screw. She sustained a trauma wound to the outer aspect of her left, lower limb due to the fall (Figure 8). The department of tissue viability was asked to review this wound six days postoperatively. This wound had been dressed with Mepilex® (Mölnlycke Healthcare) and Allevyn® (Smith and Nephew) borderless dressings secured with orthopaedic bandages and yellow line Comfifast™ tubular bandage (Synergy Health) before the review (Figure 9). The hypergranulation was treated daily for seven days with Terracortil® ointment (Pfizer) and the wound was covered with Silflex. As the ointment needed to be applied daily, a silicone dressing was required to prevent damage to the fragile tissue. An absorbent dressing was used to cover this and secured using yellow line Comfifast.

Due to low exudate levels, Intrasite™ Gel (Smith and Nephew) was applied to the wound bed. This was secured in place using Silflex soft silicone dressing 10x10cm, borderless; Allevyn and secured with toe-to-knee orthopaedic bandaging and Comfifast tubular bandages. The dressing was changed every 48 hours.

Second and final review prior to discharge home

Two weeks later at the second and final review, there was no pain at dressing removal and the surrounding skin was showing signs of tissue regeneration. A large plug of dead tissue was cut and removed from the wound bed. The wound bed consisted of 30% sloughy, 65% granulation and 5% epithelial tissue. There was still a small plug of slough at the top of this wound (at 12 o’clock) (Figure 10). This as a wound was healing the patient was discharged home where treatment was to be continued.

**Conclusion**

Silflex soft silicone wound contact dressing was an effective non-adhesive dressing, as there was no trauma or pain on removal and it successfully contained the Intrasite gel within the wound bed.

**Case report 4**

This 91-year-old lady was referred due to a longstanding leg ulcer which had had a skin graft six months before referral. The skin graft had not been successful and the donor site had failed to heal completely.

In Figure 11 it can be seen that the donor site has partially healed leaving an area of 6x6cm of hypergranulation. This area had been treated using Acticoat™ (Smith and Nephew) for four weeks before review. The wound was painful and bled when touched. At this point the decision was taken to treat the hypergranulation while protecting the fragile new epithelium which covered the remainder of the donor site.

The hypergranulation was treated daily for seven days with Terracortil® ointment (Pfizer) and the wound was covered with Silflex. As the ointment needed to be applied daily, a silicone dressing was required to prevent damage to the fragile tissue. An absorbent dressing was used to cover this and secured using yellow line Comfifast.

Following three days of treatment the wound was reviewed to establish if the daily dressings were causing trauma to the periwound area or the wound bed. On inspection (Figure 12), it was seen that the hypergranulation was beginning to resolve and the periwound area was in good condition.
health with no evidence of skin stripping or trauma. At this point the wound was still 6x6cm. The patient reported no pain or trauma at dressing changes.

Conclusion
After eight days and eight dressing changes the hypergranulation had resolved and the periwound area remained intact (Figure 13). The patient had not found the dressing changes painful.

Summary
Advances in wound dressing have undoubtedly improved the standard of wound treatments over the past decade. Many of the advances address issues such as absorbency of exudate, protease modulation, or involve the use of growth factors. Despite this, one of the most fundamental questions has remained relatively low on the agenda, i.e. how can we reduce wound-related pain, particularly at dressing change! Silicone-based treatments have enabled clinicians to apply effective therapies to patients’ wounds without causing excessive trauma to the wound bed or to the surrounding skin. This helps improve the patient’s quality of life, reduces anxiety and may even improve concordance with treatment.

As can be seen from the cases reported above, Silflex soft silicone wound contact dressing has been used in a number of wound types and has been shown to improve outcomes, both in terms of healing and in the prevention of wound-related complications.

References

Key points
- Dressing removal can cause pain and/or skin trauma or stripping for a number of reasons.
- By reducing pain and reassessing the degree of pain experienced by the patient, there should be an accompanying improvement in quality of life, a reduction in anxiety which, in some cases, may lead to an improvement in wound healing (Holden-Lund, 1987).
- Atraumatic dressings will help to reduce the adherence of the product both to the wound bed and the surrounding skin.
- Silflex® soft silicone dressing from Advancis Medical is a silicone mesh dressing which is designed to be used as a non-adherent wound contact layer, which allows secondary dressings to be removed without causing trauma to the wound bed.
- Silicone-based treatments have enabled clinicians to apply effective therapies to patients’ wounds without causing excessive trauma to the wound bed or to the surrounding skin.