Ideas and Innovations

Closure of Infratip Nasal Defect by Two Triangular Flaps

Raffi Gürünlüoğlu, M.D., Teoman Doğan, M.D., Mehmet Bayramiçli, M.D., and Ayhan Numanoğlu, M.D.

Altunizade-Istanbul, Turkey

The nasal lobule is subdivided into the supratip, tip, and infratip. Various local flaps derived from the dorsal aspect of the nose are often used for resurfacing nasal tip defects, including some parts of the infratip and/or the supratip region. Isolated infratip defects after excisional therapies are less commonly encountered. In our opinion, it does not seem reasonable to reconstruct an isolated infratip defect with dorsal flaps. This article describes the use of two triangular skin flaps based on the columella for the reconstruction of such defects.

Applied Anatomy

The infratip lobule is located between the tip and the apex of the nostrils. It can be observed from the basal projection of the nose (Fig. 1). Although the configuration of the infratip lobule varies among individuals, it is possible to raise skin flaps from the infratip lobule and anteroinferior surfaces of the alar side walls. Usually, one or two columellar branches from the superior labial artery ascend to the columella and contribute to the blood supply of the nasal lobule. In an anatomic study, the columellar branch of the superior labial artery was found in 24 of 31 specimens (77 percent). Thus, the overall blood supply of the proposed flaps is considered an axial and/or random pattern.

Operative Technique

The skin lesion is excised in a circular fashion under local anesthesia. A small rim of normal skin is included around the lesion, and a frozen-section analysis is nearly always obtained. After excising the lesion, two triangular flaps based on the columella are designed in the remaining infratip lobule with a marking pen. The anterior limbs merging from the anterolateral edge of the defect are marked laterally onto the alar rims. The posterior limbs are then marked starting from the end point of the anterior limbs. They follow along the apex of the nostrils in a curvilinear fashion to end at the beginning of the columella, both medially and posteriorly. The anterior and posterior incisions are performed. The incisions, especially in the soft triangles and the columella, should be performed gently and carefully in a one-stroke fashion to avoid subsequent deformities in this fragile area. The flaps are elevated on the cartilaginous plane on a common columellar base. Dissection is facilitated by using a pair of fine scissors. Then, the flaps are rotated and advanced into position to close the defect. Flap donor areas are closed in a V-Y fashion (Fig. 1). During closure, stitches should be applied very gently to avoid tears and breaks, particularly in the soft triangles.

Results

The technique was used for the defects remaining after the excision of basal cell carcinomas (four patients) and actinic keratoses (one patient). The patients ranged in age from 58 to 65 years, and their average age was 61 years. Partial-thickness and central infratip defects up to 10 to 12 mm in diameter were closed with this technique, and all of the flaps survived well. The follow-up period was 6 months. Results have been satisfactory. Figure 2 illustrates the use of this procedure after the excision of a basal cell carcinoma.

Discussion

Resurfacing the nasal infratip region with a skin graft may result in contour deformity and
color mismatch. In addition, it does not seem reasonable to reconstruct an isolated defect in this location with local flaps raised from the dorsum of the nose, because the infratip nasal region is the farthest point from the excess skin areas. Bilobed flaps may provide coverage for the infratip area; however, dorsal scarring due to multiple incisions on the leading surface of the nose makes the procedure less attractive. Moreover, dog-ears requiring secondary operations are not uncommon. An attempt to close an infratip defect with a Banner flap may lead to asymmetrical elevation of the alar rims or alar notching, which tends to occur as the donor area of the flap is closed. The elevation of V-Y advancement island flaps for reconstructing an infratip defect is technically difficult.

The two triangular skin flaps based on the columnella allow easy and simple closure of isolated infratip defects. Despite the fact that the indication for the use of such flaps is limited, it seems to be the only reasonable option for a defect in this location. Because the flaps take advantage of the skin of the infratip lobule and the anteroinferior surfaces of the alar side walls, they provide a close color and texture match for resurfacing. Alar rim contours are minimally altered. In addition, we have not observed any major rim deformities such as major notching, elevation, or collapse after the transposition of these flaps in our cases. However, such complications could occur, albeit rarely, in some noses. If such complications do occur, one might need to support the rims by adding cartilage grafts to avoid such deformities. The design of the flaps is such that the ultimate scars remain in the infratip lobule, and dorsal nasal scarring is avoided. Technically, columellar extension is required to mobilize the flaps effectively. It was interesting to observe that the flaps survived completely, despite their narrow pedicle.

The procedure does not preclude the use of other methods that use dorsal nasal skin if subsequent additional reconstruction is necessary. Finally, it can safely be used for a subsequent reconstruction in patients who have a previous dorsal scar that would jeopardize the viability of any flap raised on the nasal dorsum.

The proposed technique possesses a few limitations. It is not suitable for paramedian defects and for those proximal to the infratip lobule. Attempts to repair a defect larger than 12 mm in diameter may result in a significant nasal deformity. Finally, in some individuals, the width of the columnella and infratip lobule may not be sufficient to raise these flaps.

**SUMMARY**

A technique that uses two triangular skin flaps based on the columnella is described for the closure of central infratip nasal defects. The flaps are designed to include the remaining skin of the infratip lobule and the anteroinferior surfaces of the alar side walls, they provide a close color and texture match for resurfacing. Alar rim contours are minimally altered. In addition, we have not observed any major rim deformities such as major notching, elevation, or collapse after the transposition of these flaps in our cases. However, such complications could occur, albeit rarely, in some noses. If such complications do occur, one might need to support the rims by adding cartilage grafts to avoid such deformities. The design of the flaps is such that the ultimate scars remain in the infratip lobule, and dorsal nasal scarring is avoided. Technically, columellar extension is required to mobilize the flaps effectively. It was interesting to observe that the flaps survived completely, despite their narrow pedicle.

The procedure does not preclude the use of other methods that use dorsal nasal skin if subsequent additional reconstruction is necessary. Finally, it can safely be used for a subsequent reconstruction in patients who have a previous dorsal scar that would jeopardize the viability of any flap raised on the nasal dorsum.

The proposed technique possesses a few limitations. It is not suitable for paramedian defects and for those proximal to the infratip lobule. Attempts to repair a defect larger than 12 mm in diameter may result in a significant nasal deformity. Finally, in some individuals, the width of the columnella and infratip lobule may not be sufficient to raise these flaps.

**SUMMARY**

A technique that uses two triangular skin flaps based on the columnella is described for the closure of central infratip nasal defects. The flaps are designed to include the remaining skin of the infratip lobule and the anteroinferior surfaces of the alar side walls. The technique has been used successfully for defects with a diameter of 10 to 12 mm after the excision of basal cell carcinoma (four patients) and actinic keratosis (one patient). Its use permits a satisfactory color and thickness match.

Raffi Gürünlüoğlu, M.D.
Microsurgery Lab
Department of Plastic and Reconstructive Surgery
9500 Euclid Avenue, L14
Cleveland, Ohio 44195
aslinrafi@hotmail.com

**FIG. 1.** Schematic illustration of the technique showing the view from the basal projection (infratip lobule is between the nasal tip and the apex of the nostrils). (Left) The design of the flap (shaded area indicates the infratip defect). (Center) The two triangular flaps are rotated and advanced (arrows) into the defect. (Right) Flap is inset and donor areas are closed in V-Y fashion. Ca, columellar artery; sla, superior labial artery.
REFERENCES


---

**Fig. 2. Representative case.** *(Above, left)* The anterior and posterior incisions are completed after excising a basal cell carcinoma. *(Above, right)* Advancement and rotation of the flaps to close the defect. Basal *(center, left)*, oblique *(center, right)*, and frontal *(below)* views at 6-month follow-up demonstrate well-healed scars.