A superabsorbent wound dressing for the management of diabetic foot ulceration

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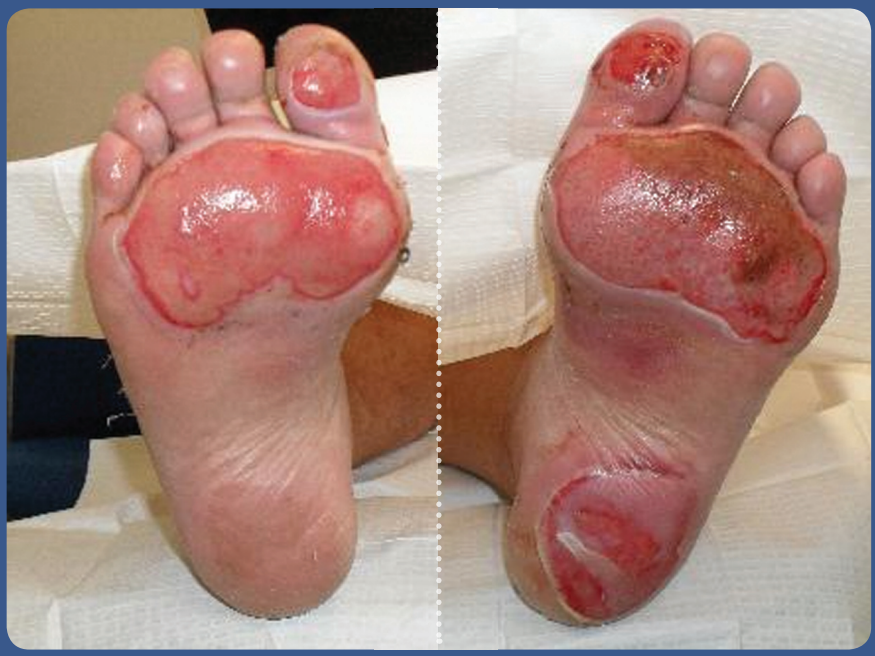

Figure 1. Initial presentation at clinic.

Diabetic foot problems cost the NHS an estimated £600 million per year, with foot problems being the most common cause of admission to hospital for people with diabetes (Gordois et al, 2003; Boulton et al, 2005). Every 30 seconds, somewhere in the world a limb is lost due to diabetes, equating to approximately 100 limbs a week in the UK — 85% of these diabetes-related amputations are preceded by foot ulceration (World Health Organization [WHO], 2005).

Best practice in wound care is therefore essential within the area of diabetic foot ulceration, with dressing choice playing an important role. The National Institute for Health and Clinical Excellence guidance recommends that healthcare professionals should use wound dressings that best match clinical experience, patient preference, the site of the wound, while also considering the cost of the dressing (NICE Guideline 10, 2004).

Curea P1 (Bullen Healthcare) is a sterile superabsorbent wound dressing, containing a cellulose composite, with fluid-retaining superabsorbent materials. It is indicated for use with chronic and highly exuding wounds.

Case report

The authors evaluated the effectiveness of Curea P1 in the case of Mr M, a 61-year-old male with poorly controlled type 2 diabetes. Following a holiday to Egypt, Mr M presented to the authors' clinic with bilateral neuroischaemic foot ulceration to the plantar surfaces of his feet, caused by burning from poolside tiles (*Figure 1*).

The ulcerations to Mr M's right foot progressed to healing in six weeks without complications, following a management plan including systemic antibiotics, a primary antimicrobial dressing and pressure offloading.

The diabetic foot ulcerations to Mr M's left foot, however, further deteriorated. There was an increase in exudate level and malodour, despite oral antibiotic therapy (*Figure 2*). Although exudate is an essential component of the healing response in both acute and chronic wounds, it can present a clinical management problem and be a sign of local infection (Cutting and Harding, 1994; Gilchrist, 1999).

Clinical signs of osteomyelitis were present at this stage, with the ulcer probing to bone. Although X-ray at presentation had shown no evidence of osteomyelitis, after the patient was admitted as an inpatient for intravenous (IV) antibiotics, osteomyelitis was confirmed of the left 1st and 5th metatarsal heads on repeat X-ray.

Wound exudate is composed of fluid from the leaking blood vessels, growth factors from cells in the wound environment, and debris from the damaged tissues (Vickery, 1997). Copious exudate can saturate the wound bed and periwound skin causing maceration which, in turn, can lead to enlargement of the wound (White, 2001).

Curea P1 was chosen by the authors following the increase in exudate levels to the left foot, as a secondary dressing in conjunction with a primary antimicrobial dressing (Medihoney™ Antibacterial Wound Gel™) for its following properties:

- Ability to absorb large quantities of exudate while maintaining a moist wound environment
- Ability to withstand pressure due to the site of the ulceration, as Curea P1 also absorbs on weightbearing, i.e. under the plantar surface of the foot
- No requirement for adhesives or bonding agents

- Odour inhibition
- Minimal risk of maceration
- Range of sizes (the sizes used were 10x10cm, and 10x20cm to cover the large plantar area of ulceration)
- Cost-effectiveness. Curea P1 is available on Drug Tariff at a lower cost than other comparable products. This cost benefit is further improved by the clinical benefits of Curea P1 in reducing the incidence of maceration, thus helping to decrease the length of time needed to progress the wound healing process and the costs of additional dressings.

Thus, Curea P1 was used for two weeks as a secondary dressing to allow maximum absorbency while maintaining a moist wound environment.

Mr M's peripheral arterial disease was improved with a successful angioplasty procedure undertaken by vascular surgeon colleagues at a neighbouring hospital. This was initiated as part of his management plan. Post angioplasty, the authors discussed the option of larval therapy with the patient, as this would more rapidly and effectively debride the wound bed.

The patient was happy to consent to this, and therefore Curea P1 was used in conjunction with two consecutive courses of larval therapy of four and five days' duration, respectively (two x BioFoam® 7x7cm dressings used per course, Zoobiotic Ltd) (*Figures 3* and *4*).

Conclusion

In the authors' opinion, Curea P1 managed the levels of exudate produced from these ulcers with no leakage or maceration noted. It maintained an optimal moist wound healing environment, with the additional benefit of odour control, due to the retention of the wound exudate within the absorbent core. The dressings were easy to apply, comfortable for the patient, and did not adhere to the wound bed, thereby allowing for atraumatic removal.

Dressing choice within the area of diabetic foot ulceration is controversial, as there is little published evidence available. The dressing choice remains dependent on the status of the wound, the circumstances of the patient, the risk of infection and clinical judgement (White, 2001). WUK

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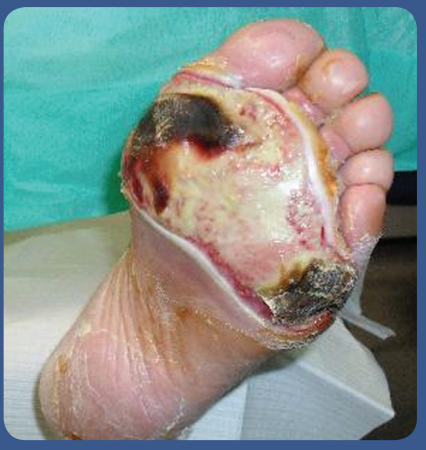

Figure 2. Mr M's left foot, showing infective deterioration.

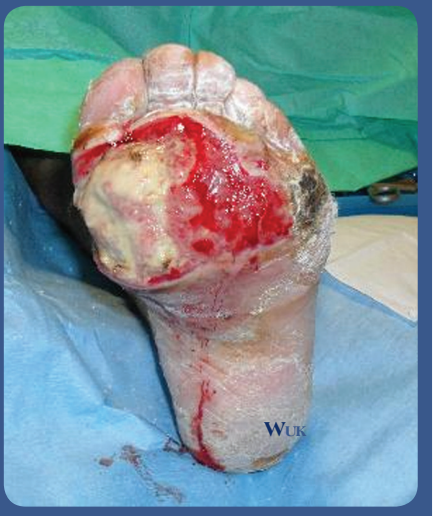

Figure 3. Post first application of larval therapy.

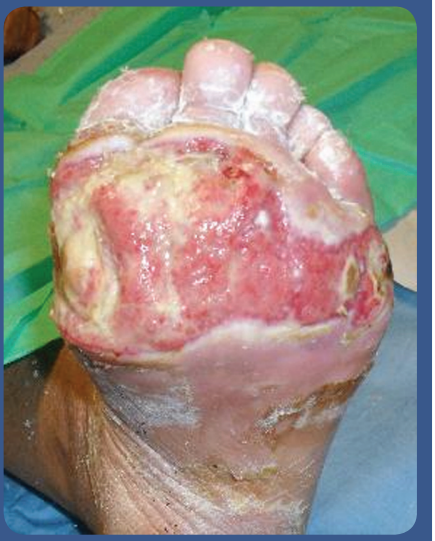

Figure 4. Post second application of larval therapy.