INTRODUCTION

Scars arising as a result of deliberate self-harm represent a clinical challenge in reconstructive practice with a marked paucity of literature reports addressing the optimal method to resurface this particular type of scarring. We present our experience with 2 patients (cases 1 and 2), who underwent an isotopic split-skin graft procedure and share the results of the scar remodeling/resurfacing effect achieved.

PATIENTS AND METHODS

Following clinical assessment (including a thorough medical/surgical history and psychological assessment, we obtain informed consent for the surgical procedure), which is performed under local anaesthesia (0.25% bupivacaine with 1 in 200,000 adrenaline) for appropriately small-sized defects. With the patient in the supine position, aqueous chlorhexidine solution is used for antisepsis, the limb is draped in a standard manner, and the operation proceeds as below:

a) A very thin split-skin graft (STSG) (6–8/1,000’s inch) is harvested using an air-driven or electrical dermatome. The skin graft needs to be superficial enough to prevent any breach of the reticular dermis. The graft is transferred dermis side up onto a board and covered with a moist swab.

b) The second step of this procedure is variable depending on the nature of the dermal scarring. If wide scars (defined as > 2 mm wide) are present, these are excised down to fat and the wound edges are opposed using a 4.0 polydioxanone running subcuticular suture (case 1). On the contrary, if the dermal scars are of fine nature, this step is omitted (case 2).

c) The split-skin graft is then reapplied onto the same site and subsequently secured with either sutures (6.0 or 7.0 Nylon) or histoacryl glue.

d) A nonadherent silicone film is then applied as a primary dressing to prevent shearing of the graft and secondary dressings are used in a standard fashion. The graft is first inspected 7 days postoperatively and standard graft donor and recipient care is undertaken.

RESULTS

The postoperative course for both cases in the series was free of any adverse effects/complications including graft loss and dyspigmentation. Both patients were satisfied with the degree of scar resurfacing achieved with the isotopic split-skin graft technique at 18- and 24-month follow-up (cases 1 and 2, respectively). Figure 1 provides clarification of the salient operative steps in the procedure for case 1 and photographic evidence of the long-term result achieved.

DISCUSSION

Deliberate self-harm scars represent a challenging problem in scar management practice. The complexity of the clinical presentation relates to the interplay between the physical characteristics of the scars, the underlying psychiatric diagnosis and the life-long social stigma of deliberate self-harm behavior. The primary concerns accompanying these scars, when patients achieve a stable

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psychological state, revolve around the stigmatizing appearance of the most frequently encountered multiple linear pattern in the lesions.

Additionally, a number of patients request scar resurfacing/revision in an attempt to avoid facing a constant visual reminder of self-harm activity in the past.

In a recent editorial article, it was pointed out that a lot of management approaches rely on altering the scar appearance in a way that it appears more iatrogenic and hence removes the self-harm stigmatizing pattern.²

Treatment modalities, which can achieve an iatrogenic appearance include:

- Shave excision and resurfacing with an autologous STSG harvested from a site away from the defect. The limitations of this approach include the need to harvest a thick split-skin graft to remove linear scars extending deep into the dermis; this subsequently exposes the patient to a higher risk of unfavorable (hypertrophic) scarring in the donor area.
- Use of Integra dermal regeneration templates. Dermal templates allow the complete excision of linear scars and full-thickness dermal regeneration at the expense of relatively demanding surgical aftercare and the need for a second stage procedure (application of the skin graft) making optimal patient selection paramount. The only literature series of 2 cases of DSH scars resurfaced with Integra reported improved self-confidence in the patient cohort.³ ⁴

Over the last decades, a number of new promising techniques for scar resurfacing have made their way into clinical practice including:

- Percutaneous Collagen Induction (PCI) (needling). The mechanism of action of PCI relies on creating columns of dermal injury surrounded by of surrounding healthy tissue following puncture with a needling device. Studies have shown that PCI leads to the upregulation of TGFb3 and downregulation of TGFb1 and hence a predominantly antifibrogenic scar remodeling effect.⁵ PCI as a method of managing DSH scars has been reported in the medical literature with encouraging results.⁶
- Fractional laser technology. Its application produces a matrix of microthermal tissue destruction zones, with the intervening, undamaged skin serving as a reservoir of for rapid reepithelisation and scar remodeling.⁷ There are no published literature reports on the efficacy of fractional lasers for this type of scarring at present and comparative studies with other more established modalities are eagerly awaited.

**CONCLUSIONS**

We report a novel technique, which employs the harvest of a very thin STSG from the index DSH scar site and its reapplication following the excision and closure of any elements of wide dermal scarring. We believe this is a promising technique, which minimizes skin graft morbidity by replacing the graft elements onto the donor area in a similar manner as described by Simizu et al.⁸ in 2012 and Bian et al.⁹ in 2016. Additional advantages of the reported method relate to its minimally invasive nature in terms of excisional damage to dermal elements and the suitability for execution under local anaesthesia. Limitations of our report include apart from the small number of patients included is the risk of hyperpigmentation with any technique involving a split-skin graft; this is particularly more relevant to patients with high Fitzpatrick skin type. Additionally, it is important to emphasize that this type of resurfacing does not obliterate scarring but provides a
resurfacing/camouflaging effect for patients wishing to minimize the self-harm pattern of the original scars. The authors are collecting extensive patient and physician-reported outcomes of this technique in a larger patient cohort at present.

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