Despite their wide usage, the limited exudate absorption and fluid retaining abilities of foam dressings mean frequent dressing changes are required when they are used over highly exuding wounds. Otherwise, the foam dressing will become saturated with exudate and cause maceration of the surrounding skin (Dhivya, 2015; Dabiri et al, 2016). Additionally, foam dressings are not suitable for dry wounds and scars as the wound bed may desiccate if there is no exudate. For that reason, foam dressings are contraindicated for use for third-degree burns, dry eschar and sinus tracts (Dhivya, 2015; Dabiri et al, 2016).

Recently, SAWD technology (Enluxtra, OSNovative Systems Inc, Santa Clara, CA) has been introduced as a management option for chronic wounds. SAWD is the first and only self-regulating superabsorbent synthetic polymer dressing with adaptive absorbency and a built-in adaptive hydration function. When SAWD is in direct contact with the wound bed, it can sense the underlying tissue’s physical condition and adapt its local function to provide optimal treatment simultaneously for different wound zones. SAWD vertically absorbs exudate in exuding wound zones, while hydrating dry wound zones, and moving slough, necrotic tissue, debris and harmful bacteria away from the wound. Since the introduction of SAWD in 2015, hundreds of patients with various chronic wounds (pressure ulcers, diabetic foot ulcers, traumatic wounds and post-operative complicated wounds) have benefited from the technology. This paper reports on a challenging Grade 3 pressure ulcer with tunneling that was fully treated with SAWD.

In cutaneous wound healing, wounds are usually classified into two broad categories: acute and chronic (Diegelmann and Evans, 2004). Wounds that heal in a complex series of interlinked and overlapping but well-defined and timely mannered phases are classified as acute wounds (Schultz et al, 2003). Conversely, chronic wounds are those that are ‘hard-to-heal’ or have failed to heal with ‘standard therapy’ in an orderly and timely manner or that have persisted for over 4 weeks or over 6 weeks (Fletcher, 2008; Markova and Mostow, 2012).

Chronic wounds, which are not limited to pressure ulcers, but include diabetic foot ulcers, arterial ulcers and venous leg ulcers, represent a significant burden to patients, healthcare professionals and healthcare systems, and cost billions of US dollars annually (Frykberg and Banks, 2015). Considering that dressings are fundamental to wound management, it is imperative that wound care specialists choose appropriate dressings based on the wound’s aetiology, type and wound bed condition (Dabiri et al, 2016).

Wound dressings play a crucial role by protecting the affected area from external aggressors such as bacteria and bodily fluids and, ideally, create a moist, warm, wound healing environment. Good exudate handling properties are also essential to support wound healing (Dabiri et al, 2016). One dressing category that many clinicians turn to is the foam dressing. Polyurethane foams dressings, which were introduced in the mid 1980s, continue to be important in wound management, particularly where exudate levels are challenging (Abdelrahman and Newton, 2011). Despite their wide usage, the limited exudate absorption and fluid retaining abilities of foam dressings mean frequent dressing changes are required when they are used over highly exuding wounds. Otherwise, the foam dressing will become saturated with exudate and cause maceration of the surrounding skin (Dhivya, 2015; Dabiri et al, 2016). Additionally, foam dressings are not suitable for dry wounds and scars as the wound bed may desiccate if there is no exudate. For that reason, foam dressings are contraindicated for use for third-degree burns, dry eschar and sinus tracts (Dhivya, 2015; Dabiri et al, 2016).

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Case study
A 74-year-old male patient, with diagnosis of cerebrovascular accident (CVA) in the last 3 months and history of diabetes mellitus (15 years), was admitted to the acute care hospital for investigation on 27 August 2015. He was semi-conscious with a GCS of 12 and a Braden score of 12. On 15 December 2015, the patient was referred to the wound care division with a Grade 3 pressure ulcer with tunneling on the right side of his back [Figures 1 and 2].

Treatment objectives
To provide proper wound treatment and prevent further complications.

Wound assessment
The wound was located on the right side of the patient's back between the fifth and seventh intercostal areas in the thoracic region. It was 4 cm in length and 3 cm in width, with a tunnel that was 4 cm in depth. Wound bed and tunnel covered with thin layer of slough, serosanguinous exudate (mid to high). A wound swab showed presence of Staphylococcus aureus with moderate growth.

Treatment
Treatment started on the 15 December 2015, as follows:

<table>
<thead>
<tr>
<th>Wound bed preparation</th>
<th>Primary dressing</th>
<th>Secondary dressing</th>
<th>Frequency of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ulcer Cleansing System</td>
<td>SAWD</td>
<td>Transparent dressing</td>
<td>48 hours</td>
</tr>
</tbody>
</table>

First review
The first dressing change was performed on 17 December 2015. The wound showed positive progress in term of healthy granulation tissue, slough tissue still present in the tunnel. Minimal serosanguinous exudate level, no clinical signs of infection. There was no significant change to the tunnel depth [Figures 3, 4, 5].

Treatment recommendation

<table>
<thead>
<tr>
<th>Wound bed preparation</th>
<th>Primary dressing</th>
<th>Secondary dressing</th>
<th>Frequency of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ulcer Cleansing System</td>
<td>SAWD cut to fit inside the tunnel, with silver dressing inside the tunnel</td>
<td>Adhesive transparent dressing</td>
<td>72 hours</td>
</tr>
</tbody>
</table>
Second review
On 20 December 2015, the wound had decreased in size by more than 50%, showing a fast response to the treatment [Figure 6]. Healthy Granulation tissue layer over the wound bed and the tunnel. Signs of epithelial migration from wound edges. Wound swab showed none significant growth.

Third review
On 23 December 2015, 75% of the wound bed covered with epithelial layer and 25% healthy granulation issue. Wound became superficial with no tunneling [Figure 7].

Fourth review
On 29 December 2015, the wound measured less than 1 cm x 1 cm with healthy epithelialization at the wound edges healthy granulating wound bed. The patient was discharged from the wound care division on 3 January 2016 with the recommendation to continue using SAWD along with pressure ulcer preventative measures [Figure 8].

Follow-up
At a follow-up on 6 January 2016, the wound had completely healed [Figure 9].

Conclusion
In summary, SAWD performed well at removing of excess exudate, slough, and microbial bioburden, as well as promoting granulation tissue formation and epithelization. Achieving complete healing of a complicated Grade 3 pressure ulcer (with tunneling) within 22 days with use of SAWD is a promising step toward healing of chronic wounds and warrants further study.

Reference


