

# Partial Nose Reconstruction in Basal-Cell Carcinoma Intervention: Do it Once, Do it Safe, Do it Right

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## Abstract

**Background:** Basal cell carcinoma is the most common skin neoplasm and it is normally located on sun-exposed areas, as the nasal region. The surgical intervention involves two steps, a satisfactory oncologic resection and an adequate reconstruction. Due to the characteristics of the nasal region (absence of skin excess and major role play on functional and aesthetic concerns), in small and medium-sized tumors, a flap based reconstruction is commonly needed. To obtain satisfactory results requires a precise oncologic intervention and the knowledge of a wide range of local flaps.

**Methods:** We analyzed patients with a primary basal cell carcinoma located at the nasal region, that were treated with an oncologic resection and immediate flap based reconstruction. The oncologic resection was assisted with the analysis of the frozen section margins. All the interventions were performed under local anesthesia regimen. A minimal 6 months follow up was achieved in all cases.

**Results:** From April 2018 to April 2020, 4 patients were conducted to surgery because of the presence of a small or medium sized primary basal cell carcinoma on the nasal region. All cases had an adequate oncologic resection, confirmed by a pathologist analysis during the intervention. 3 patients went under a single local flap reconstruction, and 1 patient needed two local flaps for achieving a satisfactory tegument restoration. 5 different local and regional flaps were executed and no complications were presented.

**Conclusion:** Satisfactory results in terms of appropriate oncological and reconstructive surgery could be achieved in patients with small to medium sized basal cell carcinoma of the nasal region, doing one surgical intervention and selecting adequate local flaps.

**Keywords:** Basal cell carcinoma; Nose reconstruction; Local flaps

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## Introduction

Basal cell carcinoma (BCC) is the most common non-melanoma skin cancer [1]. About 80% of all BCC occur on the face, of these tumours 25% to 30% are found on the nose. BCC is the most common non-melanoma skin cancer of this region [2]. The nose has a 2.5 times higher risk of recurrence of BCC after surgical excision [3]. Surgical treatment of BCC on the nose remains the most adequate treatment and in some cases the surgical approach must involve different specialists [4].

One of the characteristics of a BCC used as a guide to assess the risk for recurrence of this neoplasm is its diameter. If the lesion has a diameter <2 cm, it could be considered as a low-risk tumor, but when the lesion is located on the nose, it must be interpreted as a high-risk recurrent neoplasm despite its size [5].

The Mohs micrographic surgery (MMS) is the preferred surgical technique for high risk BCC because it allows intraoperative analysis of 100% of the excision margin. Excision with complete circumferential peripheral and deep-margin assessment (CCPDMA) using intraoperative frozen section (IOFS) assessment

is an alternative to MMS, providing a complete assessment of all deep and peripheral margins. The descriptive term CCPDMA underscores the National Comprehensive Cancer Network® (NCCN®) panel's belief that intraoperative assessment of all tissue margins is the key to complete tumor removal for high-risk tumors [6].

Once the tumor is totally removed and the absence of oncologic cells at any margins of the specimen is informed, a reconstruction could be conducted. For small to medium size defects (diameter <2 cm), a high complex reconstruction might be avoided. Instead an intervention based on a local flap mobilization and tissue rearrangement under local anesthesia could be evaluated [7]. We present a series of nasal reconstructions using a wide scope of local flaps following an oncologic resection with IOFS assessment.

## Methodology

A retrospective review of patients undergoing nasal reconstruction executed by the authors from April 2018 to April 2020 was performed. Patients were included in the study either they presented primary BCC confirmed by histopathological diagnosis or sequential digital dermoscopy imaging (SDDI) evaluation at the nasal region.

Prior to the surgical treatment, a preoperative clinical evaluation was conducted. All the interventions were done under local anesthesia and a pathologist inside the operation room area carried out the complete circumferential peripheral and deep-margin assessment (CCPDMA) using intraoperative frozen section (IOFS) assessment.

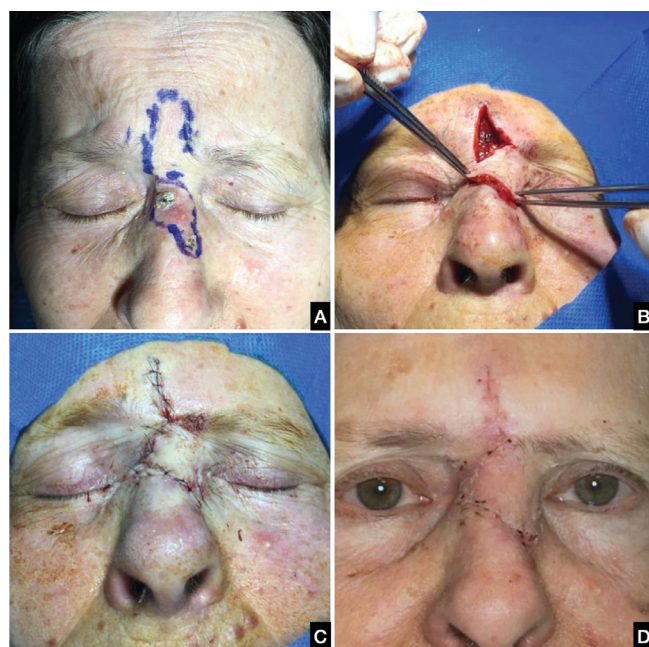
Once the satisfactory oncological resection was achieved, the reconstruction step was initiated. Only regional flaps were selected due to the local anesthesia intervention and outpatient basis. Each patient was followed up for a minimum of 12 months after the intervention.

## Results

A total of 4 patients were treated during the period of April 2018 to April 2020 diagnosed with primary BCC on the nasal region. The average age was 78.5 years (range, 74 to 86 years) and the feminine gender was predominant (n=3). The registered comorbidities were: High-blood pressure (n=2), mild senile dementia (n=1) and hypothyroidism (n=1). The mean diameter of the skin neoplasm was 1.97 cm (range, 1.94 to 2.00 cm) and the average defect area was 6.15 cm<sup>2</sup> (range, 4 to 10.5). For a tumor located at the tip and soft triangle subunit of the nose, we performed a bilobed flap reconstruction as described by Zitelli [8] (**Figure 1**). When the defect was situated in the upper half of the dorsum subunit, we preferred a glabellar flap as described by Gillies [9] (**Figure 2**), and if the tumor's resections involved only the tip subunit, we performed the Rintala's flap [10] (**Figure 3**). The last patient presented a 2 cm diameter tumor located between the dorsum and the left lateral sidewall of the nose. After the complete resection, the defect had a 9 cm<sup>2</sup> area without involving osteocartilaginous structures. The reconstruction was resolved using two flaps, a glabellar nasal flap of Gillis modified by Rieger [11] and a cheek advancement flap as described by Rossi



**Figure 1** (A) I.B., 78 y.o. with a BCC on the tip of the nose with the left soft triangle compromise. (B) Complete resection of the tumor, without any partial resection of the left lower lateral cartilage. (C) The bilobed flap is elevated. (D) PostOP control after 90 days from the surgery.



**Figure 2** (A) I.E., 74 y.o. with a BCC on the upper half of the dorsum and an actinic keratosis caudal to the tumor. (B) En-bloc resection was performed and a glabellar flap was mobilized. (C) In-set of the glabellar flap. (D) PostOP control after 60 days from the surgery.

et al. [12] (**Figure 4**). After a minimal follow up for 12 months (range, 12 to 15 months) surgical nor oncological complications were recorded.



**Figure 3** (A) V.J., 76 y.o. with a BCC located at the nose tip. (B) Complete resection of the tumor, without any partial resection of cartilaginous tissue. (C) The Rintala's flap was advanced and the defect was reconstructed. (D) PostOP control after 15 months from the surgical intervention.



**Figure 4** (A) T.L., 86 y.o. with an ulcerated BCC affecting the dorsum nasal subunit and the left lateral wall subunit. (B) Complete resection of the tumor, without any partial resection of cartilaginous tissue. The defect area was 10.5 cm<sup>2</sup>. (C) A Rigier's flap and a left cheek advancement flap were performed for reconstructing the defect. (D) Post-op control after 6 months from the surgical intervention.

## Discussion

Several reports tried to figure out the advantages, in terms of tumor recurrence, of the primary BCC of the face treatment, comparing MMS to the surgical excision [13-16]. All of these studies failed to prove a statically significant difference, despite the lower recurrence registered with the MMS. The best way to treat (MMS vs. CCPDMA) these types of carcinoma on the face is still a debate, and more studies should be carried on. Moreover, NCCN Clinical Practice Guidelines In Oncology (NCCN Guidelines®) for the Basal Cell Skin Cancer, include these two surgical treatments among the recommended options for primary BCC, located on specific areas associated with higher risk of recurrence, as the nasal región [6].

Another controversial aspect about nasal defects reconstruction that remains to be analyzed, is the compulsory need to respect the nasal subunits described by Burget and Menick [17]. We apply their concept as a guide for describing the nose and planning the surgery, but looking after maximal conservation of native tissue. Reconstructing only the defect, not making it bigger just for according to the aesthetic nasal subunits, as was described by Rohrich [18].

Finally, we took the decision of going for the reconstruction step during the same operation, instead of leaving these medium size nasal defects to heal by secondary intention and not waiting until the final histopathological report was finished (in our experience, could be a 10 to 15 days delay). The avoidance of reconstructing the defect at that time would represent an increased risk factor for poor aesthetic results and lengthy healing time (from 3 to 11 months) as van der Eerden et al. show in his article [19].

## Conclusion

Although the group of patients was small, satisfactory results in terms of oncological and reconstructive outcomes were achieved. Complete tumor resections with intraoperative margins assessment in medium size BCC of the nasal region were executed, without the necessity of high complex surgical procedure or having an increased risk of lengthy healing time and poor aesthetic results.

## Disclosure of Interest

The authors declare that they have no conflicts of interest to disclose.

## Compliance with Ethical Standards

**Conflict of Interest statement:** The authors declare that they have no conflicts of interest to disclose.

**Statement of human and animal rights, or ethical approval:** This study was performed according to the Declaration of Helsinki: ethical principles for medical research involving human subjects.

**Informed consent:** All the participants approved and signed an informed consent for sharing their pictures and medical records for a scientific purpose.

## Short Running Head

Low complex reconstructive flaps for solving medium size defects, secondary to skin neoplasm resection.

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## Financial Disclosure

None of the authors has a financial interest in any of the products, devices, or drugs mentioned in this manuscript.

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