

## Evaluation of patient satisfaction in the reconstruction of nasal cutaneous defects with locoregional flap

Reconstruction of nasal cutaneous defects with locoregional flap

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### Abstract

**Aim:** Escalated incidence of skin cancer and these neoplasms has significantly increased the number of patients that require treatment worldwide. The nose is a common site for skin malignancies. Its unmatched aesthetical and functional importance makes reconstruction of defective pathologies difficult. This study evaluates patient satisfaction by retrospectively examining the long-term results of locoregional flap operation in patients with nasal dorsal BCC who developed nasal soft tissue and skin defects.

**Material and Methods:** The records of patients who underwent nasal cutaneous defect reconstruction at our clinic due to nasal dorsal BCC between the years 2012 and 2019 were retrospectively examined. Patients who underwent locoregional flap were asked to complete the visual analog scale (VAS) evaluation questionnaire that we developed during outpatient follow-ups.

**Results:** The study included a total of 29 patients who underwent operation due to nasal dorsum BCC, among which 16 were males (55.2%) and 13 were females (44.8%). The mean age of the patients was 66.4±10.8 (40-86) years. According to VAS scores, the mean scar appearance assessment (SAA) score was 7.10, and the mean visual expectation score (VES) was 6.89. There was a strong positive correlation between SAA and VES scores ( $Rho=0.849$ ;  $p<0.001$ ).

**Discussion:** The nasal pyramid is located in the center of the face, and is largely associated with behavior and personal identity due to its prominence and location. Considering this, advances in local and regional flap reconstruction have demonstrated distinct advantages over autologous skin graft or free tissue transfer in certain situations. According to their VAS scores, it was demonstrated that patients rated scar formation after application of locoregional flap in nasal dorsal cutaneous defects as acceptable and satisfactory in terms of appearance. Based on the results of our study, the use of locoregional flaps for nasal dorsal reconstruction due to BCC along with preoperative information provides patient satisfaction and meets expectations.

### Keywords

Nasal reconstruction; Soft tissue defects; Patient satisfaction; Locoregional flap; Basal cell carcinoma

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## Introduction

Cutaneous head and neck malignancies most commonly occur in the nasal pyramid region [1]. Although nonmelanoma skin cancer (NMSC) consists of slow-growing tumors which are unlikely to metastasize, they represent the most common form of cancer in the world, with an incidence of 18-20 times higher than malignant melanoma. The most common NMSC is basal cell carcinoma (BCC) [2].

Escalated incidence of skin cancer and these neoplasms has significantly increased the number of patients that require treatment worldwide [3]. The nose is a common site for skin malignancies. Due to its unmatched aesthetical and functional importance, the reconstruction of defective pathologies is challenging [4]. There is a number of various treatment options for restoring functional and aesthetic integrity following skin loss associated with oncological causes [2]. Studies on vascular supply to the head and neck have successfully increased the opportunities for planning locoregional flaps and have helped surgeons prevent ischemia and necrosis [5].

In this study, by retrospectively evaluating the long-term results of patients, we evaluated their satisfaction after applying locoregional flap in patients who underwent operation due to nasal dorsal basal cell carcinoma (BCC) and had developed nasal soft tissue and skin defects.

## Material and Methods

The records of patients who underwent nasal cutaneous defect reconstruction at our clinic due to nasal dorsal BCC between the years 2012 and 2019 were retrospectively examined. Patients who were applied locoregional flap were asked to complete a visual analog scale (VAS) evaluation questionnaire during outpatient follow-ups. Patients were asked to respond to the two VAS questions, "How would you rate the appearance of the surgical site scar on your nose?" and "How would you rate the appearance of your surgical scar site in meeting your visual expectations?" on a scale of 0-10. Scores higher than five for both questions indicated that the patient was satisfied with the appearance of the scar site and that the patient's expectations were met.

Surgical technique was conducted by following the principle of >4 mm surgical margins [6]. According to the general condition of the patients and the size of the surgical resection, 22 patients underwent operation under general anesthesia while 7 patients were operated under local anesthesia. Cosmetic results were evaluated at least six months postoperatively.

Patients who had nasal bone or cartilage defects due to tumor or surgical resection, those requiring revision surgery, and patients with recurrence residue were excluded from the study. All patients included in the study provided informed consent, and approval was obtained from the local ethics committee (No. 2019/16-28; date 13/11/2019).

### Statistical Analysis

SPSS v21.0 package program was used to perform statistical analysis of the data. Descriptive statistics, Chi-square, and t-test were used for analyses. A p-value of less than 0.05 was considered statistically significant.

## Results

A total of 29 patients who underwent operation due to nasal dorsum BCC were included in the study. Sixteen patients were men (55.2%) and 13 were women (44.8%). The mean age was  $66.4 \pm 10.8$  (40-86) years. Postoperative follow-up time ranged between 6-80 months (mean 54.7 months). The size of tissue defect in patients ranged between 1x1cm and 3.5x2.5cm. For reconstruction, 11 patients were applied a nasolabial flap, 7 patients were applied a bilobed flap, 4 were applied a transposition flap, 4 were applied a forehead flap, and 3 patients were applied a nasal dorsal flap. None of the patients developed total flap necrosis.

According to VAS scores, the mean scar appearance assessment (SAA) score was 7.10, and the mean visual expectation score (VES) was 6.89. There was a strong positive correlation between SAA and VES scores ( $Rho=0.849$ ;  $p<0.001$ ). There was no statistical correlation between both of the VAS scores and gender. Two (6.9%) patients rated their scar appearance as bad, and 27 patients rated scar appearance as (93.1%) moderate and above (Table 1). Three patients (10.3%) rated scar appearance as below expectation, and 26 (89.7%) as above expectation (Table 2). There was no significant difference between age groups (65 and older, under 65 years) according to both VAS scores.

**Table 1.** Scar Appearance Assessment

	n	%
Bad	2	6.9
Acceptable	9	31.0
Good	14	48.3
Excellent	4	13.8
Total	29	100.0

**Table 2.** Visual Expectation

	n	%
Much worse than expected	3	10.3
Worse than expected	8	27.6
Better than expected	15	51.7
Much better than expected	3	10.3
Total	29	100.0

## Discussion

With the increasing mean age of the population, skin tumors in the face and nose have become more common. Despite age-related comorbidities, reconstruction of the nose due to its complex structure must be performed appropriately in terms of function and aesthetic [7].

Multiple options exist to restore functional and aesthetic integrity following oncological skin loss (including autogenous, allogeneous, and xenogeneous tissue transfer, as well as implantation of alloplastic materials); regardless of the tremendous technological advancements in nasal reconstruction, optimal results are usually obtained when "like is used to repair like" [8]. Since Burget and Menick introduced aesthetic



**Figure 1.** Bilobe flap, postoperative 12th month



**Figure 2.** Nasal dorsal flap, postoperative 16th month

subunit principles, which further refined nasal reconstruction techniques, locoregional flaps continue to play a substantial role in the reconstruction of soft tissue and cutaneous defects

of the nose. Several recent studies on the vascular supply to the head and neck have greatly increased the ability to successfully design locoregional flaps, preventing ischemia and necrosis [5]. The nasal pyramid is located in the center of the face and is largely associated with behavior and personal identity due to its prominence and location [8]. Considering this, advances in the local and regional flap reconstruction have demonstrated distinct advantages over autologous skin graft or free tissue transfer in certain situations [5]. According to their VAS scores, it was demonstrated that patients rated scar formation after application of locoregional flap in nasal dorsal cutaneous defects as acceptable and satisfactory in terms of appearance (Figure 1, 2).

The primary objectives are radical tumor control as well as gratifying aesthetic and functional results. Each patient should be approached as a distinct individual with a unique defect in order to conduct the possible best reconstruction, tailored according to the patient's needs and expectations. After the procedure and throughout the healing process, close postoperative follow-up as well as the educating process of patients are mandatory for both preoperative decision-making and postoperative long-term self-care and skin control [2].

Patient satisfaction has emerged as a critical outcome of medical services because of the increasing emphasis on patients as consumers in the medical marketplace [9]. Reconstruction of facial BCC is challenging because equal priority must be given to clearance, form, function, and patient satisfaction. Local flaps have the advantage of matching skin color and texture and are more aesthetically acceptable with minimum donor-site morbidity [10]. Although patients express surgical concern over scar formation at the donor site, we believe the visual outcome of reconstruction is much better compared to the dissatisfaction due to existing tumor, positively affecting the level of satisfaction. According to our results, 93.1% of the patients were satisfied with scar appearance and 89.7% expressed that postoperative outcomes met or exceeded their expectations. Nasal skin reconstructions, which incorporate the matching of skin color and texture, show promise.

The main determinant of patient satisfaction is the achievement of the recommended success rate, the results promised before surgery, and the patient's perception of the treatment [11]. Adequately informing the patient about the donor site scar and potential revision operations before surgery keeps patient expectations at a reasonable level and increases the level of satisfaction. We believe that preoperative information was also very effective in achieving a high rate of satisfaction in our study.

The fact that locoregional flaps were not compared among themselves (the number was insufficient to obtain a statistical value) or with other reconstruction techniques was a limitation of our study.

#### **Conclusion**

In conclusion, the results of our study indicate that the application of locoregional flap and providing the patient with preoperative information ensures patient satisfaction and helps meet expectations in patients undergoing nasal dorsal reconstruction due to BCC.

#### **Scientific Responsibility Statement**

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

#### **Animal and human rights statement**

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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#### **Conflict of interest**

None of the authors received any type of financial support that could be considered potential conflict of interest regarding the manuscript or its submission.

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