

# Railroading Technique of Dermal Grafting for Linear Atrophic Scarring

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## ABSTRACT

Dermal grafting is a valuable technique in the field of dermatosurgery for the treatment of atrophic scars where the source of filler material is the patient's own dermis. However, it is underused for the reasons being difficulties in placing the graft in the tunnel, keratin cysts and complications due to biofilms. Railroading technique used in urology for rupture urethra has been described for dermal grafts to overcome the technical difficulties of graft placement.

**KEYWORDS:** Atrophic scars, dermal graft, railroading

## INTRODUCTION

Dermal grafting is the implantation of appropriately dissected deep dermis into corresponding recipient areas like atrophic scars or other soft tissue defects.<sup>[1]</sup> Dermal grafts, autologous fat and injectable fillers have been used to correct deeper contour defects.<sup>[2,3]</sup> The advantages of dermal graft over other techniques are no allergic reactions as it is autologous, readily available, easily contoured to fit the defect and is firm. However, the technique does not improve skin color or texture.

## TECHNIQUE

Patient is ideally taken up after subcision<sup>[4]</sup> done 2 weeks before the dermal grafting. This facilitates in sliding the graft easily into the tunnel created. This technique is ideally suited for linear atrophic scars.

### Step 1: Harvesting dermal graft

Retroauricular area [Figure 1] is the ideal donor site for dermal graft since it relatively lacks appendages. The area is motor or manual dermabraded after local anesthesia till bleeding and whitish tissue is visible. Removal of epidermis decreases the risk of keratin cyst in recipient area. The donor graft should be 3-5 mm more than the recipient area dimensions. Superficial fat also can be excised along with

the dermal graft if there is more recipient area atrophy. The wound is closed with 4-0 polyglactin 910 using running horizontal mattress suture [Figure 2].

### Step 2: Preparation of dermal graft

The excised graft [Figure 3] is trimmed to the required dimensions and one end is tied with 3-0 polyglactin 910. For easy graft handling, the dermal graft is trypsinised for 45 min and washed with phosphate buffered saline. Trypsinisation softens the dermal graft and helps it to slide easily into the tunnel.<sup>[5]</sup>

### Step 3: Forming a tunnel

A 16-G needle with syringe attached for grip is inserted through one edge of the scar (recipient area). The sharp bevel of the needle exits from the other end of the scar. The needle is kept in the same position and moved side to side within the confines of the scar creating only one tunnel [Figure 4].



Figure 1: Donor site: Retroauricular area

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**Step 4: Threading suture into needle**

The free end of the suture material tied to one end of the dermal graft is threaded into the bevel of the needle till the suture's free end exits through the hub of the needle.



Figure 2: Continuous horizontal mattress suture at the donor area

Sutured end of the dermal graft is at the level of bevel of the needle [Figure 5].

**Step 5: Railroading dermal graft into tunnel**

The dermal graft is now railroaded through the tunnel till the other edge of the linear scar [Figure 6] [Video online].



Figure 3: Excised dermal graft



Figure 4: Forming a tunnel with a 16-G needle



Figure 5: Threading the suture into the needle



Figure 6: Railroading dermal graft into the tunnel

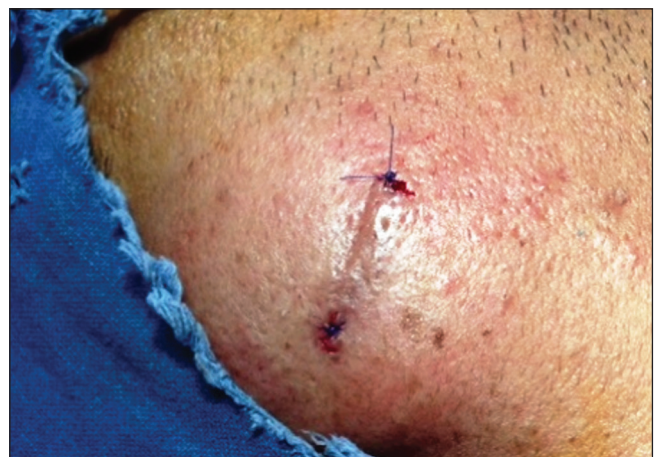
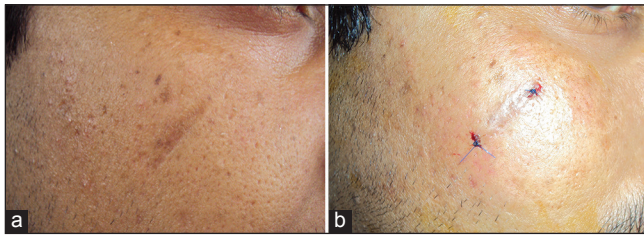


Figure 7: Securing the edges with non-absorbable suture



**Figure 8: Appearance of linear atrophic scar before (a) and after (b) treatment**

Suture at one edge of the scar is cut and the graft is left in place. As only one tunnel is created, the possibility of graft losing track is less and pre-trypsinisation facilitates easy sliding of the graft in the tunnel. The edges of the scar can be secured with tapes or sutured with 5-0 polypropylene. [Figure 7]. The lift of the atrophic scar along with decrease in shadow effect can be visualized immediately [Figure 8]. The sutures are removed after 5 days.

### CONCLUSION

Swineheart<sup>[1]</sup> described a similar technique without railroading which in our experience required more

traction pressure and there was always a risk of graft curling and misplacement. The use of snare will produce large entry and exit points in the recipient area. Hence, technical difficulties with handling dermal graft in linear scars are overcome with this railroading technique.

### REFERENCES

1. Swinehart JM. Dermal grafting. In: Klein AW, editor. *Tissue Augmentation in Clinical Practice*. 2<sup>nd</sup> ed. New York: Taylorand Francis Group; 2006. p. 21-54.
2. Hirsch RJ, Cohen JL. Soft tissue augmentation. *Cutis* 2006;78:165-72.
3. Goodman GJ. Postacne scarring: A review of its pathophysiology and treatment. *Dermatol Surg* 2000;26:857-71.
4. Orentreich DS, Orentreich N. Subcutaneous incisionless (subcision) surgery for the correction of depressed scars and wrinkles. *Dermatol Surg* 1995;21:543-9.
5. Salim T, Ghiya R. Surgical management of acne scars. In: Venkatram M, editor. *ACS(I) Textbook on Cutaneous and Aesthetic Surgery*. New Delhi: Jaypee Brothers Medical Publishers; 2012. p. 392-406.

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