Reducing the barriers to wound healing using a Hydroconductive Dressing

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Aim

The concept of wound bed preparation suggests that the presence of devitalized tissue, an increase in the bacterial burden and poorly managed wound exudate in chronic wounds may act as barriers to healing.[1] An evaluation of a hydroconductive dressing* was undertaken to observe its effectiveness in preparing wounds to heal, by removing these barriers.

Method

The study design was a service evaluation, where the evaluation product was used within standard care. No protocol was used other than the manufacturers instructions and patients were not randomized to specific treatment. No additional information recorded outside that which was collated at each patient assessment. Organization consent was obtained from the hospital along with that of the patient's medical practitioner. The patients also gave written consent to participate and for their wounds to be photographed which included approval for publication purposes.

As this was not a controlled trial, it was anticipated that the dressing would be used:

- Until the wound healed
- The patient requested discontinuation
- The clinicians assessed that a change of therapy was beneficial.
- The wound had progressed sufficiently so that specialist advice from the Wound Care Clinic was no longer required. (All patients recruited into the evaluation were treated at home by the Community Nurses and attended the Wound Care Clinic for specialist advice).

The dressing was evaluated on 10 patients who had wounds, which were not progressing satisfactorily. They were fully assessed and all other problems had been addressed. All patients were reported to have devitalized tissue in the wound bed, signs or symptoms of an increasing bioburden and difficulties with exudate management.

The dressing was applied according to the manufacturers instructions, and wound progression was documented at each dressing change, supported by wound photography and technology to provide accurate measurements and tissue analysis.

*** DRAWTEX® Hydroconductive Wound dressing.**
Beier Drawtex Healthcare

The poster was sponsored by Beier Drawtex Healthcare.

Results

Patient population

- All patients were male
- Their ages ranged from 46 years to 78 years with an average age of 60 years
- All patients were treated by the home nursing service but attended the Wound Care Clinic at the hospital for specialist advice.
- The dressing was evaluated on:
  - 7 complex surgical wounds where healing was delayed
  - 2 leg ulcers (venous). Compression therapy was also maintained on these patients.
  - 1 trauma wound

Dressing application

- The frequency of dressing change was monitored, and in 100% of changes only 1 nurse was required.
- The ease of application and removal was recorded at each dressing change, and clinicians reported it to be "easy" in 100% of responses
- Patient comfort was assessed during dressing application and removal at the clinic. In 81% of dressing changes the patient was pain free, although minor discomfort was reported in 19% of visits.

Clinical outcomes

- No new infections were reported.
- Wound exudate was managed successfully in all patients
- There was visible improvement in the peri-wound skin
- The most impressive outcome was the ability of the dressing to reduce the % of devitalized tissue from the wound bed in a short period of time.

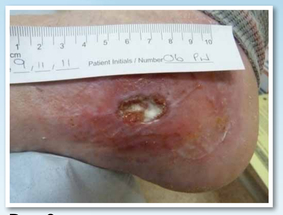
Table 1 presents the outomes for all 10 patients. Two patient case histories are included to demonstrate the speed of debridement

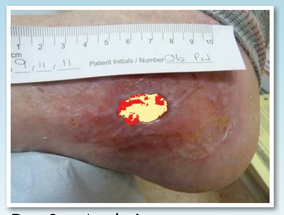
Patient Number	Wound Type	Wound Bed Start Evaluation		Wound Bed End Evaluation	
		% granulation tissue	% Slough/ necrosis	% granulation tissue	% Slough/ necrosis
1	Leg ulcer	35.1	64.9	100	0
2	Trauma wound	6.1	93.9	32.5	67.5
3	Surgical wound	42.9	57.1	94.7	5.3
4	Surgical wound	97.7	2.3	98.8	0.2
5	Surgical wound	85	15	100	0
6	Surgical wound	75.8	24.2	100	0
7	Surgical	100	0	Healed	
8	Surgical wound	41.6	58.4	85.6	14.4
9	Surgical wound	31.6	68.4	22.9	77.1
10	Leg ulcer	70	30	100	0

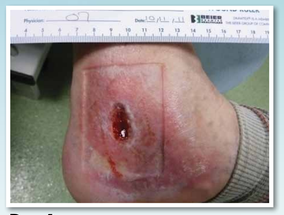
Patient 1

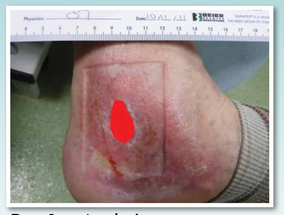
Patient 1 was a 47 year old male with a longstanding problem with ulceration on the medial malleolus of his left leg. The aim of treatment was to debride the devitalized tissue and improve the condition of the surrounding skin which had become macerated from the increasing level of exudate. The wound had also not progressed, and at the initial assessment the wound bed was assessed as containing 64.9% slough and only 35.1 % granulation tissue.

The evaluation dressing was applied and reviewed in 1 day, where 100% granulation tissue was visible in the wound bed.


Day 0


Day 0 Analysis


Day 1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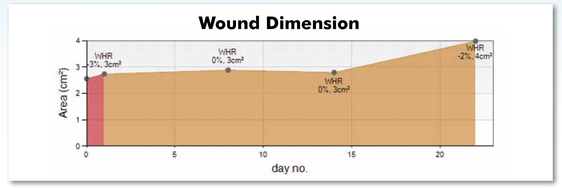
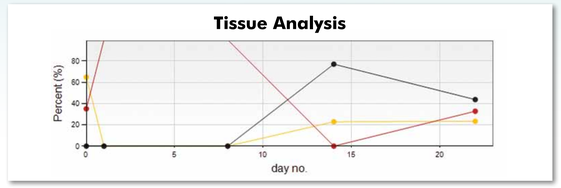
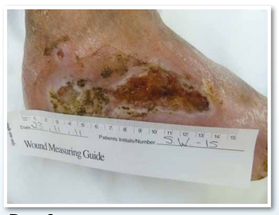




Patient 2

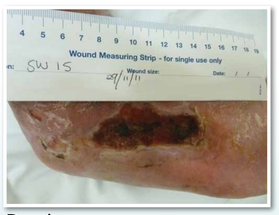
Patient 2 was a 60 year old male with a history of peripheral vascular disease and a connective tissue disorder. He was also taking anticoagulants orally. The wound originated as a trauma wound, which failed to heal despite antimicrobial therapy. The aim of treatment with the evaluation dressing was to reduce the exudate and promote granulation. At the initial assessment the wound was recorded to have 46.6% necrosis, 48. 3% slough and 6.1% granulation tissue in the wound bed.

The evaluation dressing was applied and evaluated after 6 days, where the necrosis had reduced to 38.0%, 29.5% slough, with granulation tissue increasing to 32.5%.

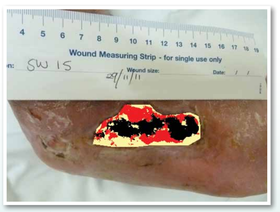


Day 0

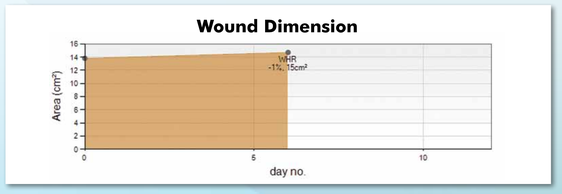
Day 0 Analysis

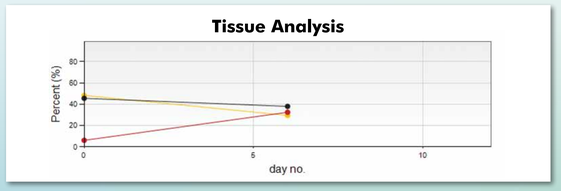


Day 6



Day 6 Analysis





Conclusion

Within this small cohort of patients who required specialist wound care service, the barriers to healing were removed or reduced sufficiently to allow the wound to progress with the use of this dressing. This technology may be effective in preparing the wound bed in complex non-healing wounds, and by removing these barriers provide an optimum environment for healing. Further studies are required to investigate the full potential of this dressing further.

Reference
1. Falanga V. Classifications for wound bed preparation and stimulation of chronic wounds. Wound Repair Regen 2000; 8(5): 347-52.
2. Imago Care Ltd ©2012, Elixr, Application & Validation of a Unique Image Analysis Tool.