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Nasolabial Transposition Flap for Reconstruction of Oncological Defects of the Cheek: Regarding a Case

Hember Suarez*, Mariana Gallosa, Jenniffer Santistevan, Julieta Czarnitzki, Martin Claudio and Hugo Ruiz

General Surgery Service, Policlínico del Docente, Buenos Aires, Argentina

Abstract

Skin flaps from the surrounding area, respecting the aesthetic units and subunits of the face, provide a tissue rich in vascularization; it is a challenge for the surgeon, requiring a deep understanding of the anatomy, danger zones, corresponding function of each muscle and the reconstructive techniques available to achieve functionally and aesthetically satisfactory results. A 56-year-old female presents with a history of schizophrenia, epilepsy and surgical resection of a left frontal meningioma. She presents with a pigmented, ulcerated lesion of approximately 3 × 3 cm in diameter on the right cheek that had been growing for the last several months. Patients underwent removal of the skin tumor with a 0.5 mm safety margin throughout its length, resulting in a defect affecting the medial region of the right infraorbital cheek. The surgical technique consisted of reconstructing that defect with a nasolabial transposition flap. Pathology reports ulcerated metatypical basal cell carcinoma (BCC) with free margins. Due to good postoperative progress, the patient is discharged. 25 days after surgery, we can demonstrate good aesthetic results.

Keywords: Facial skin defects, Basal cell carcinoma, Skin flaps, Safety margins

Correspondence to: Hember Suarez, General Surgery Service, Policlínico del Docente, Buenos Aires, Argentina.

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Introduction

Facial defects are frequently sequelae resulting from BCC, squamous cell carcinomas, melanomas, large benign tumors, or soft tissue trauma. The aesthetic units and subunits of the face, skin texture and color, along with other parameters, must be considered during the planning of reconstruction using local flaps [1].

There are different techniques for raising local flaps, including rotation, translation, advancement, and island flaps. Thus, we can see various flaps used in different regions, the most frequent being the forehead flap, advancement flap, cheek rotation flap, rhomboid flaps, cervicofacial flaps, bilobed flaps, and nasolabial flaps [2].

The cheek is the largest facial aesthetic region and is generally divided into four subunits: medial (infraorbital), lateral (masseteric or mandibular), zygomatic, and buccal. The boundaries of this region are defined by a line extending from the lateral canthus to the root of the helix, another line crossing the preauricular sulcus, another along the inferior margin of the mandible, and one passing through the mentolabial fold, the nasofacial groove, and the junction between the eyelid and cheek [3].

The difficulty in repairing these defects lies in the need to restore facial symmetry and three-dimensionality; therefore, they have a direct psychological and aesthetic impact. The presentation of this clinical case aims to show a patient with carcinoma in the medial region of the cheek, whose cutaneous defect can have a direct psychological and aesthetic impact, posing a surgical challenge.

Clinical Case

A 56-year-old female with a medical history of schizophrenia and surgical resection of a left frontal meningioma, and sequelae of epilepsy.

He came to the outpatient clinics of head and neck surgery, presenting a pigmented, ulcerated lesion on his right cheek of several months' evolution, approximately 3 × 3 cm in diameter (Figure 1).

Figure 1: Ulcerated lesion on the right cheek.

The patient underwent excision of a cutaneous tumor, with a 0.5 mm safety margin along its entire length, resulting in a defect affecting the medial infraorbital region of the right cheek.

The surgical technique consisted of reconstructing the defect with a transposition nasolabial flap (Figure 2).

A resection with oncological margins was performed from the lower right palpebral sulcus to the right nasolabial fold. During the surgical procedure, the pathologist confirmed that the margins were not compromised.

A transposition nasolabial flap was raised to cover the excision gap and extended to the lower cheek, with a nasolabial base. Subsequently, reconstruction was performed with a lobulated flap using interrupted sutures in two layers. The patient had a good postoperative course and was discharged from the outpatient surgery unit.

The pathology report, received later, confirmed the presence of an ulcerated metatypical BCC with lesion-free margins.

At 25 days postoperatively, the objectives were met, resulting in a good aesthetic outcome with the reconstruction of the oncological defect in the cheek (Figure 3).

Figure 2: Nasolabial transposition flap on the tenth postoperative day, at the time of suture removal.

Figure 3: Aesthetic result 25 days after the procedure.

Discussion

Skin flaps from adjacent areas, respecting the aesthetic units and subunits of the face, provide vascularized tissue with a short operating time, making them ideal for elderly patients, those with high surgical risk, and offering good aesthetic results [4].

The blood supply to the cheek region is primarily provided by the transverse facial artery and the perforating branches of the facial artery, with a minor contribution from the infraorbital artery. There are hundreds of musculocutaneous perforating branches that connect directly to the terminal branches of the facial artery.

The types of BCC treatments depend on the risk of recurrence, which is classified as high or low risk. High-risk tumors are those located in central areas of the face: periorbital region, eyelids, eyebrows, nose, angle of the jaw, temple, ear, pre- and post-auricular region, with a horizontal tumor diameter > 6 mm; low-risk lesions for recurrence are those located on the cheeks, forehead, chin, lower lip, and neck, with a horizontal tumor diameter > 10 mm [5]. This is the case in the present report; treatment consists of surgical resection with controlled margins or margins ≥ 5 mm.

Several reconstructive options exist for this area, depending on factors such as the size of the defect and the presence of redundant skin.

Moderate defects can be treated by primary closure without tension. For eyelids or lips, alternatives include rotated flaps, island flaps, advancement flaps, rotated and advanced cheek flaps, rhomboid (Limberg) or transposition flaps, and advancement and rotation flaps (Mustarde).

For reconstruction of the lower lateral wall, a rotation flap of the nasal lateral wall, nasolabial flap, bilobed flap, or facial artery perforator flap is recommended [6]. In our patient, a transposition nasolabial flap was chosen, as the skin defect could be resolved with this technique.

The functional and aesthetic aspects of the nasolabial region are complex from a reconstructive standpoint, given its relationship with the infraorbital region, nose, and lips; it represents the majority of the lateral facial unit, which is essential for facial expression and maintaining oral competence.

Among the possible complications are facial nerve deficits, which further increase the aesthetic and functional morbidity of the resection; minor complications, including wound dehiscence and local infection; and major complications, including flap failure or ectropion. To avoid ectropion, the horizontal incision should pass over the lateral canthus and suture from the flap to the periosteum. Some authors use the subtarsal fold to prevent this retraction; however, this can sometimes lead to lymphedema in this area [7].

Another alternative to surgical treatment with clear margins (R0 resection) for localized skin cancers is Mohs micrographic surgery, which offers advantages in terms of lower local and locoregional recurrence rates and lower rates of metastasis. However, it is expensive.

Conclusion

Local flaps in facial reconstruction demonstrate excellent results for most facial tissue defects. They cover a more or less adjacent defect, maintaining a vascular pedicle with its original bed until it receives vascularization from the recipient site. Cheek reconstruction is a challenge for the surgeon and requires in-depth knowledge of the anatomical subsites and danger zones, the corresponding function,

and the available reconstructive techniques to achieve functionally and aesthetically satisfactory results. In our patient's case, the flap along the nasolabial fold lines yielded acceptable aesthetic results.

Acknowledgments

None.

Conflict of Interest

None.

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