

## **NASAL RECONSTRUCTION WITH LOCAL SKIN FLAP – CASE SERIES**

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**Abstract:** The nose is subject to adverse events such as trauma or excessive sun exposure, requiring greater attention from plastic surgeons. The characteristics of the primary defect will influence the final result of the reconstruction.

We report a series of cases of reconstruction of the nasal coverage with local skin flaps secondary to resection of previous malignant lesions followed by the author during the first and second year of medical residency, between 2021 and 2022, in the plastic surgery service of the University Hospital. Walter Cantídio and the Ceará Cancer Institute.

Due to the complexity of the nasal anatomy, more than one procedure will often be necessary to achieve the original delicacy. It is important to have knowledge of different strategies and plan correctly so that the best result can be offered to the patient. Furthermore, it is essential to know the likely complications and their possible solutions.

## INTRODUCTION

The nose is presented in a privileged region on the face, located in a central region to the other structures and projected outwards from the axial axis.<sup>1</sup> Therefore, it is subject to adverse weather conditions such as trauma or excessive sun exposure, demanding greater attention from surgeons. plastics. 1, 2

Since the beginning of plastic surgery, reconstruction of the nose has played an important role, being among the first procedures to be performed.<sup>1, 3</sup> The first reports date back to ancient Egypt, around 2000 BC<sup>2</sup>, the “Indian method” is also dating from this time, and is still widely used today.<sup>3</sup>

The characteristics of the primary defect will influence the final result of the reconstruction. Tissues with similar qualities must be considered to be used in the reconstruction of each nasal subunit. Furthermore, one must opt for well-vascularized tissues

with good elasticity to minimize possible complications.<sup>1</sup>

## GOAL

The objective of this work is to report a series of cases of reconstruction of the nasal coverage with local skin flaps secondary to resection of previous malignant lesions.

## METHODOLOGY

Patients undergoing nasal lesion resection with immediate reconstruction followed by the author during the first and second year of medical residency, between 2021 and 2022, at the plastic surgery service of `` Hospital Universitário Walter Cantídio`` and the Ceará Cancer Institute were included, totaling 7 patients.

Three patients were operated on with general anesthesia and local anesthetic infiltration. The others underwent procedures with sedoanalgesia associated with local anesthesia. Only one patient underwent resection of the lesion without freezing.

The surgical margin was 5mm from the limits of the lesion. The surgical planning was defined by the team after evaluating the location and size of the residual defect after resection of the lesion. No margin enlargement was necessary in any of these cases.

Patients were discharged on the day following surgery, remaining there for the first month, monthly for the first three months and every six months at the end. All patients were instructed to return every 6 months for reevaluations.

## RESULTS

The average age of operated patients was 66 years, with a range of 56 to 77 years. Three patients are male, while the rest are female.

### AGE OF PATIENTS

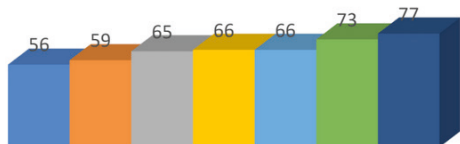


Figure 1- Age of patients.

Two patients had lesions on the lateral wall, four patients on the nasal ala and one patient had a lesion on the nasal tip. None of the lesions went beyond the perichondrium, meaning there was no need for resection of cartilage or mucosa.

### LOCATION OF INJURIES

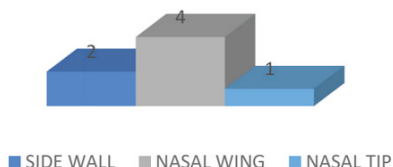


Figure 2- Location of injuries.

Of all the patients, six of them had basal cell carcinoma in the anatomopathological analysis. The rest had squamous cell carcinoma on the nasal tip. Three patients had already presented malignant lesions, with a history of resections in other nasal subunits.

### HISTOLOGICAL TYPE

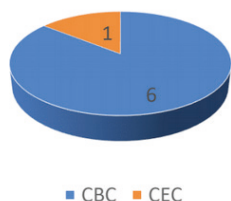


Figure 3- Histological type.

The options used for reconstruction were very diverse. A skin transposition of the lateral wall was performed to reconstruct the nasal ala, a nasal dorsum flap to reconstruct a

defect in the lateral wall, two bilobed flaps to reconstruct the ala and nasal tip, a nasolabial flap for the ala region, a paramedian flap to restore the nasal ala and a total skin graft to restore the lateral wall.

### RETAILS USED

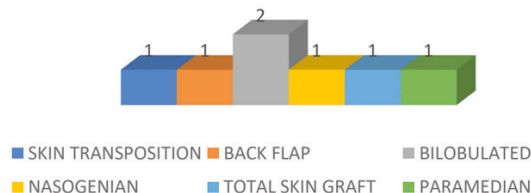


Figure 4- Flaps used.

The complication presented was epidermolysis, evidenced in a bilobed flap and in the midfrontal flap. They were treated with hydrogel dressings, however, both developed deformities in the nasal ala. However, patients have not yet proposed new interventions to improve the final result. No cases of surgical wound infection were reported.

### COMPLICATIONS

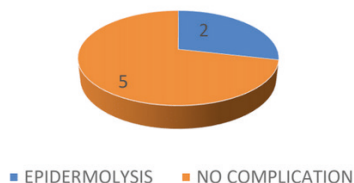


Figure 5- Complications

## DISCUSSION

Skin grafting is a simple option on the scale of complexity of nasal reconstruction. The most traditional donor areas are in the pre- and post-auricular and supraclavicular region. It does not add new incisions to the nose, nor is there any concern about tissue availability in the neighborhood. It is more efficient when used to reconstruct areas with thinner skin such as the back and side wall. On the other hand, the recipient bed must be well irrigated to receive a graft, without exposing

cartilaginous tissue. Furthermore, the grafted skin has an uncertain aesthetic result, with possible changes in color and texture.<sup>1, 4</sup>

In the case of local flaps, they overcome some deficiencies of the graft, offering better skin quality and having better predictability of the result. The regions of the nasal dorsum and lateral wall have thinner and more elastic skin, allowing tissue redistribution to correct the injury. The single lobe transposition flap is an example of this. It can transpose skin through an arc of rotation of approximately 90°, with primary closure of the donor area, being effective in covering small defects. However, it is common to have residual skin ears that can be corrected in another surgical procedure.<sup>1, 4</sup>

The nasal dorsum flap has a larger dissection area, elevating the supraperiosteal tissues from the margin of the lesion to the glabellar region. This region has excess tissue, allowing primary closure after caudal sliding of the dissected area. This flap is nourished by terminal branches of the facial artery/angular artery. Generally used in the reconstruction of the nasal tip and dorsum. As a consequence, it can cause excess tissue in the medial corner of the orbit and obliteration of the nasal root.<sup>1, 4</sup>

The bilobed flap uses the same principle as the others and can be used for defects in the tip or nasal ala. The first lobe is created adjacent to the defect, correcting it after a rotational movement. The second lobe is manufactured in the region of excess tissue and used to reconstruct the defect of the primary lobe, following the same axis of rotation. The secondary lobe defect is closed primarily. It may present some nasal distortion, in addition to adding some incisions to the region and having a relatively longer execution time. <sup>1, 4</sup>

The nasolabial flap can be created in one or two stages. It makes it possible to reconstruct slightly larger defects without deforming the anatomy, as the donor area will be beyond the

nasal limits. When performed in one stage, the excess skin just above the nasolabial fold is advanced in a VY pattern or a superior pedicle transposition is performed with the axis of rotation close to the lower margin of the orbit, filling defects in the nasal ala or lateral wall. This flap has a randomized pattern, being nourished by the dermo-epidermal plexus. The secondary defect is sutured primarily. <sup>1, 4</sup>

When created in two stages, a subcutaneous vascular order of branches of the facial artery is maintained, increasing the credibility of the flap. The excess skin above the nasolabial fold and immediately lateral to the nasal defect is easily transposed, as the subcutaneous pedicle allows for a good arc of rotation. This type of flap allows for better definition of the nasal ala, as it tends to better respect the limits of the subunits. The secondary defect is once again sutured primarily, resulting in a final scar over the nasolabial fold. After three weeks, the vascular pedicle is incised and excess residual tissue is repaired. Both approaches can generate a depression in the cheek and in men, beard hair follicles can be transferred to the nasal region.<sup>1,4</sup>

Due to the characteristics of the skin on the forehead being similar to the end of the nose, forehead flaps are of great importance in reconstruction, being seen by many as the first option in correcting any area of the nasal skin envelope. The most common flap is the paramedian flap, which is based on the supratrochlear artery. The frontal muscle makes up part of this flap, resulting in greater confidence. They have a rotation axis close to the medial corner of the orbit, allowing the distal end of the flap, close to the hair implantation line, to reach the nasal tip. The secondary defect is also closed primarily. In cases where the hair implantation line is low, it may be necessary to create the flap in an oblique direction, which reduces its reliability but increases its length, or perform

a pre-expansion. After correction of the nasal defect, other surgical times can be added to refine the flap before sectioning the vascular pedicle. Finally, the pedicle is resected three to four weeks after the last procedure.<sup>1,2</sup>

## CONCLUSION

Historically, nasal reconstruction has demanded a lot of attention from plastic surgeons. Due to the complexity of the nasal anatomy, more than one procedure will often be necessary to achieve the original delicacy. It is important to have knowledge of different strategies and plan correctly so that the best result can be offered to the patient. Furthermore, it is essential to know the likely complications and their possible solutions.

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