

Usefulness of a Skin Graft Obtained from the Bilateral Nasolabial Folds for a Skin Defect following Resection of a Malignant Tumor at the Nasal Tip

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Summary: The cosmetic appeal of the nose is very important, as it is a structure located at the center of the face. Hence, the removal of nasal tumors requires matching aesthetic subunits for the ensuing reconstruction. This procedure often creates large defects that require skin grafts or local flaps for repair. If a large skin graft is required, harvesting of flaps from the head and neck region might have some limitations. Although flaps from the forehead can cover a wide range of facial defects, the skin properties of the forehead differ from those of the rest of the face. Moreover, early postoperative flap deformation may be due to the flap volume and the need for multiple surgeries, leading to vertical forehead scarring. Particularly, vertical forehead scars are more noticeable in Asians than in Westerners. Previously, grafts have been harvested from a unilateral nasolabial fold, but these grafts were small and resulted in asymmetry. Herein, we describe the case of a 67-year-old man with a basal cell carcinoma of the nasal tip, in which closure of the large defect was achieved through excision matching of the aesthetic unit by using skin harvested from bilateral nasolabial folds. (*Plast Reconstr Surg Glob Open* 2021;9:e3481; doi: [10.1097/GOX.0000000000003481](https://doi.org/10.1097/GOX.0000000000003481); Published online 26 March 2021.)

INTRODUCTION

Matching subunits are desirable in nasal reconstruction; the cosmetic appeal and skin properties of the defect and the surrounding structures should be considered before reconstruction. For skin grafting, harvesting from surrounding areas is associated with size limitations; however, when larger grafts are required, harvesting from distant areas results in a textural difference and poor cosmetic outcomes.

Herein, we describe skin grafting using bilateral nasolabial folds following a nasal tip malignancy resection. The use of a subunit-unmatched skin graft from a unilateral nasolabial fold^{1,2} has been previously described. To the best of our knowledge, this is the first report describing an excision that matched the subunit for a nasal tip repair, with the graft being harvested from bilateral nasolabial folds.

CASE PRESENTATION

A 67-year-old man underwent biopsy for a 10 × 12 mm skin tumor that had persisted for 3–4 years on the nasal tip. Histopathology revealed a basal cell carcinoma (Fig. 1A). Under general anesthesia, a line was drawn 5 mm from the tumor edge and was aligned with the aesthetic unit as much as possible. The tumor was then excised from the perichondrium, resulting in a 26 × 32 mm defect. A full-thickness skin graft was harvested from bilateral nasolabial folds to repair the defect (Fig. 1B).

At postoperative week 2 (Fig. 1C), the skin graft attachment at the center of the nose was slightly visible. However, the scar morphology was good. At postoperative week 4, the scars were barely noticeable. Color matching, scarring, and the nasal morphology were satisfactory 6 months postoperatively (Fig. 1D).

DISCUSSION

In 1954, Gonzalez-Ulloa et al³ introduced the concept of aesthetic units, asserting that cosmetic appeal can be improved by dividing the face into units based on anatomical parts; thus, reconstruction of a unit should be performed using skin grafts with properties most suitable for that unit. Subsequently, owing to their large sizes, the units were further divided into subunits.^{4,5} The nasal subunits comprise the dorsum, nasal tip, alae, sidewall, columella, and soft

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Fig. 1. Full-thickness skin grafts (harvested from the nasolabial folds) placed over the nasal tip. A: Preoperative photograph. B: Immediate postoperative photograph. C: Two weeks postoperative photograph. D: Six months postoperative photograph.

triangle. A patchwork-like appearance after reconstructive surgery can be avoided using these subunits. Studies on these subunits in Japan⁵ have reported that the noses of East Asians are low, with very thin nasal muscles and a flat glabella, and the structural features of the underlying cartilage and bone are not distinctly reflected in the outward appearance. Hence, other subunits should be considered for nasal reconstruction in this population. However, in clinical practice, skin defects are non-uniform; thus, perfectly matching the defects to the subunits is difficult. Burget et al⁴ recommended an additional extensive resection of the surrounding healthy skin when a lesion occupied over 50% of the subunit area to ensure that the defect fully matched the subunit. In our case, because the tumor was on the nasal tip, the resection area included the dorsum. The resection area would have been extensive if it completely matched the subunit. Therefore, we performed limited resection to match it with the subunit as much as possible.

For small defects, open therapy or simple suturing is feasible, whereas a skin graft or a local flap can be resected for large defects. Furthermore, several nasal reconstruction methods have been reported.⁶ Forehead and nasal flaps are often preferred for nasal tip defects, whereas

a forehead flap can cover various facial skin defects. However, the skin properties of the forehead are different from those of the face, and early postoperative flap deformation is noticeable due to the flap volume; therefore, the procedure may need multiple surgeries, resulting in vertical forehead scars, which are more noticeable in Asians than in Westerners.⁵

For skin grafting, donor skin harvested from facial areas, such as the forehead, glabella, nasofacial sulcus, nasal dorsum, nasolabial fold, and the pre- and postauricular regions, can be used to cover a facial defect.⁷ However, only a limited amount of skin can be harvested from the head and neck regions. For large skin grafts, the clavicle, precordial area, or inner arm area is used; however, the skin texture in these areas is quite different, and their cosmetic appeal is poor.

Beare and Bennett¹ reported using skin grafts from nasolabial folds. However, the defect was small in their report, and the graft did not match the subunit. Booth et al² retrospectively assessed 41 patients who received nasolabial grafts for nasal tip repair, and patient and doctor evaluators gave “good” or “excellent” ratings in 95% and 89% of cases, respectively. However, Field⁸ reported

cheek asymmetry when a skin graft was harvested from a unilateral nasolabial fold; in our case, this was avoided by bilateral harvesting. Moreover, the skin should be excised according to the subunit to ensure coverage of large defects. Other advantages of this method include the possibility of harvesting a graft from the same visual field and the unnoticeable suture line after skin removal.

Burget et al⁹ highlighted the importance of adapting reconstruction materials using techniques such as flap thinning based on the skin properties and depth of the defect. Furthermore, adjusting flap thickness should be prioritized over matching color tones/textures when reconstructing the nasal dorsum or nasal tip subunits. Skin grafts are superior to flaps in terms of tissue thinness. Moreover, Robinson and Fisher¹⁰ reported that in patients with positive surgical margins after basal cell carcinoma resection, the nose was a common recurrence site (43%).

Recurrence rates within 2 years and beyond were 87% and 13% (simple sutures), 100% and 0% (skin grafts), and 26% and 74% (local flaps), respectively. Thus, with reconstruction using local flaps, recurrence was delayed. Therefore, we suggest the preferential use of skin grafts over local flaps or simple closures to obtain excellent nasal tip reconstruction.

CONCLUSIONS

A malignant nasal tip tumor was resected along the aesthetic subunit, resulting in a large defect on the tip of the nasal dorsum. Skin grafts harvested from bilateral nasolabial folds produced aesthetically pleasing outcomes immediately after surgery, and facial symmetry was obtained.

SUMMARY

The nasal subunit comprises the dorsum, nasal tip, alae, sidewall, columella, and soft triangle. By considering these subunits, a patchwork-like appearance can be avoided for better cosmetic results. We describe a case of a 67-year-old man with a basal cell carcinoma at the nasal tip. After excision, a full-thickness skin graft was harvested from the bilateral nasolabial folds, and reconstruction was performed. Postoperative outcomes, in terms of color matching, scarring, and morphology, were satisfactory.

Harvesting full-thickness skin grafts from bilateral nasolabial folds enables good color matching, leading to excellent cosmetic outcomes in the early postoperative period. Other advantages of this procedure include the possibility of graft harvesting from the same visual field and the unnoticeable suture line after skin removal.

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PATIENT CONSENT

Patients provided written consent for the use of their images.

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