

# A comparison of a modified form of Granuflex® (Granuflex® Extra Thin)\* and a conventional dressing in the management of lacerations, abrasions and minor operation wounds in an accident and emergency department

A. HEFFERNAN & A.J. MARTIN

Accident and Emergency Department, University College Hospital, Galway, Ireland

## SUMMARY

A clinical study of 96 patients compared a new hydrocolloid dressing (Granuflex Extra Thin®) with a non-adherent dressing (perforated film absorbent dressing) in the management of lacerations, abrasions and minor operation incisions at the Accident and Emergency (A&E) Department of the University College Hospital, Galway.

While time to heal was similar for both groups, the patients using Granuflex Extra Thin® experienced less pain ( $P < 0.001$ ), required less analgesia ( $P = 0.0154$ ) and were able to carry out their normal daily activities including bathing or showering without affecting the dressing or the wound.

Patient satisfaction with the new dressing appeared to be very high especially in those patients who pursued an active lifestyle.

**Key words:** bathing, hydrocolloid, incisions, lacerations, showering

## INTRODUCTION

In recent years there has been increasing evidence to suggest that a variety of chronic wounds such as leg ulcers may heal faster if they are occluded and thereby kept moist.<sup>1-3</sup> Other wounds like burns and skin graft donor sites appear to do likewise.<sup>4,5</sup>

Newer types of dressings such as alginates, hydrogels and hydrocolloids have been designed to take advantage of this.<sup>6,7</sup>

Granuflex® is a hydrocolloid dressing which has

\* Granuflex® (Granuflex® Extra Thin) is manufactured by Convatec, Shakley HSE, Milton Road, Ickenham, Uxbridge, UK.

been in use for a number of years in the management of leg ulcers, pressure sores, donor sites and burns.<sup>8-11</sup> Recently a modification of this dressing, Granuflex Extra Thin®, has been produced. This has a modified hydrocolloid matrix under an impermeable polyurethane film and the dressing is thinner than the traditional form. It is therefore more flexible and better able to conform to contours, resulting in improved adhesion and occlusion promoting the optimum environment for moist wound healing.

Whilst the potential of these dressings has been proven in open wounds there have been no trials to date to assess their potential in incised sutured wounds.

A trial was set up in the A&E Unit at University College Hospital, Galway to assess the potential advantages or disadvantages of Granuflex Extra Thin® over a conventional dressing (perforated film absorbent dressing) in the treatment of lacerations, abrasions and minor operation wounds.

## MATERIALS AND METHODS

### Patient selection

Patients of both sexes and of any age presenting to the A&E Unit having sustained a laceration or abrasion or undergoing minor surgery and requiring dressing and follow-up were entered in the trial.

Excluded were patients undergoing radiotherapy or cytotoxic chemotherapy, patients known to be sensitive to either the trial dressing or the control and patients in whom, for clinical reasons, hydrocolloid dressings were contraindicated.

Patients fulfilling the entry criteria were enrolled in the study and the purpose and nature of the trial

Correspondence:  
A.J. Martin,  
Consultant, Accident  
and Emergency  
Department,  
University College  
Hospital, Galway,  
Ireland.

was explained to them. Either verbal or written consent was obtained from the patients and an information sheet left with them. They were then randomized to one or other of the two dressing treatments.

#### *Dressing and application*

The wounds were all treated according to normal departmental practice and sutured where appropriate. The allocated dressing was applied as follows:

- (1) *Conventional group*. An appropriately sized dressing was selected and applied in accordance with the manufacturers instructions.
- (2) *Granuflex Extra Thin® group*. A suitably sized dressing was selected, to cover the wound completely with a 1-cm overlap. The dressing was held in position for a few seconds to secure the dressing and increase the initial adhesion. The Granuflex Extra Thin® wafer required no overdressing and the patients were told they could bath or shower if necessary so long as the dressing was intact or adherent.

Dressings were changed when clinically indicated or routinely using the appropriate aseptic technique.

#### *Assessment of the dressing performance*

Treatment was continued until either the healing of the wound had taken place or the subject had withdrawn or been withdrawn from the study.

The performance of the dressings was measured as follows.

- (1) Wound healing. Time to healing measured in days.
- (2) Number of dressings used.
- (3) Comfort in use. Degree of pain (visual analogue scale) and the use of analgesics.
- (4) Convenience in application and removal. Assessed as easy or difficult to apply or remove.
- (5) Wound infection rate. Observation with swabs taken if appropriate.
- (6) Ability to bath or wash.
- (7) Adverse effects (e.g. skin sensitivity). Recorded during the trial.

## STATISTICAL METHODS

#### *Qualitative variables*

Treatment differences for qualitative variables such as presence of pain, ease of removal etc. were analysed using Fisher's exact test (two-tailed)

#### *Qualitative variables*

Treatment differences for qualitative variables (e.g. time to healing) were analysed using the Wilcoxon rank sum test. The distributions of all quantitative variables were examined for normality using standard tests and plots. In each case the distributions were markedly skewed or bimodal. Therefore, a non-parametric test was considered appropriate.

#### *Withdrawals*

Patients could withdraw or be withdrawn from the study at their own request. In addition patients could be withdrawn by the investigator as a result of adverse effects. Withdrawals along with the reasons were noted on the patients record form.

## RESULTS

Ninety-six patients were entered into the study, 48 (30 male, 18 female) received Granuflex Extra Thin® and 48 (24 male, 24 female) received the control.

One patient in the Granuflex® group, removed her dressing on day 1 and so is not included in the follow-up data.

The age range was 1–82 years (mean Granuflex® group 24.2 mean conventional group 30.7). The types of the wounds are shown in Fig. 1 and the injury

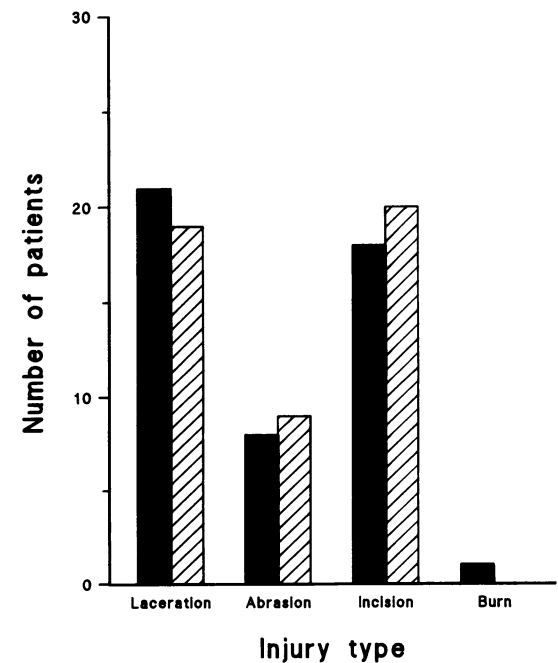


Fig. 1. Type of injury; Granuflex® ■, conventional, ▨.

site is shown in Fig. 2. Ninety per cent of wounds in each group were 6 cm or less. The median length in each group was 3.0 cm.

Slightly more than half the patients in each group were classified as contaminated. There was no significant difference between the groups in this respect ( $P = 0.837$ ).

Sutures were used in about half the patients in each group. There was no significant difference between the groups in this respect ( $P = 0.838$ ). The comparative efficacy of the two dressings can be seen in Table 1. The wounds of 28 patients receiving the control dressing healed within 7 days without requiring a dressing change as did the wounds of 22 patients in the Granuflex Extra Thin® group.

The number of dressings used, a maximum of five, were similar for both groups and there was no marked difference in mean healing time. Both dressings were reported as being easy to apply.

Thirteen patients in the control group had pain on removal of the dressing whereas only one patient in the Granuflex Extra Thin® group reported pain on removal. This difference was significant ( $P = 0.001$ ).

Nine patients required analgesia for pain in the control group. One of the Granuflex Extra Thin® group had a problem with pain ( $P = 0.0154$ ).

Virtually all patients in the Granuflex Extra Thin® group reported that they were able to wash while wearing the dressing whereas the reverse was true for the conventional dressing group (see Table 2). This difference was significant ( $P < 0.0001$ ). In the

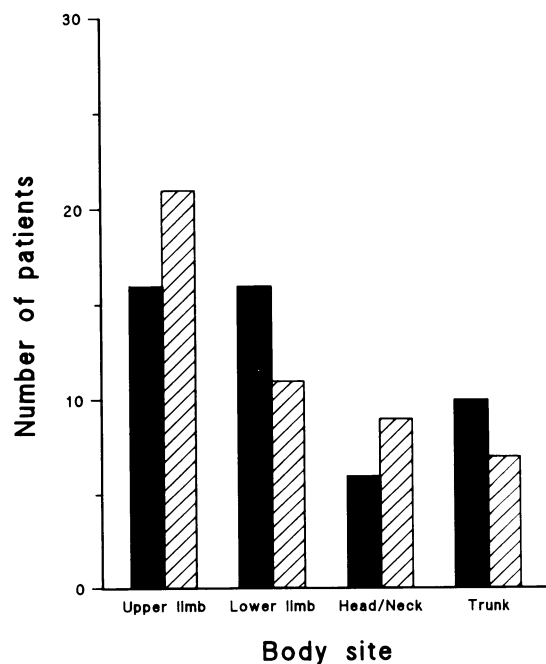


Fig. 2. Site of injury; Granuflex® ■, conventional, ▨.

Table 1. Time to healing in days and number of dressings applied to wounds

	N	Mean (SEM)	P*
Time to healing (days):			
Granuflex Extra Thin®	47	10.2 (0.7)	0.2064
Conventional	48	9.1 (0.6)	
Number of dressings applied:			
Granuflex Extra Thin®	46	1.9 (0.2)	0.2023
Conventional	46	1.6 (0.2)	

\* P-values for between treatment differences (Wilcoxon Rank Sum test).

Table 2. Patients' ability to bath/wash

Able to bath/wash?	Granuflex Extra Thin®	Conventional
Yes	46	4
No	1	44
Missing	1	0

Granuflex Extra Thin® patients the wound required changing in three patients because the dressing had started to lift off and in six because of leakage. In five of the latter, the wounds were on the hand.

## DISCUSSION

In a trial of this type it is difficult to prove that one material is superior to another in terms of wound healing. This is because the type of wound (incised and abrasion) tends to heal in 5–10 days depending on the site, if there are no adverse factors affecting the wound healing.

Our first objective was to ensure that the dressing did not adversely affect the wound healing and then find the other advantages or disadvantages. Our results demonstrate clearly that there were no problems with healing.

In the study the overall wound dimensions and other background data show a reasonable degree of balance between the two groups.

We found a low incidence of pain when using this dressing with a reduced requirement for analgesia. A similar lack of pain has been reported in a trial with similar material in small area burns (Wijetunge, personal communication).

Although the new thin formulation was developed for ease of application and potentially better adhesion,

there was still a small problem in some patients with regard to leakage and a tendency for the dressing to lift in some patients. Leakage occurred most often with hand wounds.

The main advantage was that patients could forget about the dressing once applied and carry on normal activities. The ability to wash was particularly useful. One lady who had a lesion removed from her neck, washed her hair twice with the dressing in place, without any problem. A swimmer swam competitively with the Granuflex Extra Thin® over an abrasion. Another advantage was that when stitches were being removed, they were not caked in clotted blood, as the dressing kept the area moist, thereby making removal easier. Granuflex Extra Thin® has proved to be suitable for wounds and comfortable in use.

### ACKNOWLEDGMENTS

We wish to thank the A&E staff at the University College Hospital Galway, Mrs P. Crawford of Con-vatec, and Christopher Andrews for his help with the statistics.

### REFERENCES

1. Friedman S.J. & Su W.P.D. (1984) Management of leg ulcers with a hydrocolloid occlusive dressing. *Archives of Dermatology* **120**, 1329.
2. Eaglestein W.H. (1985) The effect of occlusive dressings on collagen synthesis and re-epithelialisation in superficial wounds. *Royal Society of Medicine International Congress and Symposium Series* **88**, 31.

3. Martin A., Kirby N.G., Tabone Vassallo M. & Glucksman E. (1987) Synthaderm in the management of pre-tibial lacerations: a controlled clinical study. *Archives of Emergency Medicine* **4**, 179–186.
4. Hermans M.H.E. (1985) Comparison of a hydrocolloid dressing, sulphadiazine and cadaver skin in the treatment of burns. *Royal Society of Medicine International Congress and Symposium Series* **88**, 129.
5. Bilz H., Kiessling M. & Kreysel H.W. (1985) Comparison of hydrocolloid dressing and saline gauze in the treatment of skin graft donor sites. *Royal Society of Medicine International Congress and Symposium Series* **88**, 125.
6. Turner T.D. (1985) Semiocclusive and occlusive dressings. *Royal Society of Medicine International Congress and Symposium Series* **88**, 5.
7. Morison M.J. (1989) Managing pressure sores: local treatment. *The Professional Nurse* **34**, 36–38.
8. Cherry G.W., Ryan T. & McGibbon D. (1984) Trial of a new dressing in venous leg ulcers. *The Practitioner* **228**, 1175.
9. Tudhope M. (1984) Management of pressure ulcers with a hydrocolloid occlusive dressing: Results in twenty three patients. *Journal of Enterostomy Therapy* **11**, 102.
10. Champsaur A., Amadou R., Nefzi A. & Marichy J. (1988) Use of DuoDERM on donor sites after skin grafting. A comparative study with tulle-gras. *Royal Society of Medicine International Congress and Symposium Series* **136**, 127.
11. Phipps A. & Laurence J.C. (1988) Comparison of hydrocolloid dressings and medicated tulle-gras in the treatment of out-patient burns. *Royal Society of Medicine International Congress and Symposium Series* **136**, 121.