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CASE REPORT

Eyebrow composite graft for eyelash reconstruction: A case report and review of the literature

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KEYWORDS

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Summary Reconstructing the eyelash margin is a challenge for plastic surgeons because eyelashes have specific characteristics. There is still no gold standard procedure for this type of reconstruction, which seeks to protect the eyeball and make the eyelid appear natural. The eyebrow composite graft can be a good option for reconstructing the eyelash margin because it is technically simple and safe, and takes advantage of the structural similarity between the eyelashes and eyebrow. The results presented showed the effectiveness of the technique by providing improved occlusion and a good aesthetic result.

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Reconstructing the eyelash margin is a challenge for plastic surgeons because eyelashes have specific characteristics (e.g., length, pigmentation, direction and shape of this structure).¹ The most common cause of eyelid lesions is trauma; however, tumour resection, radiotherapy, chemotherapy, infection, medication side effects, congenital malformations, as well as endocrine and psychiatric

disorders should also be considered in the aetiology.^{2,3} The literature describes several surgical techniques to correct deformities of the eyelash margin. However, there is still no gold standard procedure for this type of reconstruction, which seeks to protect the eyeball and make the eyelid appear natural. The purpose of this study was to report a case of reconstruction of the eyelash margin of the right upper eyelid with an eyebrow composite graft, as well as demonstrate the effectiveness of the proposed treatment on the functional aspects and aesthetic values of the orbital and eyelid regions.

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Figure 1 Preoperative anterior view, with eyes open (left) and with eyes closed (right).

Case report

A 33-year-old woman with no significant past medical history lost 70% of the eyelash margin of the right upper eyelid due to local trauma 2 months before surgery (Figure 1). She underwent reconstructive surgery using a composite graft of the eyebrow. Neither a microscope nor a magnifying glass was required in the procedure. The surgery was performed under local anaesthesia and sedation, with infiltration of an adrenaline solution of 1:200 000. Lidocaine at 1% was used at the donor and recipient sites. The donor site used was the ipsilateral eyebrow; a horizontal strip of 20×3 mm was removed from its central portion to avoid visible scars (Figure 2). The incisions for graft removal were performed in an oblique fashion to preserve the hair follicles. A 'spot' was created in the receiving area on the edge of the upper eyelid through an incision over the defect. A 15 blade was used so that the graft was properly accommodated, and, therefore, would stay well irrigated by the vascular plexus. The graft was positioned so that it would stay everted and the hairs would be similar to the remaining eyelashes. Achieving this look would provide a more natural appearance to the eyelid. The graft was fixed in the receiving area with nylon 6/0. The donor site was closed with intradermal sutures with nylon 5/0. No dressing was used postoperatively. Figure 3 shows the postoperative view 5 months after surgery.

Discussion

Eyelashes are important for both function and aesthetics. These structures are intended to protect the eye from external agents. They also provide sensuality to a person's appearance; therefore, the absence of eyelashes can cause professional and personal hardships.^{2,3} It is essential to address the injuries of the eyelash margin to restore the aesthetic and functional units, thus promoting the social reintegration of affected subjects.

In 1914, Krusius^{2,3} used grafts from the scalp with small holes for transplanting hair to the eyelid margin. In 1917, Knapp developed a technique that removed a thin graft from the eyebrow and transplanted it to the eyelash margin.² In 1980, Marrit used needles to transplant follicles.² In 1992, Choi and Kim⁴ performed regular hair transplantation, while Caputy and Flowers⁵ applied methods of hair insertion in parallel directions. These techniques have provided satisfactory results; however, the downside is that hair follicles continue to grow, which drives the need to adjust hair length frequently.¹ Moreover, the process treats only the absence of lashes, not the loss of tissue that contributes to lagophthalmos.

Hernandez-Zendejas and Guerrerrosantos, in 1980, described the composite graft of the ipsilateral sideburn as a simple technique. However, it was necessary to repair the hair frequently.⁶ Moreover, it is important that hairs are smooth, which limits the use of this method in our



Figure 2 Eyebrow graft harvesting (left) and graft in position with donor site closed (right).



Figure 3 Postoperative anterior view, with eyes open (left) and with eyes closed (right).

population. In 1992, Hata and Matsuka proposed the use of skin grafts with nasal vibrissae, eliminating the need to cut the hair follicles regularly. However, disparities exist in the number and length of the remaining lashes.⁷

In 2004, Guerrisi described an upper eyelid and eyebrow island flap for reconstruction of the eyelash margin. The procedure created good results, despite leaving scars in the donor area.⁸ According to Kasai (2008), eyelash margin reconstruction with composite graft from the eyebrow has advantages compared with other techniques due to very similar anatomical characteristics.¹ The direction and length of hair can be preserved if the graft is taken from the proper place. Potential for sequelae in the donor area exists, but the scar on the eyebrow can be camouflaged. Furthermore, integration of the graft is favoured because of its good blood supply to the eyelid.¹

The eyebrow composite graft can be a good option for reconstructing the eyelash margin because it is technically simple and safe, and takes advantage of the structural similarity between the eyelashes and eyebrow. The results presented showed the effectiveness of the technique by providing improved occlusion and a good aesthetic result.

Conflict of interest

There are no conflicts of interest relevant to this article.

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