

CASE REPORTS

Single-Stage Reconstruction of Distal Third of the Dorsum Nasi Using a Nasolabial Flap after Removal of Basal Cell Carcinoma

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Abstract

The nose represents one of the most common sites for skin cancer, therefore, treatment usually leads to defects of this aesthetic unit that needs reconstruction procedures. Even if there are many surgical methods described in the literature, repairing this complex structure is a challenge for every surgeon. In this paper we described our method in order to cover a medium defect of the distal third of the dorsum nasi after tumor removal. A long and narrow nasolabial flap was used in a single-stage reconstruction procedure. Some minor complications were encountered due to the pushing of the flap measurement limits and the defatted choice of flap, therefore with a thin blood supply. This method lead to good outcomes with tumor recurrence-free after a 2 years follow-up and to a very good cosmetic result according to the patient's appreciation.

Keywords: nasolabial flap, basal cell carcinoma, nose reconstruction

Rezumat

Una dintre cele mai des întâlnite localizări ale cancerului de piele o reprezintă nasul, așadar, tratamentul acestor leziuni poate conduce la apariția unor defecte cutanate ce necesită procedee reconstructive. Reconstituirea acestei structuri complexe reprezintă o provocare pentru orice chirurg, deși în literatura de specialitate sunt descrise numeroase metode. În lucrarea prezentă este descrisă o tehnică adaptată de acoperire a unui defect localizat în treimea distală a dorsum nasi, după o excizie tumorală. S-a utilizat un lambou nasogenian lung și îngust pentru reconstrucția într-o singură etapă. Modificând dimensiunile de siguranță ale lamboului descrise în literatură, precum și utilizarea variantei degresate a acestuia, așadar cu o vascularizație mai redusă, ne-am confruntat cu câteva complicații minore. În final, prognosticul a fost foarte bun, cu absența recidivei tumorale după doi ani de monitorizare și cu un rezultat estetic satisfăcător, potrivit aprecierilor pacientei.

Cuvinte cheie: lambou nasogenian, carcinom bazocelular, reconstrucția nasului

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INTRODUCTION

The nose represents a common site for skin cancer, especially for Basal Cell Carcinoma (BCC) which is the most common malignant tumor in humans¹⁻³. The removal of the tumor will lead to a defect that can involve skin, cartilage and even nasal mucosa. Therefore, reconstruction of this tridimensional structure can be a challenge even for the most experienced surgeons⁴. There are many techniques described in the literature for restoring the lining and skeletal framework¹⁻⁸, but all of these techniques should be adapted to the patient's needs. In this paper we described our preferred surgical method to cover a medium defect of the distal third of the dorsum nasi after tumor excision using a nasolabial flap. In order to perform a single-stage reconstruction, we pushed the limits of the flap measurements and did some tricks so as the pedicle to be well fitted, leading to good aesthetic results.

MATERIALS AND METHODS

We report the case of a 73-year-old woman who was admitted in our plastic surgery department after being diagnosed with dorsum nasi (tip of the nose) basal cell carcinoma (BCC) using dermatoscopy (Figure 1). Under general anesthesia, the BCC was removed down to the nasal cartilage layer and a tumor-free margin was achieved measuring 2.4 cm² (1.5 cm x 1.6 cm). In order to reconstruct the lost part we performed a nasolabial flap (NLF). Due to her age and the risks of general anesthesia we decided to do a single-stage reconstruction. We designed a left NLF with a superiorly based pedicle measuring 4 cm length, 1.2 cm at the base of the flap and 1.3 cm at the tip of the flap. In order for the flap to fit after being rotated, a small part of the skin connecting the superior margin of the defect and the medial side of the flap was removed so as the pedicle to fit, therefore no secondary surgical intervention for its resection was needed (Figure 2). After suturing the flap



Figure 1. The clinical aspect of the tumor – frontal (A) and lateral view (B).

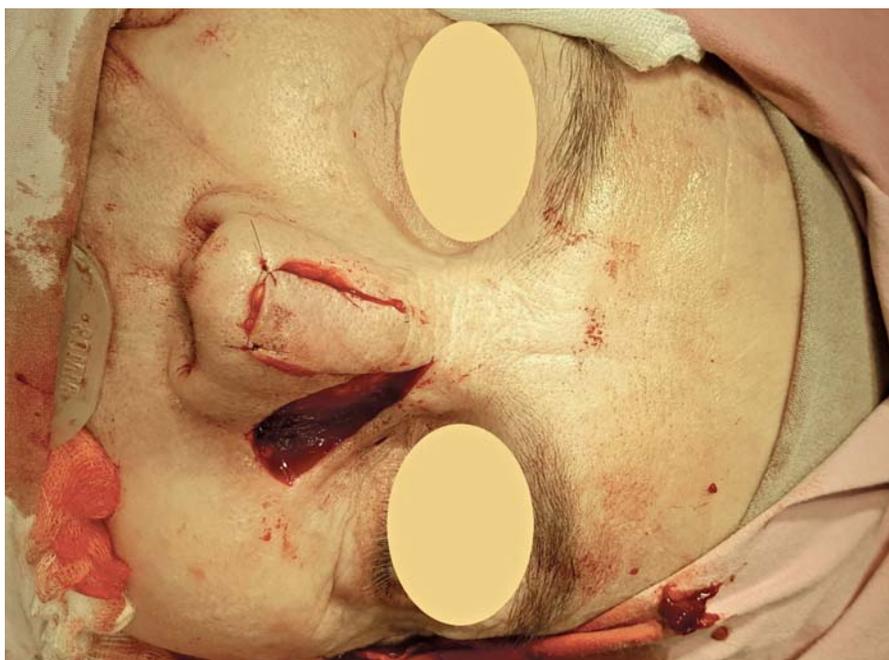


Figure 2. Mobilizing the flap to cover the defect – intraoperative aspect.

in order to cover the first defect, the secondary defect was closed using direct suture. In order to avoid tension on the lateral side of the flap, and to restore accordingly the nasolabial fold, skin mobilization was required. The incision was prolonged superiorly, in the internal cantus and inferiorly, to the left base of the alar, in order to avoid lifting of the left nostril (Figure 3). The tumor was sent for immediate histological assessment. We evaluated the following parameters: occurrence of complications (infections, flap necrosis, wound dehiscence, donor site morbidity, recurrence) and patient satisfaction using Visual Analogue Scale (VAS).

RESULTS

Minor complications occurred due to the dimension of the flap and moderate mobilization of surrounding tissue. We observed lower eyelid swelling and ecchymosis, which was expected due to the prolonged incision and dissection of the left internal cantus (Figure 4). However, venous insufficiency and small blisters at the tip of the flap were unexpected. With local ointment application the flap recovered its normal aspect and the edema was in remission (Figure 5). The pathological exam revealed margin-free BBC. The aesthetic aspect of the flap (Figure 6) was well appreciated by the patient (9 on VAS).

DISCUSSIONS

The use of a NLF in order to restore the skin barrier of the tip of the nose after BCC removal lead to an excellent outcome. This type of tumors are one of the most common cancer of the face and implies local invasion of the epidermal basaloid derived malignant cells¹. There are four types based on the clinical aspect: nodular, superficial, pigmented or infiltrative. In this case, the clinical morphology suggested a nodular-ulcerative tumor covered by a hemorrhagic crust, which affects in most cases the cervical and the facial regions^{2,3}. This type of cancer usually grows slowly (in some case 0.1 mm per 14 days)⁴, but there are some parts of the face with a higher risk of invisible malignant cell proliferation, all together forming an “H” – eyebrows, eyelids, nose, ear and temple⁵. In this case, an aggressive treatment is recommended in order to avoid recurrences. In order to treat BCC, there are guidelines which include wide local excision, curettage and cautery, radiotherapy, lasers, photodynamic therapy, Mohs micrographic surgery, local application of imiquimod and cryotherapy, according to the *British and American Academy of Dermatology*⁵. The treatment option is considered based on the tumor characteristics (different regions, different therapeutic options) and patient factors (elderly people with other health problems will respond better to a therapy that does not include surgery)⁶. In this case, no major comorbidities were present, therefore the patient was suited for surgical excision due to the site, size, form and also the available reconstructi-



Figure 3. Final intraoperative aspect after covering primary and secondary skin defect.



Figure 4. Clinical aspect at three days from surgery – blisters at the tip of the flap and lower eyelid swelling and ecchymosis.

ve procedures. We performed a wide excision with a 4 mm margin in order to decrease recurrences to less than 5%⁵. The removal of the tumor lead to a defect for which the hierarchy of surgical methods must be pri-

mary closure, healing by secondary intention, skin graft and skin flap or composite flap⁷. There are a number of local small flaps that can be designed in order to cover defects measuring 0.7 to 1.2 cm in diameter, such as



Figure 5. Clinical aspect after ten days from surgery.



Figure 6. Clinical aspect after two months from surgery – good esthetic result – frontal (A) and lateral view (B).

the Banner flap, Limberg flap, V-Y advancement flap, the bilobed flap and the rhomboid flap^{7,8}. These flaps are based on the laxity of the dorsal nasal skin, mostly in a vertical direction. For a defect measuring 2 cm in diameter, an extended Banner flap can be useful but risky. In larger defects of the dorsum nasi and tip, an extended glabellar flap can be used with the amendment that can lead to torsion and asymmetry of the alar rims by uneven distribution of tension at closure⁷. In order to obtain good visual results, Motamedi et al. described a modified Rintala flap so as to cover defects up to 2.5 cm in diameter⁹. Also, the classic transposition flap (rhomboid flap) can be possible in some cases but with the risk of creating some asymmetry with downsizing of one alar and in larger defects, creating a “clown nose”¹⁰. In order to provide a better tension distribution, Skaria reported a modified bi-rhomboid flap where the triangles were replaced with semicircles (lobes), looking more like a bi-lobed flap¹⁰. In order to reconstruct a full thickness defect of the distal third of the nose, Ghassemi used a combination of two flaps and an auricular cartilage graft (a forehead flap and a reverse NLF)¹¹. For the reconstruction of the tip and alar part of the nose, Drisco and Baker described a series of flaps and their indications in order to cover skin defects or full-thickness defects, such as interpolated cheek flap, cheek advancement flap and forehead flap¹². In our case, we preferred to use a NLF due to the size and depth of the skin defect, in order to preserve the skin color shade and shape of the nose, with minimal asymmetry. This is one of the oldest techniques for the

reconstruction of nose defects¹³, which was first mentioned in a similar design by Sushruta, in India (600 BC)¹⁴. It is stated that this flap is very versatile due to its blood supply with the possibility of being used with the dimensions of a true axial-pattern flap, even if it is considered that most of these flaps have randomized blood vessels. The thickness of the NLF can vary based on the needs of the reconstruction. It can include dermis and epidermis when a thin and pliable flap is required for covering alar or tip of the nose defects, or full thickness when covering lips or oral mucosal defects^{15, 16}. In our case we used a defatted flap including dermis and epidermis, due to the thin layer of the patient skin on the dorsum nasi, in order to avoid creating a hump. The single-stage reconstruction provided good results with minor complications that were solved during the first day postoperatively. No recurrence was observed in two years follow up, therefore, a wide excision and covering using a NLF was a good therapeutic option for this BCC layout in order to obtain tumor recurrence-free and a well appreciated aesthetic result.

CONCLUSIONS

We concluded that a NLF should always be considered to be a common sense technique for covering medium nose tip defects after BCC removal. In this case, the long and narrow NLF was designed by pushing the limits of the flap measurements as described in the literature, and even if minor complications occurred, due to clinical experience, the outcomes of this treatment were excellent.

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