

# The use of POSiFECT E-stim wound therapy on a patient with diabetes with a mixed aetiology ulcer of six years duration

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A chronic wound is usually described as one which has been open for more than six weeks, or more than nine weeks in a patient with diabetes. Chronic wounds do not complete the usual wound healing process, often getting stuck in the inflammation/proliferation stage (Loots et al, 1998; Moore, 2004). They have also been shown to have an absence of endogenous bio-currents (Jaffe and Venable, 1984).

The POSiFECT Outcome Assessment Programme (OAP) provides an opportunity for clinicians to nominate suitable patients with chronic wounds for treatment with POSiFECT, a new electric stimulation wound therapy product. POSiFECT is a highly portable, sterile, disposable medical device that monitors the endogenous bio-electric currents produced within the wound and modifies this to produce optimal conditions for cell migration and proliferation. POSiFECT is used in conjunction with standard wound care treatment (except silver-based products) and is replaced every 48–96 hours.

In this case report, the patient was nominated for the OAP as he had suffered with recurrent ulceration for 6.5 years.

## The patient

The patient was a 62-year-old man with diabetes controlled with oral medications. He worked part time, and lived with his family in Canada. He relied upon his job for financial and social support. However, due to recurrent ulceration, he was finding work increasingly difficult and had been forced to reduce his hours.

The patient had a history of vascular problems spanning almost 30 years, beginning with an acute occlusion requiring

a femoral popliteal bypass in the 1980s. He was referred to the author by the district nurse in 2006 because of his frustration with non-healing and alteration in his vascular status. He presented with ulceration of mixed aetiology over the lateral malleolus. The ulceration was resulting in extreme pain and he had to take increasing amounts of analgesia to get through the day. As his current ulcer had been present for more than 12 months he was referred to the surgeon who suggested amputation as a solution to the problem. This was not an option Patient X was prepared to consider, choosing instead to continue with the discomfort of the ulceration. This is a phenomena frequently seen in patients with diabetic ulceration (Kinmod et al, 2003).

The author was also unsure if any alternative treatment options could be offered. The patient was not a candidate for full compression therapy due to reducing ABPI recordings, reduced compression had been used along with a wide variety of topical treatments with no significant improvements. The patient admitted that he had almost given up hope of his ulcer ever healing. He was therefore keen to participate in the POSiFECT OAP to try a new treatment.

## POSiFECT Outcome Assessment Programme

The OAP consisted of a 16-week evaluation period during which therapy was administered for three weeks, followed by a one-week break period and then a second three-week therapy period. For the remaining nine weeks the patient reverted to standard treatment; the wound was covered with a simple wound contact layer under a double layer tubigrip. Patient assessment was carried out at commencement, week 4, 8, 12 and finally at week 16 on exit from the programme.

At the start of the OAP, the patient's ulcer was assessed and measured 2.5x1.5cm (3.0cm<sup>2</sup>) (Figure 1). The

surrounding skin was dry and had previously demonstrated sensitivity to many topical products. The wound bed consisted of 75% slough and 25% granulation tissue. There was an area of erythema extending greater than 2cm around the peri-wound skin. The patient assessed his pain score over the previous 24-hour period as 5.5 on the John Hopkins pain score and said it was constant. Photographs and wound tracings were taken at baseline and at each assessment so that wound progress could be monitored. At entrance, the patient reported that his ulceration impacted greatly on his mobility, self care and usual activities.

In order to fit in with work commitments, it was decided that dressing changes were to remain as usual, taking place at 9am Monday mornings and 4pm Friday evenings (Figure 2).

At week 4 assessment, the peri-wound skin was showing signs of improvement. The wound bed had also improved consisting of 90% granulation and 10% epithelisation tissue. The wound had reduced in size to 2.5x1.5cm (2.6 cm<sup>2</sup>). The patient was feeling very positive about the treatment and commented that he was feeling better in himself, reporting a pain score of 3.5. Although his pain was still described as constant, he indicated that he felt more able to walk.

At week 8, the wound surface area had reduced further to 1x1cm (1.3 cm<sup>2</sup>). There was an increase in epithelisation of the wound bed. The erythema was reduced to less than 1cm surrounding the ulceration. His pain score remained at 3.5 but was more manageable and as a result, the patient had managed to reduce his analgesia.

At week 12, the patient's pain score had reduced to 2 and was reported to be of occasional frequency. The wound bed was assessed as containing

50% granulation, 10% fibrin and 40% epithelisation tissue with a surface area of 1.3x1cm (0.8cm<sup>2</sup>). There was slight maceration on the lower wound border which was managed successfully with the use of an alginate dressing (Figure 3).

At exit from the programme (week 16) the ulcer was re-epithelialised and measured 0.7x0.6cm (0.3cm<sup>2</sup>). Patient X's pain score remained at 2, but he had been able to further reduce his analgesia. He was very pleased with the progress of his wound and he remarked how he was able to move more freely and walk more easily.

Four weeks after completion of the OAP, the ulcer had completely healed. The patient continued dressing his leg using a double layer of Tubigrip with a simple island dressing to cover and protect the area of previous ulceration.

### Discussion

The OAP offered this patient the opportunity to try a new therapy following the failure of several different treatments to improve his chronic diabetic wound of 6.5 years duration. Before entry into the programme, the ulceration was affecting his ability to work and he was becoming increasingly dependent on analgesia. Faced with amputation or increasing pain, the use of POSiFECT offered hope with minimal disruption to the patient as his dressing routine continued as usual, within his usual care setting.

During the 16-week programme, the wound achieved 100% re-epithelisation without any other changes to the patient's standard care apart from the addition of POSiFECT therapy, and progressed to healing four weeks later.

From this case report, it would appear that the use of POSiFECT alleviated pain and greatly improved the quality of life of a diabetic patient with a difficult-to-heal wound. **WUK**

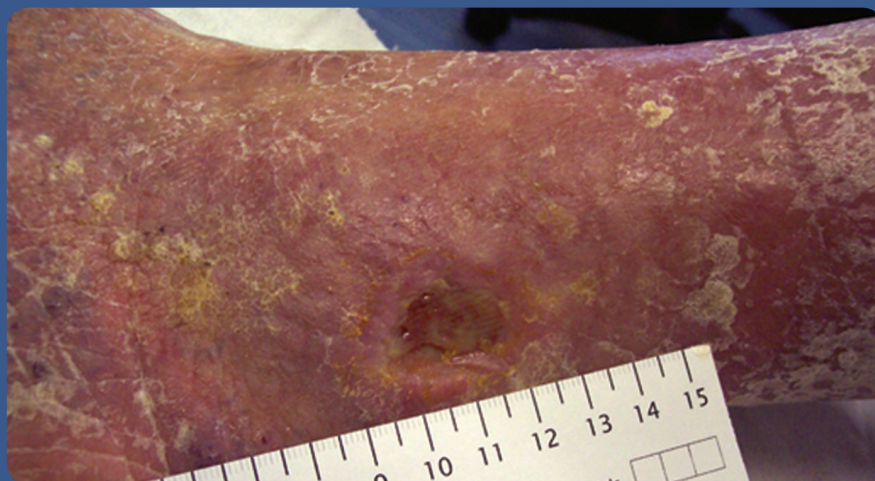


Figure 1. Ulcer at baseline assessment.



Figure 2. Ulcer with POSiFECT dressing in place.

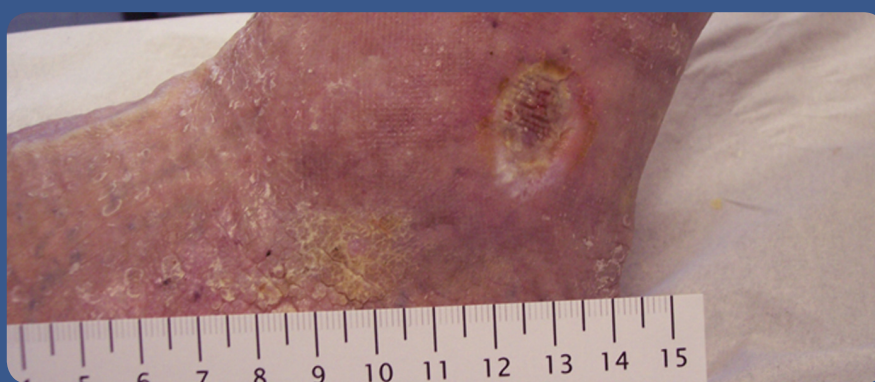


Figure 3. Ulcer at week 12 assessment.

### References

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