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Plastic Surgery

A STUDY ON RESULTS OF EARLY DEBRIDEMENT AND SPLIT SKIN GRAFTING IN VENOUS LEG ULCERS IN A TERTIARY CARE HOSPITAL

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ABSTRACT **Background:** Venous leg ulceration is a chronic, debilitating and recurrent condition. It affects up to one in 100 people at some point in their lives. Conventional treatments are dressings and compression stockings. However, despite treatment, some ulcers remain exposed for months or years. Skin resurfacing may be from the patient's own uninjured skin (autografts), or applied as a sheet of bioengineered skin matrix grown from donor cells (allograft). Preserved skin from other animals, such as bovine or swine, has also been used (xenografts). **Study design:** Prospective, interventional, institution based, conducted at Apollo Multispeciality Hospitals, Kolkata, India. **Method:** Our study includes 12 patients operated over a period of 2 years; all patients with venous leg ulcers underwent early debridement (within 2 months of presentation) and autologous skin grafting. Patients were followed up for 1 year, without any significant skin breakdown. **Conclusion:** Autologous split-thickness skin grafting still remains the gold standard in terms of safety and efficacy in early healing of chronic venous leg ulcers.

KEYWORDS : Split skin graft, Venous Leg Ulcer (VLU), Autologous, Tissue engineering

INTRODUCTION

Skin grafting is considered one of the commonly used techniques in plastic and reconstructive surgery. It is preferred to other techniques and treatments for soft tissue reconstruction, due to the fact that grafts act not only as a skin replacement but also as a stimulus for healing[1]. Chronic venous leg ulcers are an important problem for which many different forms of treatment have been used. Skin grafting is an old technique, rediscovered during the first and second world wars as the main treatment for wound closure. The aim of this study is to analyse the specific outcomes this technique achieved, in relation to venous leg ulcers. Our main findings indicate that autologous split-thickness skin grafting still remains the gold standard in terms of safety and efficacy for venous leg ulcers; skin tissue engineering, also supported by genetic manipulation, is quickly expanding and, in the near future, may provide even better outcomes in the area of treatment for long-lasting chronic wounds. It offers an important therapeutic option in the treatment of venous leg ulcers (VLUs) [2], VLUs affect 1% of the adult population and are associated with poor quality of life and contribute to economic burden because of their recurrent nature. These ulcers are usually resistant to medical treatment and require skin grafting for healing [3].

METHODOLOGY:

This prospective, interventional, institution based study was conducted at Apollo Multispeciality Hospitals, Kolkata, and included 12 patients in the age group of 40 - 80 years operated over a period of 2 years – during January 2021-December 2022 and were followed up for 1 year without any serious complications. Under aseptic precautions, the ulcers were debrided. The donor sites were marked, prepared, draped and then injected with a tumescent saline solution. Harvesting was usually performed under local anaesthesia. Epinephrine was also used to induce local vasoconstriction and decrease bleeding. The skin graft was harvested with a knife or a dermatome, depending on the size of graft and fixed with skin staples. Obtained grafts were meshed, minimising the donor site and maximising the area covered by the graft. Moreover, meshing helped to drain fluid, and reduced the risk of a haematoma or seroma. Postoperative immobilisation was done for a period of 5–10 days in the position of maximal graft stretching to improve graft take and minimise graft shrinkage. All the patients were recorded for early and late surgical complications. Only 2 patients had early seroma which resolved with conservative treatment with antibiotics and dressings.

RESULTS

All patients were discharged the next day. No major complications were noted in any of the patients during the one year follow up period.

Table 1 – General Details

SERIAL NO	AGE IN YEARS	SKIN GRAFT TAKE	COMPLICATIONS
1	48	GOOD	NIL
2	55	VERY GOOD	NIL
3	58	VERY GOOD	NIL
4	62	FAIR	SEROMA
5	75	VERY GOOD	NIL
6	63	GOOD	SEROMA
7	76	FAIR	NIL
8	51	VERY GOOD	NIL
9	67	VERY GOOD	NIL
10	49	VERY GOOD	NIL
11	70	VERY GOOD	NIL
12	68	FAIR	NIL

Figure 1a – pre operative venous ulcer, **1b** – after placement of skin graft, **1c** – post operative day 5.

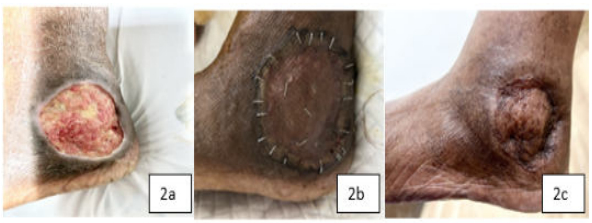

Figure 2a - pre operative venous ulcer**, 2b -** post operative day 7, **2c** – 2 months post operative.

CONCLUSION

VLUs can be treated in many ways according to the severity of the lesion. Suitable options include conservative management such as compression therapy and leg elevation, mechanical treatment by vaccum assisted closure, antibiotics and hyperbaric oxygen therapy and surgical treatment that should be considered in patients with venous ulcers that do not heal with conservative therapies. The surgical procedure for the treatment of VLUs is skin grafting, especially when lesions are large and refractory to standard treatments. Autografts, allografts or human skin equivalents can be used, with a resulting healing rate of 73% [4]. Overall, all patients suffering with VLUs and being considered for skin graft should undergo surgery for venous insufficiency in order to correct the underlying venous abnormalities causing the ulcerations and avoid skin breakdown[5].

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