

One-Stage Repair of a Large Post-Traumatic Eyebrow Defect

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Case Report

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Abstract: Eyebrow reconstruction is very challenging especially in cases of large defects exceeding half of the eyebrow length. In such cases, hair grafting is the first choice in women, whereas hair-bearing flaps are used in male patients desiring a wider and fuller eyebrow. We report a case of a female in whom a superficial temporal artery island flap allowed one-stage eyebrow repair with a very good aesthetic outcome.

Keywords: Eyebrow, Traumatic sequelae, reconstruction, surgery, superficial temporal artery, flaps.

INTRODUCTION

Eyebrows defects can be psychologically and socially impairing since eyebrows have an important role in facial expression and social interaction. Their reconstruction is challenging especially when patients express high expectations in terms of cosmetic outcomes. The authors present a case of unilateral reconstruction of the eyebrow and discuss briefly the best options that can be offered to a patient suffering from eyebrows defects.

CASE PRESENTATION

A 32 year-old female with a post-traumatic defect of the external half of her right eyebrow (Fig. 1) presented to our department seeking an acceptable cosmetic solution.

Her history dates back to her childhood when she suffered a dog attack that left her with a defect in her right upper eyelid, eyebrow, forehead and cheek. Following initial repair, an early upper eyelid ectropion occurred and was treated using a full thickness skin graft.

RESULTS

Solution was provided using a right hair-bearing Superficial Temporal Artery (STA) island flap (Fig.2) which allowed for a one-stage repair of the defect of the external half of the eyebrow (Figs. 3 & 4).



Fig-1: Post-traumatic defect of the external half of the right eyebrow



Fig-2: Hair-bearing temporal skin island flap, centered on the parietal branch of the superficial temporal artery



Fig-3: Good cosmetic result 9 months after surgery

DISCUSSIONS

The wide variability in shapes, sizes, and hair density of the eyebrow makes it sometimes challenging to reconstruct. The surgeon has to consider the ideal of beauty of the patient's gender and age and his/her own facial anatomical features.

Only two sites provide tissues that can faithfully reproduce the eyebrow: the remaining eyebrow and the scalp. The donor site choice is made depending on the size and the exact location of the defect within the eyebrow: For small defects (up to 2/5 of the eyebrow) direct sutures or local flaps can provide an adequate solution. For larger defects, the scalp usually stands as the donor site. The solution can include grafting (hair bearing skin and/or hair transplant) or flaps.

Etiology of the defect is another important selection criterion, especially in large defects. In burn and radiation therapy sequelae, some authors [1] strictly recommend the use of flaps rather than grafts. The poor blood supply in the receiving site could jeopardize grafts survival. In such situations, the STA flap is a reliable solution that offers a wide range of possibilities: It can be harvested as a unique hair-bearing temporal skin island, ideally centered on the parietal branch of the STA. It is of significance to point out that the venous drainage of the temporal region varies largely [2, 3]. However, supra-auricular anastomoses between the preauricular and the retroauricular venous systems are constant. The dissection should firstly be carried out superficially to the Temporoparietal Fascia (TPF) to

check the veins disposition. If the Superficial Temporal Vein (STV) is tiny, the aforementioned anastomoses must be preserved which will limit the rotation arc of the flap. Thus, the tracing of the skin paddle will have to be in an adapted site.

It can also be harvested as an extended STA flap with two hair-bearing skin islands to repair both eyebrows [4]. A concomitant reconstruction of the eyebrow and the ipsilateral eyelid can also be performed using a double-skin-island flap. The posterior hair-bearing skin paddle is pedicled on the parietal branch of the STA whereas the anterior (hairless) skin paddle is centered on its frontal branch [5].

CONCLUSION

Superficial temporal artery flaps occupy a prime place in the reconstruction of large defects of the eyebrows. Reliability and versatility are their main assets.

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