RECONSTRUCTIVE CONUNDRUM

Complex Medial Cheek and Lateral Nasal Ala Defect

Ryan E. Rebowe, MD,* and John G. Albertini, MD†

The authors have indicated no significant interest with commercial supporters.

A healthy female presented for treatment of a recurrent basal cell carcinoma on the upper lateral aspect of her right nasal ala and alar crease. After Mohs surgery, an oblong 3.0 × 1.5 cm defect remained (Figure 1). How would you reconstruct this defect?

Figure 1. 3.0 × 1.5 cm defect of the nasal ala, paranasal cheek, and inferior nasal sidewall. Full-thickness defect with intact fibrocartilage of nasal ala.

**Department of Plastic and Reconstructive Surgery, Wake Forest University Baptist Medical Center, Winston-Salem, North Carolina; †The Skin Surgery Center, Winston-Salem, North Carolina*

ISSN: 1076-0512 • Dermatol Surg 2016;42:115–118 • DOI: 10.1097/DSS.0000000000000453

Figure 2. Cheek advancement flap with an added "finger" transposition flap from the upper lip, providing well matched, vascularized, bulky tissue to recapitulate the lateral ala.

Resolution

Analysis of the defect reveals the cutaneous involvement of 3 distinct aesthetic subunits: the paranasal cheek, the inferior nasal sidewall, and lateral nasal ala and alar crease.[1] The entire defect is full thickness down to the subcutaneous tissue. The alar component does not violate or distort the fibrocartilage structure. Typical reconstructive options for the paranasal cheek and nasal sidewall area focus on linear closure with appropriate undermining or cheek advancement flaps, both of which use the reliable laxity of the cheek and jowl while hiding incisions in the cosmetic subunit junctions. Periosteal suspension sutures are often used to recreate the nasofacial sulcus. The challenge with this defect rests with addition of the alar component. From a functional and cosmetic perspective, the alar position, volume, and convexity take priority over the nasal sidewall and paranasal cheek. Therefore, one should focus first on the nasal ala repair.

The thick sebaceous nature of the skin and the alar free margin preclude linear closure and second intention healing. A full-thickness skin graft or adjacent tissue graft could be used but rarely achieves the bulk of a skin flap. Addition of a nonanatomic cartilage graft or a composite cartilage skin graft would provide better contour to the ala but adds complexity and are less viable and predictable than flap repairs. A 2-stage cheek interpolation flap is not possible given the paranasal component of the defect. A paramedian forehead flap would likely work well but is considered excessive in this case. Therefore, understanding the necessity for local flap coverage of the ala leads one to next consider available tissue reservoirs.

The lateral nasal ala generally relies on paranasal and nasolabial skin reservoirs for both the traditional Zitelli nasolabial transposition flap and 2-stage interpolation flap, which in this case has already been excised. Laterally based bilobed or trilobed flaps also rely on the sacrificed tissue and perforating vasculature of the paranasal area.[2] Medially based transposition flaps could possibly be designed for the alar defect, but the nasal sidewall component of the defect would create a significant challenge to proper orientation of the primary lobe. More obtuse angles would be necessitated in the design, which would tend to reduce the reach of the primary lobe at the expense of alar rim elevation.

The cutaneous upper lip inferior to the melolabial fold is another viable adjacent tissue reservoir that is most often considered for lip advancement and V-Y flaps for defects on the medial cutaneous upper lip.[3] This tissue reservoir, however, is very underused for alar defects, particularly in women for whom there is minimal terminal hair. Albertini[4] has presented a series of

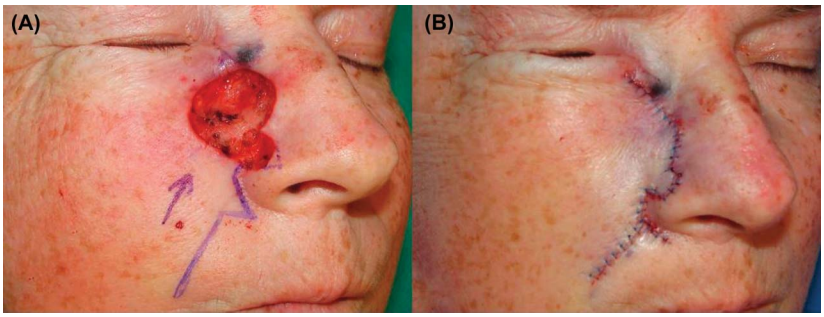

Figure 3. (A) Similar defect as noted in Figures 1 and 2. Flap from the upper lip reservoir designed in the hairless triangle of the upper lip. (B) Note that incisions are well hidden within cosmetic subunit borders.

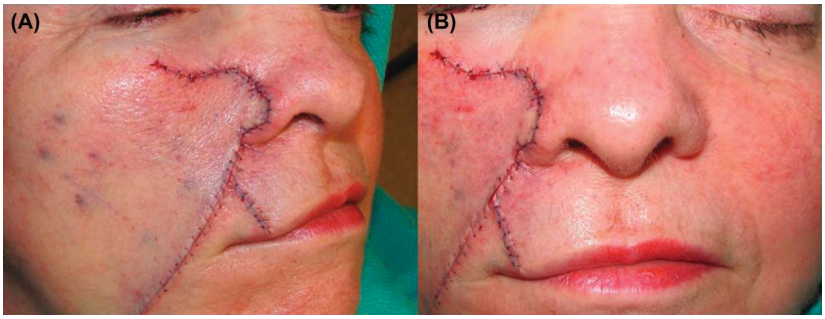

Figure 4. (A) Lateral view of completed repair. Note the excellent color and tissue match of the transferred skin and well-camouflaged incisions. (B) Frontal view. Note the adequate bulk and convexity of the transferred tissue, symmetric alar rims, and minimal tissue displacement at the vermilion border.

reconstructions of the lateral inferior nasal ala using a cutaneous upper lip rhombic flap with a buried inverted cone for both male and female patients. For this conundrum case, this upper lip reservoir was used more laterally by modifying the typical cheek advancement flap to include a "finger" transposition flap component to fill the corresponding alar component (Figure 2). The addition of this cutaneous upper lip flap allows a 1-stage sliding and transposing flap repair of a complex defect without distorting the nasolabial fold, the alar rim or groove, or the vermilion border.

Procedure

The primary skin incision for the cheek advancement flap is designed along the melolabial fold to the anterior mandibular angle to use the inferior lateral cheek and jowl reservoirs. The superior standing cone is not designed or excised initially and is evaluated and addressed after undermining and tissue transfer. A triangular-shaped transposition flap from the upper lip is then designed with its base on the melolabial fold and its apex extending at a 90° angle toward the vermilion border. The base of the transposition flap should be as wide as the alar defect and the length tapered as a 30° hemifusiform to prevent redundancy. The triangular flap can be placed at any point along the melolabial fold such that its sliding advancement places the tissue directly into the alar defect. Figure 3A, B demonstrate a similar defect with the transposition flap designed more medially within the hairless triangle of the upper lip. This location also affords a reservoir in men devoid of terminal hair. If necessary, hair follicles on the upper lip transposition flap may be trimmed or electrocauterized during transfer to prevent the growth of unwanted hair after skin transfer. Hair reduction laser can also be used postoperatively as needed.

Once the borders of the flap were outlined, the flap was incised down to the subcutaneous layer and broadly and widely undermined above the superficial muscular aponeurotic system. The flap was advanced medially and secured with a periosteal suspension suture to the pyriform aperture. The leading edge and

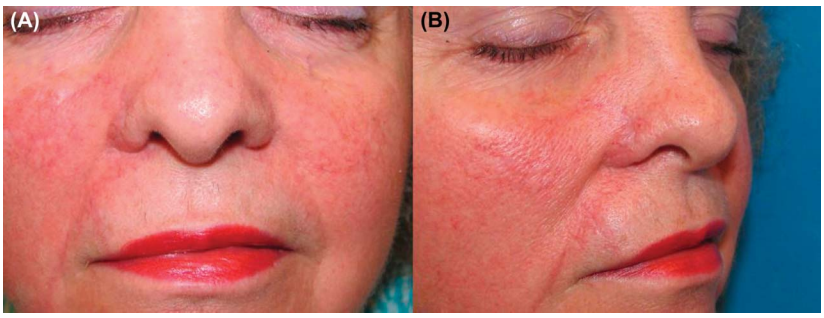

Figure 5. (A) At 3-month follow-up, the transposed tissue from the upper lip retains its excellent color and tissue match as well as bulk and convexity. (B) Oblique view: mild telangiectatic erythema around the flap and mild edge inversion within the native sebaceous alar tissue, which may have been prevented with extra edge eversion at flap inset.

melolabial incisions were approximated with buried vertical mattress 5-0 polyglactin 910 dermal sutures. The standing cutaneous deformity superiorly was excised and repaired in a standard fashion. Care must be taken during tissue transfer to secure both medial and lateral corners of the transposition flap to the alar groove, thus preserving this important concave anatomic landmark. Significant undermining may be required around the upper lip donor site to prevent distortion of the vermilion border. The donor site was then closed primarily with 5-0 polyglactin 910, and all epidermal edges were aligned with interrupted and running 6-0 polypropylene sutures (Figure 4A,B). The incisions were covered with vasoline and a non-adherent pressure dressing.

At 3-month follow-up, mild postoperative telangiectatic erythema, mild inversion of the alar flap incisions, and slight vermilion border asymmetry were visible (Figure 5). But, the transposition flap showed excellent tissue match, bulk, and convexity in the lateral nasal ala subunit, with preservation of the alar crease concavity. The advancement flap component replaced the sidewall and paranasal components with preservation of the nasofacial sulcus. The melolabial fold and cutaneous upper lip incisions were barely perceptible, and the cheek/melolabial folds remained symmetrically voluminous.

In summary, the authors present a single-stage combination sliding advancement and transposition flap to repair confluent defects of the paranasal cheek, nasal sidewall, and lateral ala. It provides ample lax skin to cover the medial cheek and sidewall components while preserving the nasofacial sulcus. It also preserves the lateral alar volume, maintains the alar crease concavity, prevents alar rim distortion, and hides all incisions in cosmetic subunit borders and relaxed skin tension lines.

Conundrum Keys

(1) The cutaneous upper lip inferior to the melolabial fold area is an underused donor reservoir for lateral nasal ala defects.
(2) Combining a transposition flap from this upper lip donor site with a sliding cheek advancement flap allows repair of complex paranasal and nasal ala defects in 1 step.
(3) The width of the base of the upper lip donor site should be equal to the width of the base of the defect.
(4) Placing the base of the upper lip donor site near the rim of the nasal ala will allow the scar to be hidden in the inferior aspect of the alar groove.

References

1. Fattahi TT. An overview of facial aesthetic units. J Oral Maxillofac Surg 2003;61:1207–11.
2. Zitelli JA. The bilobed flap for nasal reconstruction. Arch Dermatol 1989;125:957–9.
3. Pepper JP, Baker SR. Local flaps: cheek and lip reconstruction. JAMA Facial Plast Surg 2013;15:374–82.
4. Albertini JG. Masters session on reconstruction. American College of Mohs Surgery Annual Meeting; 2012; Chicago, IL.

Address correspondence and reprint requests to: John G. Albertini, MD, The Skin Surgery Center, 1450 Professional Park Drive, Winston-Salem, NC 27103, or e-mail: jalbertini@skinsurgerycenter.net