Oblique Advancement Flap for Defects of the Lateral Nasal Supratip

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Background: Reconstruction of nasal alar defects is difficult because of the complex anatomy of the region. A frequent challenge in this area is repair of small cutaneous defects involving the lateral nasal supratip and the superior alar groove.

Observations: An oblique advancement flap that uses laxity from the nasal sidewall is described. Its benefits and limitations are compared with those of alternative closures. Overall, the oblique advancement flap preserves the superior alar groove, while minimizing tissue contortion. It is technically similar to a primary closure but functionally and aesthetically superior.

Conclusions: For selected small lateral nasal supratip defects impinging on the superior alar groove, the oblique advancement flap offers a simple, visually pleasing repair that preserves the alar architecture.

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Cutaneous nasal alar defects must be precisely characterized so that appropriate reconstruction techniques may be selected. The small size of the ala is misleading, given the complexity of the structures, angles, and cosmetic subunits that must be preserved. Even short linear primary closures may not be feasible when they are performed away from the nasal midline owing to the attendant anatomical deformation. The potential adverse effects of such repairs include flaring and raising of the alar rim and alteration of the size and shape of one side of the nose compared with the other.

Key features of the defect that must be identified prior to nasal ala repair are size, depth, and location. For large medial and lateral alar defects that extend to the edge of the alar rim, a skin graft, paramedian forehead flap, or cheek interpolation flap may be necessary. If the alar rim and valve are collapsed, cartilage struts along the caudal alar rim may be used for reelevation. Deep defects of the ala that are somewhat farther from the rim may be repaired with any of several approaches. For instance, an advancement or rotation flap may be moved downward from high on the lateral nasal sidewall; a muscle hinge flap from the upper nasal dorsum may be used to fill the depth, with the excised donor skin site functioning as an overlying full-thickness skin graft; or an alar rotation flap may be combined with a cheek advancement flap. Through-and-through defects of the ala necessitate repair of the nasal lining as well as of the alar rim and external defect. For the repair of small partial-thickness defects, bilobe flaps or large rotation flaps along the nasal sidewall are usually not necessary and are best avoided because of the extensive suture lines that they entail.

An important consideration in nasal reconstruction is the maintenance of the natural grooves, lines, and cosmetic units. During repair of the ala, conservation of the alar-facial sulcus (the inferior alar groove) may be possible if the contiguous subunits are repaired separately.

Combined cheek and nose defects may be corrected with a cheek advancement flap, and the portion of the defect on the nose with a separate flap or graft. The cheek advancement flap may be passed beneath the free trailing edge of the reconstructed ala after deepithelialization. Placement of a nasolabial flap to correct a combined cheek-nose defect usually blunts the inferior alar groove and nasolabial fold, but this loss of angle may be corrected with subsequent revision.

Just as the inferior alar groove needs to be preserved during reconstruction, so does the superior alar groove adjacent to...
the lateral nasal supratip. We describe a specialized repair for a small to moderate-sized cutaneous defect of the lateral nasal tip. Specifically, an oblique advancement flap from the nasal sidewall can be used. This flap is simple to apply and successfully preserves the boundaries of the alar lobule. The flap offers an alternative to the single-lobed and bilobed transposition flaps commonly adapted for such defects.

**OPERATIVE TECHNIQUE**

The location, diameter, and depth of the defect are assessed. Availability of donor skin is measured using traction with a skin hook. The flap is deemed practicable if the tissue can be moved into the defect without inducing displacement of the nasal tip. Usually, a partial-thickness lesion up to 1 cm in width will be amenable to this technique.

Once the decision is made to proceed, “dog-ears” are marked out along, and perpendicular to, the superior alar groove on the nasal sidewall parallel to the long axis of the nose. Each dog-ear should be approximately equal in length to the defect diameter. After the dog-ears are removed, the flap is undermined below the dermis and gently pulled into place with a hook. The direction of motion is diagonal, with the 2 dog-ears serving as the wings of an arrow pointing the way (Figure 1).

Separate dermal/subcutaneous and superficial (epidermal) closure is desirable for strength and eversion of wound edges. Before placement of the last subcutaneous/deep dermal suture at the central apex of the flap, the tip of the flap should be trimmed to fit the defect. Gentle

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**Figure 1.** Reconstruction process showing initial left alar defect (A), with “dog-ears” marked and arrows denoting direction of flap motion (B), with dog-ears removed (C), with flap undermined and reflected back (D), and with flap trimmed and gently tugged into place (E).
stretching will be required to tie the final stitch. Given the large pedicle of the oblique advancement flap and the vascularity of the nose, only minimal tension is likely to cause flap compromise. Trapdoor or pincushion deformity is unusual in the oblique advancement flap because it is an advancement flap with an uncontorted blood supply and good lymphatic drainage.

For deep sutures, horizontal rather than vertical placement may be preferable. Horizontal deep stitches are technically simple to place in the thick, sebaceous dermis and limited subcutis of the distal aspect of the nose. Also, they facilitate precise height matching of the opposing sides. A superficial cross-stitch combines the convenience of a running suture with the added eversion of the skin edges (Figure 2).

**COMMENT**

Paradoxically, small cutaneous facial defects may be more difficult to repair than larger defects. Tissue movement may be less than with larger defects, but there are 2 additional problems. First, while suboptimal cosmesis in a massive repair may be acceptable to patients because of the apparent inherent difficulty of the surgery, patients may expect near perfection in the repair of smaller lesions. Second, the dictum to do no harm is particularly salient in cases involving small defects because granulation by second intent may be minimally disfiguring and hence a reasonable alternative. These problems are magnified at a site such as the nasal supratip at the superior alar groove, where multiple cosmetic units and sub-units intersect.

The oblique advancement flap we describe can be a useful repair for small cutaneous defects that are lateral to the nasal tip and above the alar groove. At this site, the flap allows aesthetically near-perfect repair. Skin color and texture matching are excellent, and scar lines are concealed in the alar groove and the lateral sidewall of the nose. Also, the superior alar groove is preserved. Because complex tissue movement is not needed, suture lines are short (Figure 3). Technically, the flap is only marginally more difficult to perform than a primary closure.

This flap has some technical limitations. In a very sebaceous nose with fibrotic skin quality, it may be difficult to undermine and separate the advancing flap.
Moreover, even when undermining is easily performed, this process should be limited. Extensive undermining under the lateral nasal supratip can, after closure, result in elevation of the alar rim and flaring. Finally, in an elderly patient with preexisting eyelid laxity and a moderate-sized defect, the diagonal movement of the oblique advancement flap may create an ectropion.

The rhombic and bilobe transposition flaps are alternative repairs for the defects that are amenable to oblique advancement flaps. Two potential problems with the rhombic flap are the rotation pucker and upward displacement that may occur with peripheral wound contracture. Pincushioning is very common with transposition flaps and may require repeated intrallesional corticosteroid injections or a surgical revision that entails thinning or trimming of the initial flap. Other alternatives for reconstruction in this area are a full-thickness skin graft, Burows graft, side-to-side horizontal closure, vertical linear closure, or island pedicle flap. Skin grafts are associated with unreliable color and texture match, although this may be less of a problem with a locally derived burows graft. Side-to-side horizontal closure may inappropriately raise the nasal ala. This problem may be limited by a vertically oriented closure, but if the dog-ear is taken from the ala, unilateral ala shortening and right-left nasal distortion may occur. Island pedicle flaps may leave a noticeable triangular suture line and be technically difficult owing to the restricted tissue mobility of such flaps far down on the nasal sidewall close to the tip.

In summary, we believe that the oblique advancement flap may be a technically feasible and aesthetically superior method of repair for small to medium-size pratip and the superior alar groove. Evaluation of site and tissue-specific considerations will determine whether a surgeon should select this type of procedure for a given patient.

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REFERENCES


News and Notes

The 20th Annual Meeting of the Ohio Dermatological Association will be held from October 31 to November 1, 2003, at Hilton Columbus, Easton Town Center. For more information, contact Cynthia Bartunek, Executive Director (voice mail: 330-720-3847; e-mail: ODAExec@aol.com).