

## Case report

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Received on: 08/05/2019

Approved on: 11/08/2020

Study conducted at the Pedro Ernesto University Hospital, Universidade do Estado do Rio de Janeiro, Rio de Janeiro (RJ), Brazil.

Financial support: None.

Conflict of interest: None.



# Tunneled island flap for reconstruction of eyebrow defect

*Retalho em ilha tunelizado na reconstrução de defeito na sobrancelha*

DOI: <https://www.dx.doi.org/10.5935/scd1984-8773.20201241398>

## ABSTRACT

Facial surgeries are often challenging for surgeons due to their complex anatomy, aesthetic and functional importance. Interventions in the cosmetic subunit that comprises the eyebrows can be particularly difficult. This case report aims to demonstrate the use of island flap in this region. We performed the excision of melanocytic nevus, with a good outcome and absence of postoperative complications. This technique is commonly used for facial reconstruction; however, the literature describes only a few cases using this method for eyebrow reconstruction.

Keywords: Eyebrows; Reconstruction; Surgical Flaps

## RESUMO

*Cirurgias na face conFigurem-se, muitas vezes, em desafios para o cirurgião em virtude da complexa anatomia, importância estética e funcional. Intervenções na subunidade cosmética que compreende as sobrancelhas podem ser particularmente difíceis. O objetivo deste trabalho é demonstrar o uso do retalho em ilha nesta região. Foi realizada exérese de nevo melanocítico, com bom resultado final e ausência de complicações pós-operatórias. Esta técnica é comumente utilizada para reconstrução facial, porém existem poucos casos descritos em que foi utilizada para reconstrução de sobrancelhas.*

**Palavras-chave:** Reconstrução; Retalhos Cirúrgicos; Sobrancelhas

## INTRODUCTION

The reconstruction of facial defects is a challenge, considering its cosmetic importance and the scarcity of adjacent skin in some face areas. Skin flaps represent a modality frequently used in reconstructive surgery of the face. Island flap is one of the reconstruction options that can produce good results in this region due to this type of flap's characteristics.<sup>1</sup>

There are few reports in the literature on eyebrow reconstruction using the tunneled island flap. This study presents a description of the performance of this technique.

## METHODS

A female patient presented with a congenital melanocytic nevus, occupying two thirds in the lateral of the right eyebrow (Figure 1). We marked the site to be incised on the scalp based on the region's anatomy and palpation of the temporal artery. In the area of the frontal branch of the temporal artery, we drew the flap with the shape of the future eyebrow, with correct measurement for a perfect fit (Figure 2). A subcutaneous tunnel was then made through which the island flap passed and was positioned in the eyebrow region (Figures 3, 4, and 5). The flap was sutured with simple stitches of 6.0 mono nylon thread. The scalp incision was sutured with 4.0 mono nylon thread (Figure 6).

## RESULTS

The tunneled island flap's final result evidenced the absence of scarring between the scalp and the eyebrow. There were no postoperative complications or distortion of the anatomy, with only the need to periodically trim the hairs (Figures 7 and 8).



FIGURE 1: Congenital melanocytic nevus on the eyebrow



FIGURE 2: MARKING THE ISLAND FLAP



FIGURE 3: Surgical defect after excision of the tumor



FIGURE 4: Subcutaneous tunnel through which the flap passes



FIGURE 5: Flap positioned in the eyebrow area

## DISCUSSION

The eyebrows, essential subunits of the upper third of the face, play an aesthetic role in facial expression and eye protection and require care in reconstructions to achieve a natural result.<sup>2</sup> Total or partial loss of eyebrows has negative physical and psychological consequences.<sup>3</sup> It can result from heat or radiation burns, avulsion injuries, alopecia areata, leprosy, or surgical excision of neoplasms.<sup>4</sup>



**FIGURE 6:** Suture with simple stitches

Reconstruction after eyebrow deformity can be challenging, as donor sites must have hair follicles, texture, and sebaceous quality similar to that of the recipient area.<sup>5</sup> The technique must be individualized, so in the case of thinner eyebrows, it can be performed using a composite graft. For thicker eyebrows, the island flap in the superficial temporal artery territory would have greater applicability,<sup>6</sup> representing a good option when the defect is in the lateral region of the eyebrows.<sup>7</sup> Therefore, planning of the flap area with the exact dimensions of the defect to be filled is required to avoid anatomical distortions.

Different reconstruction techniques have been described worldwide, such as cosmetic tattoos, hair grafts, temporoparietal fascia flaps, scalp flaps, and tunneled island flaps.<sup>8</sup> The tunneled island flap is a technique that incises a skin island and creates a subcutaneous tunnel between the flap and the defect. The flap is mobilized and transferred through this tunnel, superior to the defect. It is useful when you want to avoid any skin incisions between the donor site and the defect, thus creating a subcutaneous tunnel in the forehead to allow the transfer of a skin island from the scalp to the eyebrow.<sup>9</sup>

The island flap has two fundamental characteristics: the donor skin is an island, highlighted on all sides of the surrounding epidermis and dermis; and a subcutaneous pedicle is maintained, ensuring vascularity and allowing some mobility to a nearby receptor area.<sup>10</sup>

These flaps are extremely perfused, mobile, and the tunnel created provides the most direct path to the primary defect. Also, they require only a single surgical time, thus eliminating the morbidity of subsequent procedures. However, in addition to the risks common to all surgical procedures, such as hemorrhage, infection, and necrosis, these flaps are technically challenging, and the dissection of the pedicle is slow, as it has to be performed carefully.<sup>1</sup>

## CONCLUSION

The tunneled island flap is a technique commonly used for facial reconstruction. However, only a few cases used this technique for eyebrow reconstruction. In our case, we obtained an aesthetically satisfactory result, achieving an appearance sim-



**Figure 7:**  
Final result



**FIGURE 8:** Final result (side view). There is no scar between the scalp and the eyebrow

ilar to that of the contralateral eyebrow, absence of scar between the scalp and the eyebrow, and preservation of the motor and sensitive innervation of the forehead. Dermatological surgeons and others professionals qualified in surgical procedures in this area can reproduce this technique with the same results. ●



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