Over Grafting Donor site

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Introduction

Tanner first described mesh grafting in 1964. He demonstrated the significant benefits with respect to increased recipient area coverage with consequently reduced donor site requirement, reduced operative time, and enhanced graft take due to the lack of fluid accumulation[1].

Inherent in the practice of skin grafting is the creation of a donor site. It is this area that is the source of the majority of postoperative pain and prolongs recovery. Optimal management of donor sites remains controversial, and as a result a vast array of dressings are available for coverage and a number of techniques, and even complete exposure to the atmosphere, have been proposed.

Thompson et al[2] demonstrated that donor sites may be covered by a split skin graft with significant improvements in both healing time and the quality of the donor site. The donor area not covered by skin regenerates and resurfaces itself by secondary epithelialisation, assuming that the donor site retains sufficient dermis to replace the epidermis. When more than two thirds of the dermis is taken there is a significantly higher incidence of delayed wound healing, hypertrophic scarring and deranged pigmentation.

Patients and Methods

Fifteen adult patients and five children were recruited prospectively for overgrafting in a variety of settings. All patients had less than ten per cent total body surface injury to their lower limbs (average 4% TBSA). Five elderly women all aged above seventy, with pretibial haematomas or lacerations, three adult motor vehicle accident victims, two patients with necrotizing fasciitis and five adult and five child burns victims were recruited.

The technique described by Ablaza *et al* [3] was used to cover the donor site following recipient coverage. Split skin harvesting was performed using a standard dermatome technique and meshed 1.5 to 1. Half of the skin was used to cover the recipient site and the other half the donor site. Staples were used to secure the majority of donor sites. Vacuum dressings were used over donor and recipient sites simultaneously in two of the elderly women, one of the children with a burn wound of 7% TBSA (at the knee joint following a failed skin graft), and three of the other adults.

The patients' postoperative courses were closely monitored and the wounds assessed using the Vancouver Scar Assessment Scale.

Results

We found that the grafted donor sites had healed well enough at 7 days (range 5 – 11 days) to be left open. This is significantly earlier than donor sites dressed in a standard fashion in matched controls - 15

days (range 10 to 25 days). Only one of the donor sites did not take completely, due to an infection, which responded to topical antimicrobial dressings. Elderly patients mobilized more quickly and the young patients required less analgesia for dressing changes.

At follow-up (average 3 months; range 1 to 6 months), we determined that the patients had a superior aesthetic result, especially with relation to hypertrophic scarring and hypopigmentation. All patients had Vancouver Scores between 0 and 2.

Discussion

The elderly, particularly those who are poorly nourished, chronically ill or immunocompromised, and those with thin skin, are particularly prone to delayed healing problems. Young black Africans are most susceptible to problems relating to pigmentation.

Overgrafting the donor site reduces the donor healing time, the donor site pain experienced, as well as the incidence of hypertrophic scar formation. There is also improved cosmesis, particularly relating to the retention of native pigmentation. In addition, there is believed to be a reduction in the fluid and blood loss associated with the procedure.

Conclusion

We propose that overgrafting is a simple means of coverage of donor sites. There is improvement in donor site aesthetics and a reduction in healing times. This technique is applicable whenever skin grafting is considered, but is perhaps most beneficial at the extremes of age, where healing is deficient, in dark-skinned population groups and when the donor site is a prominent area. One should also consider its use when excess skin is harvested inadvertently. We acknowledge that it should be limited to patients with injuries involving less than 10% of the total body surface.

References

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