Management of Split Thickness Skin Graft Donor Site.

There tends to be great importance placed on the success of the skin graft by the patient, surgeon and nurse. However, a second wound is created in order to gain a skin graft — the donor site wound is often neglected. Patients often complain of increased pain at donor site rather than the grafted area. A STSG donor site reepithelializes through the in-growth of keratinocytes originating from the apocrine glands and pilosebaceous units left intact in the preserved deep layer of the dermis. A donor site can be expected to heal within 7-14 days, if complications are avoided. The rate of healing is quite variable and is affected by factors such as the depth, site, and size of the wound along with the age of the patient. Most donor sites invariably heal without much complication. With changing times the patient concern for donor site morbidity and cosmesis is on raise. Surgeons need to concentrate on not just healing of donor site but also the final cosmetic outcome. The scarring at donor site is directly proportional to the time taken to heal. Faster reepithlization decreases scarring, better color match reduced chances of hypertrophic scar formation.

Fig 1: Undesirable healing of donor site: Scarring, Color mismatch, hypertrophic scar.
Previously most donor sites were managed with meshed gauze category. There are a number of products in this category that are impregnated with various substances such as paraffin, lanolin, petroleum jelly, etc. These dressings are then covered with layers of absorbent dressings. The airflow through the dressings allows the exudate to dry and the dressings usually form a hard crust. Removal of the dressing often results in considerable pain and damage to the new epithelium. Based on the results of many well conducted randomised controlled and intra-individual trials mesh gauze dressings are inferior to moist wound products in terms of healing, infection rates and pain/discomfort and should not be used in the management of the STSG donor site (Level I).

Many topical applications/dressings have been used on donor sites. In wound management generally, recent developments have revolved around the introduction of many new dressing alternatives, with the emphasis shifting to products that promote moist wound healing. The advantages of these dressings are well documented. Moist wound products prevent desiccation and the deepening of wounds, reduce the risk of mechanical damage to healing tissue at removal, and provide an environment that results in more rapid healing.

Because the raw surface of the donor site produces a considerable amount of exudate, the ideal donor site dressing must be able to deal with a large volume of exudate initially, yet still provide moist wound healing when the quantity of exudate later decreases. The healing effect of the dressing is of primary importance, but discomfort and pain caused by the donor site and dressings are also important. The choice of dressing for the donor site can have a major impact on a patient’s satisfaction and recovery. Other significant considerations when choosing a STSG donor site dressing are the risk of complications, costs related to the dressing products, ease with which the dressing products can be applied and removed, and contentment of the caretakers. Most fibre dressings are calcium alginate although there are now others available. Fibre dressings are highly absorbent and like hydrocolloids form a gel surface when in contact with a moist wound. Many of these dressings have haemostatic properties that are useful in the management of donor sites.

The healing of donor site wounds can be divided into two phases. The wet phase is when copious amounts of exudate is produced. An absorbent dressing such as a foam, alginate or hydrofibre dressing

Fig 2: Desirable donor site healing.
can be used to absorb the excess. The dry phase is when the exudate levels fall dramatically and the wound bed becomes dry. It can be treated with a simple non-adherent silicone dressing, which can remain undisturbed without adhering to the wound bed for several days or until the wound has healed.

The silk protein sericin, which is derived from silkworm cocoons, has been recently investigated by many researchers for possible new applications in the biomedical field. We previously demonstrate that silk sericin can activate collagen production in wounds, which subsequently induced epithelialization. Furthermore, silk sericin has been reported to promote the attachment and proliferation of human skin fibroblasts and keratinocytes. These properties contributed to the excellent suitability of silk sericin as a wound dressing material.

Management of healed STSG donor sites.

The management of the healed donor site is aimed at maintaining the integrity of the new skin by preventing dehydration and reducing the risk of sun exposure. Patient education and specific interventions should include the use of moisturisers applied frequently (2-3 times daily), the avoidance of ultra violet (UV) exposure and the use of highly protective sun screens.

Protocol for donor site management

Key EGF: Epidermal Growth Factor.

References