



RECONSTRUCTION OF POST BURN SIDEBURN ALOPECIA BY A SCALP BANNER TRANSPOSITION FLAP – A CASE REPORT

Plastic Surgery

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ABSTRACT

Reconstruction of sideburn alopecia after burn injuries is one of the challenging tasks in reconstructive surgery due to the paucity of hair-bearing skin and donor-site problems. We report a case of a successful reconstruction of the sideburn alopecia with a scalp banner transposition flap.

KEYWORDS

Alopecia, Reconstruction, Sideburn, Scalp flap

INTRODUCTION

Hair bearing regions of the face have been the hallmarks of Manhood through the ages and the defects of these regions are psychologically traumatizing and sometimes demeaning for the male patients in several cultures. The reconstruction of these areas is very difficult due to scarcity of donor areas and the available donors such as scalp have anatomically different hair morphology and the hair follicles' proximity is quite different from the face, on the other hand the facial skin thickness and texture is another matter of concern making a "look alike" reconstruction almost impossible.[1]

Case Report

A 33 year old male patient presented to us with a post burn scar over the left preauricular region with loss of sideburn since childhood. He gave an alleged history of accidental scalds to the left side of the face when he was 2 years of age. Now he has come for cosmetic correction of the left sideburns. There is no history of any comorbid illnesses. On examination, there is a well settled supple but thin scar over the left preauricular region with alopecia with a partial loss of the upper 3rd of the helix. (Fig. 1) Hair transplantation was ruled out because of the extensive burns and a very thin dermal layer. We thus planned for a scalp banner transposition flap.



Fig. 1 – Pre-op clinical photograph

Under general anaesthesia, the area of excision and the flap marking was done. (Fig. 2) The scarred left preauricular region was excised and a healthy bed was created. The scalp banner transposition flap was elevated from the temporal region and inset into defect with 3-0 nylon sutures over a 16Fr suction drain. The secondary defect was undermined and closed primarily with 2-0 nylon sutures. Head bandage dressing was applied. (Fig. 3)



Fig. 2 – Intra-op markings done



Fig. 3 – After flap inset in the immediate post-op period

Patient was comfortable in the post operative period and the drain was removed after 48 hours. The flap was soft, supple and warm with minimal edema which settled over the following 2 days. The patient was discharged and on review on the 10th post operative day, all the sutures were removed. (Fig. 4a, b, c)

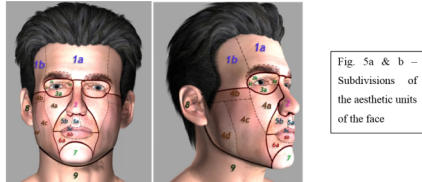


Fig. 4a, b & c – Clinical photographs after 1 month following surgery

DISCUSSION

In humans, usually only pubescent or adult males are able to grow beards. [2,3] Sideburns, particularly in men, are important in framing the face. Human hair has been categorized into three ethnic groups according to distinguishable characteristics: Asian, Caucasian, and African hair. These ethnic groupings show distinct characteristics in hair density, diameter, shape, mechanical properties and composition. [4] The hair follicle itself determines the appearance of the hair. The typical hair follicle of Asian hair is round whereas those of Caucasians and Africans are ovoid and elliptical, respectively. [5] The shape of the hair follicle is thus believed to contribute to the appearance and the geometry of the hair. Asian hair has a circular geometry, African hair has an elliptical shape, and hair of Caucasians is of an intermediate shape. The chemical and protein composition of hair does not vary across ethnic groups, and there is no difference in the keratin types.

However, African hair generally has less tensile strength and breaks more easily. The face consists of 6 major aesthetic units comprised of: forehead, eye/eyebrow, nose, lips, chin, and cheek. These aesthetic units can be subdivided into additional anatomical subunits. For example, the nose can be divided into nasal tip, dorsum, columella, soft-tissue triangles, sidewalls, and nasal alar regions. Correct orientation of planned incisions next to these mobile functional and aesthetic facial structures is important to avoid distortion when closing wounds. Here, we focus on the hair bearing units of the male face which are designated as the mustache and beard namely units 4c, d, 5a, b, 7 and some part of unit 9 in the neck. (Fig. 5a & b)



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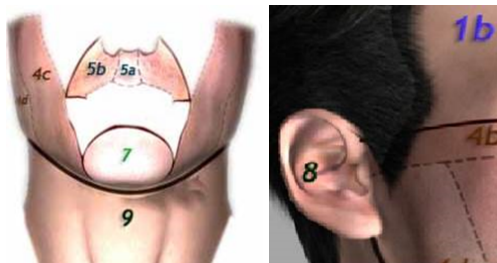


Fig. 6 – The male bearded region of the face

Fig. 7 – The sideburn region of the face

The male bearded region can be subdivided into a preauricular zone, which includes the sideburn and the buccomandibular zone (Fig. 6 & 7). The sideburn is an important anatomical structure determining the boundary between the head and the face and providing an aesthetic reference for balanced facial symmetry. The normal sideburn dimensions have been well described by Giraldo. [6] The sideburn shape is largely rectangular or trapezoidal. According to Juri, the most frequent causes for absence of the sideburn are trauma, burns, surgery, and infection. [7] Small defects within or involving the sideburn can be reconstructed with a single V-Y flap, opposing V-Y flaps, extended V-Y flaps, or double extended V-Y flaps. V-Y flaps are designed within hair-bearing regions and non-hair-bearing regions according to the characteristics of the tissue to be replaced. Additional options for sideburn reconstruction include a scalp transposition flap. Larger defects including the sideburn and adjacent cheek or beard region can be reconstructed with a combination of any of these three primary options: the scalp transposition flap, the cervicofacial advancement flap, or the pedicled submental flap.

Sideburns may be reconstructed by a flap based on the posterior branch of the superficial temporal artery, but this flap needs to be rotated through almost 180 degrees at its base. Sometimes the pathology causing loss of the sideburn or its treatment also has caused loss of the posterior branch of the superficial temporal artery.

Two cosmetic units can be reconstructed by a superiorly based transposition flap of postauricular scalp. The position of the normal hairline and sideburn is delineated and the scar tissue is excised. A bipolar flap is raised. The anterior flap completes the frontal hairline. The large posterior flap provides hair-bearing skin to create the lateral temporal hairline and sideburn. (Fig. 8)

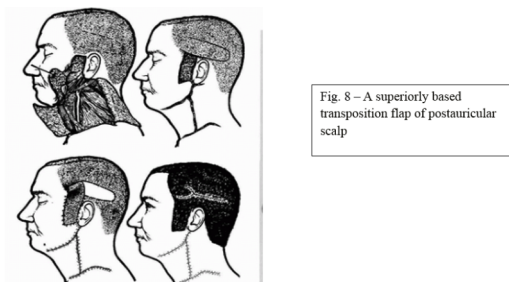


Fig. 8 – A superiorly based transposition flap of postauricular scalp

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In females the face has almost no hair so the reconstruction can begin at a younger age and more donor sites are available than the male patients. In the female neck skin can be expanded and be used to cover the chin and even cheek defects. In the male child or adolescent, a facial skin defect reconstruction is completely different from females because transferring a hair bearing flap in a child is unsightly and the definite reconstruction of the facial hair bearing areas must be postponed until the patient has grown hair.

CONCLUSION

Facial hair bearing area reconstruction is one of the most demanding reconstructive procedures and the options available are not an exact match. The facial region recognition and available donors are the prerequisites for the reconstructive surgeon treating these difficult conditions.

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