British Journal of Plastic Surgery (1980), **33**, 418-421
0007-1226/80/0081-0418 $02.00

SILASTIC FOAM DRESSING FOR SKIN GRAFT DONOR SITES—A PRELIMINARY REPORT

By K. G. HARDING, M.B., Ch.B., GILL RICHARDSON, S.R.N. and PROFESSOR L. E. HUGHES, F.R.A.C.S.
University Department of Surgery, Welsh National School of Medicine, Cardiff

The standard methods for dealing with skin graft donor sites are associated with much discomfort, the patient often complaining more of the pain from the donor site than from the actual surgical procedure undertaken.

Several techniques have been advocated for the dressing of donor sites, with variable results. The most widely used method involves the use of fine mesh gauze, which may or may not be impregnated with various substances. This dressing is not an ideal one (Bailey and Duck, 1958). Gemberling *et al.* (1976) showed that in a study of a number of dressings, no one form of dressing was better than no dressing at all from the point of view of healing. They considered that the ideal dressing should give protection from dehydration, avoid damage to the wound and provide adequate porosity to allow for the evaporative water loss and gas exchange essential for wound healing.

We believe that the silastic foam dressing (Dow Corning Q7-9100) meets all these criteria.

This dressing has been successfully developed for the treatment of granulating wounds at the University Hospital of Wales in Cardiff (Wood and Hughes, 1975; Wood *et al.*, 1977) and one of the most striking features has been the absence of discomfort associated with its use. It has now been adapted as a primary dressing of skin graft donor sites.

PATIENTS AND METHODS

The technique has been evaluated in 21 consecutive patients undergoing skin grafting for a variety of conditions, but mainly following excision of malignant melanoma, breast cancer or hidradenitis suppurativa. For this purpose the silastic material is made up into sheets approximately 1 cm in thickness, large enough to cover the donor area and with the open-pore surface placed on the wound to facilitate the absorption of wound exudates.

Silastic foam dressing is made by mixing a base solution with a catalyst (Silastic Foam Q7-9100, Dow Corning Ltd.) in fixed proportions of 100:6. This mixture is stirred vigorously for 15 seconds and is then poured into a suitable container with a flat base, corresponding in area to that of the donor site. Within 2 to 3 minutes at room temperature, it will expand to four times its original volume and set to a material with a soft, spongy consistency. Sufficient is used to make a sheet approximately 1 cm thick. At present the dressing is made in the operating theatre as required, but it is likely that preformed sheets will soon be commercially available.

In the first 5 patients a more conventional dressing of Melolin was applied for 48 hours then removed (with some difficulty) and replaced by the

Address for reprints: Professor L. E. Hughes, F.R.A.C.S., University Department of Surgery, Welsh National School of Medicine, Health Park, Cardiff, CF4 4XN.

silastic foam. This was done because it was believed that complete haemostasis should be obtained before application of the silastic foam.

The difficulty in removing the conventional dressing led to the following procedure being used in the remaining 16 patients. The donor site is sprayed with povidone-iodine powder immediately after removal of the skin graft, the silastic foam dressing laid on in theatre and lightly bandaged in place. After return to the ward the nurses remove the silastic dressing for wound cleansing with saline or a bland antiseptic solution three times a day in the first 24 hours and then twice a day until the wound is healed. The dressing is rinsed under cold running water, placed in aqueous chlorhexidine solution for 10 minutes, removed and squeezed dry between paper towels. It is then replaced on the donor site wound and held in place with a crepe bandage. With this technique, bleeding in the immediate post-operative phase has not proved a problem.

Results

In the first 5 patients complete epithelialisation (indicated by total dryness of the wound) occurred in 14 to 21 days (mean 16·5 days).

In the following 16 cases, healing occurred in 9 to 14 days (mean 11·8 days) with the exception of Case 13 which took 27 days. This elderly patient was discharged from hospital before the donor site had healed and failed to remove the dressing for cleansing as instructed. The patient returned one week later with the dressing still in situ and the donor site infected. It healed rapidly when the district nurse re-instituted the standard twice daily changing of the dressing and cleansing of the wound. Figures 1 and 2 show a typical donor site at an early stage in the healing process and also when it has healed.

Discomfort cannot be assessed objectively but all patients considered discomfort at the donor site to be minimal, and less than that of the primary operative site. Nursing staff were unanimous that the technique caused less discomfort than the previously used dressings of impregnated gauze or Melolin. The most enthusiastic of all were those patients who had experienced the treatment of donor sites by both conventional dressings and silastic foam.

Discussion

While it is true that this method increases the nursing load in the early post-operative period, this is more than counter-balanced by the ability of most patients to manage the dressings themselves, when ambulant. Furthermore, since bed patients usually require frequent dressings of their surgical wounds, the extra time required for the donor site is minimal. Despite the increased work in the early stages, the nursing staff without exception prefer this technique because of the comfort of the patient and the predictable early healing of the donor site.

We appreciate that this method of dealing with donor sites may be considered unconventional and that it may be felt that the relatively open nature of the method may predispose to infection. In practice the opposite has proved to be the case, in our view because of the frequent cleansing and perfect drainage associated with this technique. The sole case of infection seen in Case 13, stresses the importance of frequent simple cleansing, but we

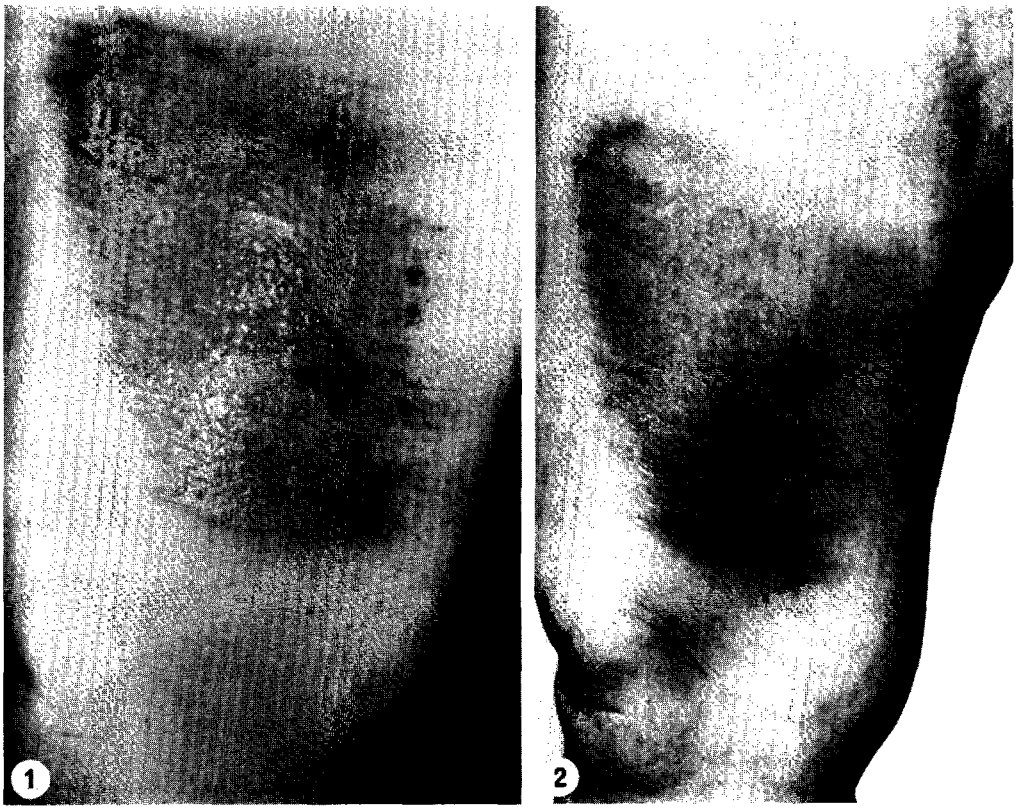

FIG. 1. Graft donor site at 48 hours.

Fig. 2. Graft donor site completely healed in 9 days.

believe that these factors are also responsible for the rapid and satisfactory healing which is uniformly seen.

From our experience of many methods, the silastic foam dressing has proved to be the most satisfactory method of managing skin graft donor sites at present available. We hope this preliminary communication may stimulate a more specialised centre to subject the technique to formal randomised study.

SUMMARY

A new technique for the management of skin graft donor sites is described. The wound is dressed immediately with a non-adherent sheet of silastic foam dressing. Experience in 21 patients has shown that patient discomfort is minimal and healing rapid and predictable within 14 days.

REFERENCES

BAILEY, B. N. and DUCK, D. (1958). The healing of split skin donor sites. *British Journal of Plastic Surgery*, **11**, 318.

GEMBERLING, R. M., MILLER, T. A., CAFFEE, H. and ZAWACKI, B. E. (1976). Dressing comparison in the healing of donor sites. *Journal of Trauma*, **16**, 812.

WOOD, R. A. B. and HUGHES, L. E. (1975). Silicone foam sponge for pilonidal sinus: a new technique for dressing open granulating wounds. *British Medical Journal*, **4,** 131.

WOOD, R. A. B., WILLIAMS, R. H. P. and HUGHES, L. E. (1977). Foam elastomer dressing in the management of open granulating wounds: experience with 250 patients. *British Journal of Surgery*, **64,** 554.