

Tunneling island pedicled flap after resection of carcinoma on the face

Retalho em ilha tunelizado após exérese de carcinoma na face

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ABSTRACT

Carcinomas on the face are prevalent lesions, with potentially serious repercussions from aesthetic, psychological, and functional perspectives. Surgical reconstruction after excision of these lesions is a challenge for the dermatologic surgeon, requiring good knowledge of the anatomy of the face and accurate implementation of the most appropriate method for each case. Among the various reconstructive procedures are skin flaps, of which the island pedicle flap and its variants stand out. The present article demonstrates the use of the island pedicle flap transferred to the surgical defect through a subcutaneous tunnel, showing the application and characteristics of this method. Reconstruction using a tunneling island pedicle flap after the excision of a facial carcinoma showed good aesthetic and functional results, despite the difficult location of the lesions. This type of flap is a good option for facial reconstruction in difficult areas.

Keywords: carcinoma, basal cell; surgery, plastic; surgical flaps

RESUMO

Os carcinomas da face são lesões prevalentes, com repercussões potencialmente graves do ponto de vista estético, psicológico e funcional. A reconstrução cirúrgica na face demanda apurada execução da técnica adequada a cada situação. Dentre as diversas modalidades reconstrutivas, incluem-se os retalhos cutâneos, destacando-se o retalho em ilha e suas variantes. Este artigo demonstra o emprego do retalho em ilha transferido ao defeito cirúrgico através de túnel criado no subcutâneo. A reconstrução com retalho em ilha tunelizado apresentou bons resultados estéticos e funcionais apesar de as lesões estarem em locais de difícil correção. Esse tipo de retalho constitui boa opção para esse tipo de lesões.

Palavras-chave: carcinoma basocelular; procedimentos cirúrgicos ambulatoriais; retalho perfurante

INTRODUCTION

The island flap has two basic characteristics: 1) the shape of the donor skin resembles an island that is detached from the surrounding epidermis and dermis on all sides; 2) a subcutaneous pedicle is maintained, thereby ensuring vascularization and allowing some mobility to the nearby receptor area. Variations of this type of flap depend on the shape of the island and the way it is transferred to the receptor area. Among these variations are: the traditional triangular island with V-Y advance, which can be single or double (bipedicled); the variant where the shape of the island and its size are similar to those of the defect and the transference is performed by transposition (the skin between the donor and receptor areas is excised) or interpolation (where a pedicle is left between the donor and the receptor area, with its subsequent removal during a second subsequent surgery); and the variant where the island, whose size and shape correspond

Case Reports

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to those of the surgical defect, is transferred through a tunnel created in the upper portion of the subcutaneous tissue.¹ The latter variant can be considered a type of interpolation, as the skin between the primary and secondary defects is not excised.

The present article describes two cases of basal cell carcinoma (BCC) in facial areas, each with difficult reconstruction, where the tunneled island flap technique was used, with an aim of demonstrating the application, characteristics, and possible complications of this method.

CASE 1

A 57-year-old woman presented with a round shaped basal cell carcinoma (BCC) with elevated and pearly borders in the medial corner of the upper left eyelid (Figure 1A). The patient underwent excision that resulted in a surgical defect 10 mm in diameter. An advancement flap would not be a good option in this case, as it would distort the anatomy of the region. A decision was made in favor of using a non-contiguous donor area (in the glabellar region).² For the preparation of the flap, a similar shape and size to those of the defect were implemented, however fusiform, aiming at facilitating the closure (Figure 1B). The dissection of the donor area was carried out, preserving a subcutaneous pedicle intended to nourish the flap. In the existing healthy skin between the primary and secondary surgical defects, a tunnel was created in the subcutaneous level using the blunt dissection technique (Figure 2A). Next, the island skin flap – together with the pedicle – was driven through the tunnel using a hook (which may be improvised with a small syringe and a 25x7 needle carefully bent at the tip, as in the present case) (Figure 2B).

Once positioned in the defect, the flap was sutured with 5.0 nylon thread and interrupted sutures. The post-operative period coursed with significant local edema, which is common in these cases and can be minimized with the application of cold compresses for 20 minutes, several times a day. There was

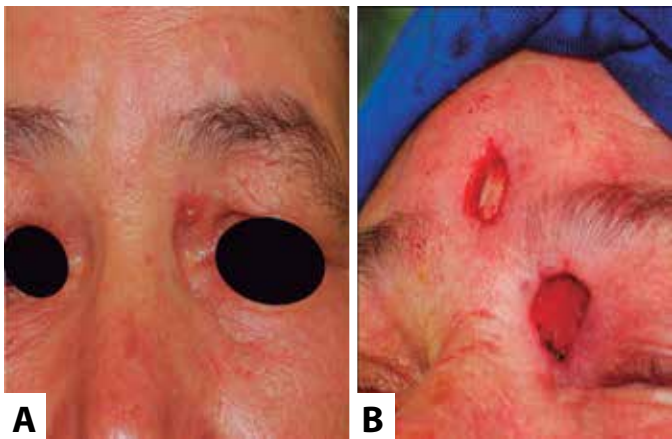


FIGURE 1: A. Rounded Basal Cell Carcinoma, with defined, elevated and pearly borders, 6.0 mm in diameter. B. A surgical defect 10.0 mm in diameter after excision of the lesion with margins, in a region difficult for reconstruction; preparation of the island flap with a size similar to that of the defect, with a fusiform design and extracted from the glabella region, in order to facilitate the closure. A subcutaneous pedicle is left, aimed at nourishing the flap



FIGURE 2: A. Subcutaneous tunnel; B. Transfer of the flap and its pedicle via the subcutaneous tunnel; C. Post-operative edema and hematoma

no infection or necrosis (Figure 2C). The result was satisfactory, with no trapdoor effect,³ nevertheless there was a slight bulging of the skin between the donor and the receiving areas (Figure 3). The post-operative histologic control of the surgical specimen revealed free margins.

CASE 2

An 86-year-old female patient presented with a centrally ulcerated, pigmented BCC on the upper lip, advancing towards the right nostril, and measuring about 9 mm at its widest diameter. After excision with a 4.0 mm margin, a difficult to correct defect regarding the functional aspect was observed (Figure 4). A decision was made for a tunneled interpolation flap, in which the island's fusiform design in the nasolabial fold allowed for the suture of the secondary defect to be positioned in the fold, providing a good aesthetic appearance to the scar (Figure 5). In order to rebuild the base of the columella, a small island with traditional transposition was performed and

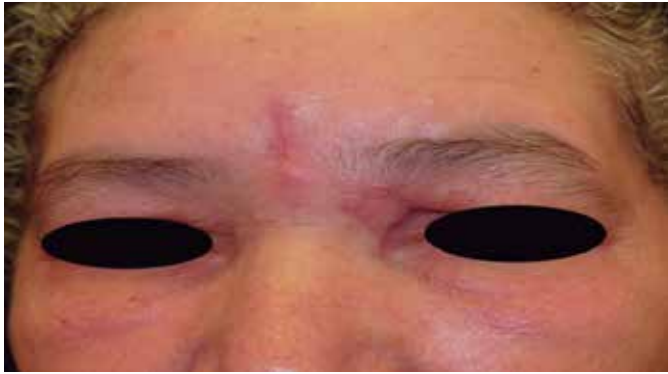


FIGURE 3: Good aesthetic and functional result of the reconstruction

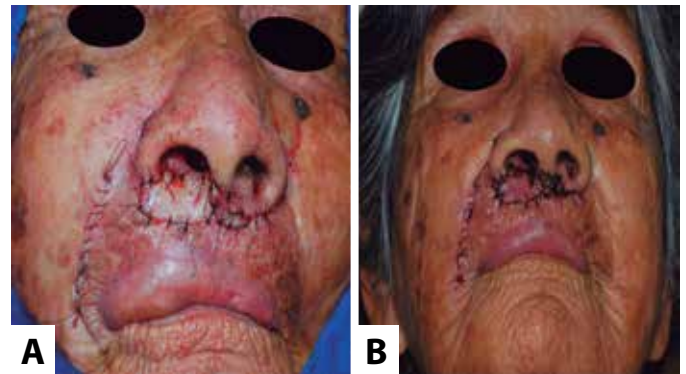


FIGURE 6: Post-operative.

A. Immediately post-operative: flaps positioned without tension and sutured with interrupted stitches in the reconstruction of the upper lip, base of the nostril and columella; secondary defect closed with a continuous suture. **B.** D8 post-operative: absence of infection or necrosis

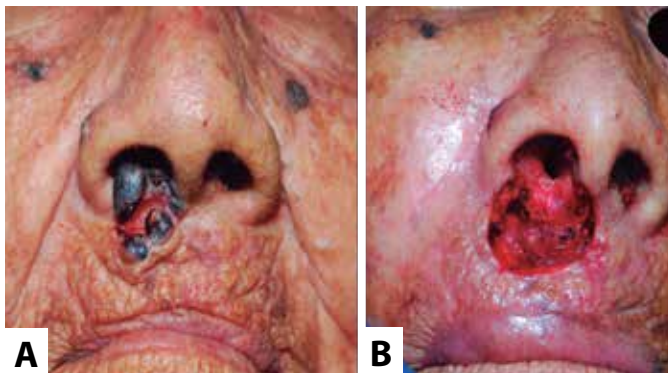


Figure 4: A and B – Surgical removal of a pigmented and ulcerated BCC in the upper lip



FIGURE 7: Final result. D29 post-operative: the trapdoor effect can be observed in the traditional island (base of the columella) and satisfactory functional and aesthetical outcome of the tunneled flap and secondary defect scar, positioned in the fold

FIGURE 5:

A. Preparation of the flap. The island is dissected in the shape of the nasolabial fold's fuse. Notice the traditional small island in the base of the columella, aimed at distributing the tension in the area and facilitating the positioning of the other flap in the reconstruction of the nostril.



A

B. Intraoperative. Transfer of the tunneled flap tractioned through the subcutaneous tissue with the aid of a surgical thread. Notice the secondary defect properly positioned in the nasolabial fold.



B

tractioned with its pedicle into the defect using 5.0 nylon thread (also used in the suture), in a way that distributed the tension and facilitated the positioning of the tunneled flap (Figure 5). The post-operative period coursed uneventfully (Figure 6). The final result was functionally and aesthetically satisfactory, and the traditional trapdoor defect could be observed in the island³ (in the columella's base), but not in the tunneled island (Figure 7).

DISCUSSION

BCC is the most prevalent skin cancer in humans. However, due to its low metastasizing capacity, it is usually curable with surgical exeresis in a single surgical procedure.⁴

The tunneled island is a flap with a random pattern, whose blood supply depends on the vascular plexus of the deep dermis and subcutaneous.⁵ It has the advantage of providing the surgical defect with a skin non-adjacent to the lesion but with the same characteristics of the surrounding area, thereby preserving the local anatomy.⁶ The transference via a subcutaneous tunnel prevents the need for an incision in the skin between the donor

and the receiving areas and allows the flap to be removed from a non-contiguous area ¹, observing local characteristics and yielding a good cosmetic result. ⁷

In Case 1, the tunneled interpolation of the island avoided the distortion of the eyebrow region, as the primary defect was located on the upper eyelid. However, an undesirable effect of this flap is that at the moment of subcutaneous transfer, there is the addition of material beneath the skin, resulting in the elevation in the area through which the tunnel has been created. ¹This took place in the first case described. Had the lesion been located in the nasociliary region, ² a traditional transposition of the island would have been the best option, producing however, a secondary defect in the glabellar region. ⁸

In Case 2, due to the fact that the lesion was located on the upper lip, the reconstruction was aimed at preserving the anatomy, owing to the aspects of the functional and aesthetic appearance, requiring extra attention in regards to the positioning of the vermilion and the transition line between the skin and the semimucosa, preserving the lip contour, the position of the philtrum, and the bilateral symmetry regarding the nasolabial folds. ⁹ Among the various techniques available for the reconstruction of this region, the island flap has been shown to be a good option for it causes little distortion of the anatomy and low scar retraction, and also offers ease in positioning the suture of the secondary defect in the nasolabial fold, yielding a good cosmetic result.

CONCLUSION

The island flap with subcutaneous tunnel interpolation is a very useful resource in the surgical repair of certain surgical defects following the exeresis of a carcinoma in the face, especially when it is possible to achieve a cosmetically acceptable secondary defect scar – in a natural fold of the skin or in an area where the appearance of rhytids is common – and when seeking consistency between the flap and the skin around the primary defect. ●

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