

## Combination Nasolabial Transposition Flap and Island Pedicle Flap Following Mohs Surgery of Simultaneous Basal Cell Carcinomas Involving Both Nasal Alae

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The nasal ala is a challenging area for surgical reconstruction, with thick sebaceous skin, the lack of an ample tissue reservoir, and an adjacent free margin. Numerous flaps have been reported for the repair of alae defects. A 71-year-old woman with simultaneous basal cell carcinomas involving both nasal alae was treated by Mohs micrographic surgery. The surgical defects measured 1.5×1.5 cm on the center of the right nasal ala and 1.0×1.0 cm on the left nasal ala, including the alar crease and rim. The right nasal ala was used as a nasolabial transposition flap and the left nasal ala was reconstructed by an island pedicle flap. The final shape and texture were satisfactory. The flaps survived and nasal symmetry was preserved. Combined nasolabial transposition and island pedicle flaps thus offer a superior esthetic and functional result owing to minimized tension. This may be a valuable reconstructive option in the repair of bilateral nasal alae defects.

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*Key Words:* Minimized tension flaps, Nasal alae defect, Simultaneous basal cell carcinomas

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### INTRODUCTION

Defects involving the nasal ala are among the most difficult to repair for the cutaneous surgeon. The area has topographic complexity and the characteristics of a thick zone, as described by Berget and Mernick<sup>1,2</sup>. Random patterned flaps from the cheek or proximal nose usually obliterate the supra-alar crease or the alar rim and may cause nasal valve malformation due to scar contracture<sup>3,4</sup>. Selecting an appropriate local flap is crucial for

cosmetic and functional success. In the case presented herein, we were confronted with defects of both nasal alae following Mohs surgery of two simultaneous basal cell carcinomas. The final surgical defects measured 1.5×1.5 cm on the right nasal ala and 1.0×1.0 cm on the left nasal ala. The right nasal ala was used as a nasolabial transposition flap and the left nasal ala was reconstructed by an island pedicle flap. These methods offered superior esthetic and functional result. We suggest that the combination of a nasolabial transposition flap and an island pedicle flap may be a valuable reconstructive option for the repair of bilateral nasal alae defects. This is the first report of minimized tension flaps involving both nasal alae defects.

### CASE REPORT

A 71-year-old woman visited our hospital in November 2006 with a 2-year history of two

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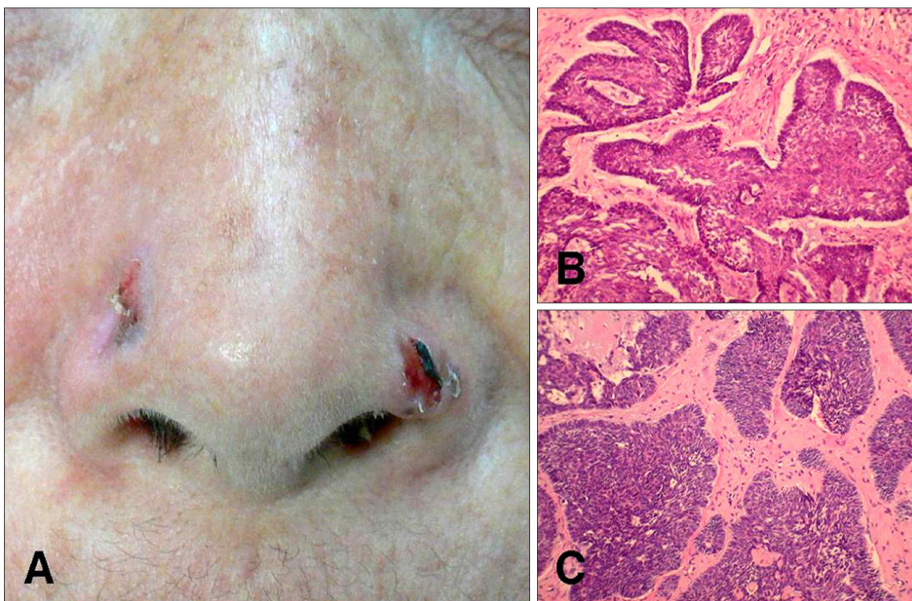
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nodular plaques on both nasal alae. One plaque was located in the right supra-alar crease the other plaque was located on the lateral aspect of the left ala, including the alar rim and crease. No pain, tenderness, or itching was associated with the lesions. The plaques were histologically-diagnosed by biopsy as basal cell carcinomas of the nodular type (Fig. 1).

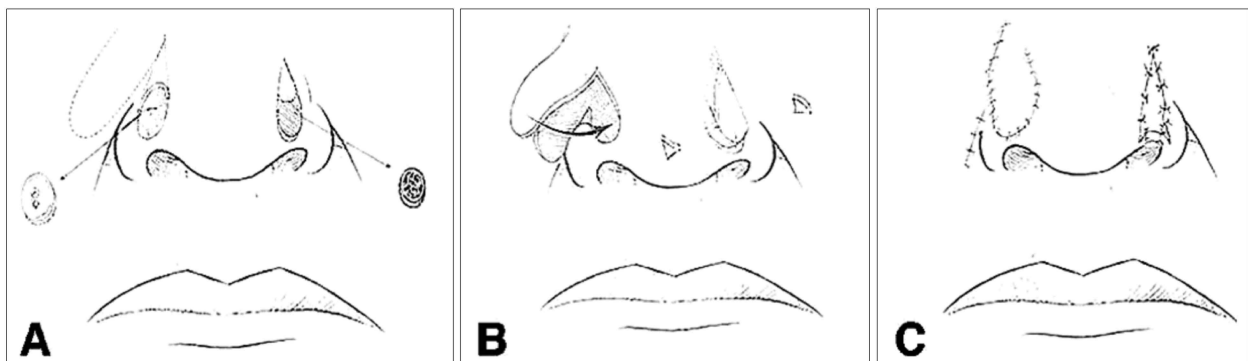
The two basal cell carcinomas involving both nasal alae were completely removed with four (right side) and two (left side) stages of Mohs micrographic surgery. The final surgical defects measured

1.5×1.5 cm on the lateral aspect of the right nasal ala and 1.0×1.0 cm on the left nasal ala between the alar crease and rim. The defects extended into the subcutaneous tissues of both nasal alae, but did not penetrate into the nasal vestibules. The right nasal ala was used as a nasolabial transposition flap and the left nasal ala was reconstructed by an island pedicle flap (Fig. 2).

The final shape and texture of the repairs were satisfactory. The flaps survived, nasal symmetry was preserved, and the patency of the airway was maintained. No local recurrence or regional metastasis



**Fig. 1.** (A) Two nodular plaques on both nasal alae. (B) Histologically, lesion on left nasal ala shows nodular basal cell carcinoma. (C) Also, lesion on right ala shows nodular basal cell carcinoma.



**Fig. 2.** (A) The surgical defects of the right nasal ala measured 1.5×1.5 cm on the lateral aspect including alar lobule and nasal sidewall through alar groove and the left nasal ala measured 1.0×1.0 cm on the lobule between alar rim and crease. (B), (C) The right nasal ala was used as a nasolabial transposition flap and the left nasal ala was reconstructed by an island pedicle flap.



**Fig. 3.** (A) Immediately following reconstruction with combination of the nasolabial transpositional flap on right nasal ala defect and the island advancement flap on left nasal ala defect. (B) 1 month after the reconstruction, the shape and texture of the nose were satisfactory. The nasal symmetry was preserved, and the patency of the airway was maintained.

occurred during the ensuing 4 months (Fig. 3).

## DISCUSSION

The ala is a small, rounded, cosmetic unit bounded by three different units; medially by the nasal tip, superiorly by the supra-alar crease and nasal sidewall, and laterally by the cheek. Inferiorly, the alar rim is a free margin and the ala is often composed of sebaceous, sun-damaged skin. Defects involving the ala are difficult to repair surgically for the following reasons: the complex contour, the unique color and texture, the need for mucosal lining, the need for support to counter wound contraction, and preservation of a patent air passage<sup>2-4</sup>. The topographic complexity of the nasal ala has frequently challenged the cutaneous surgeon.

In addition, the nasal surface of an adult can be divided into areas of thin and thick skin. The zones of thin skin are composed of the dorsal and sidewall units, the columella, the alar margins, and the soft triangles. The zone of thick skin begins in the area of the alar grooves and 5~10 mm above the supratip region and extends inferiorly toward, but not to the caudal borders of the tip and alar subunits. While the thin skin is smooth, pliable, and mobile, the thick skin is relatively immobile and pitted with sebaceous glands. As Berget and Mernick observed, the thick zone, including the nasal ala, can be cut, but it will not bend. So, local flaps produce dog ears and tension, which lead to contour distortion, tissue necrosis, and a dissatisfied

patient<sup>1,2,5</sup>.

We were confronted with defects of both nasal alae in the thick zone following Mohs surgery of two simultaneous basal cell carcinomas. The final surgical defects measured 1.5×1.5 cm on the right nasal ala and 1.0×1.0 cm on the left nasal ala. The defects extended into the subcutaneous tissues of both nasal alae, but the defects did not penetrate into the nasal vestibules and the alar rim or cartilaginous support, and the mucosa remained intact.

The defect of the right ala was located on the lateral aspect, including the alar lobule and the nasal sidewall through the alar groove. If only the right ala were affected, it would have been reconstructed by a bilobed flap, an interpolation flap, or an advancement flap. However, because both alae were affected, we chose a nasolabial transpositional flap to minimize the tension of the dorsum and sidewall of the nose. The transpositional flap redirected the tension toward the secondary defect from the primary defect, but the tension of sliding flaps, such as rotation and advancement flaps, was maintained across the primary site<sup>6</sup>. Also, this flap had several advantages. First, the nasolabial flap reproduced the natural alar contour. Second, the cheek has an extensive and excellent blood supply. Third, because the nasal crease is a prominent facial landmark, the donor site closure was easily hidden in this area<sup>3,7</sup>. But, if the nasolabial flap is used low on the nose, as in our patient, one must always be cognizant of a cheek-nose concavity and the trap-door deformity. This deformity may resolve with time. Use of intralesional steroids or correction with

Z-plasties may be of help<sup>6,8</sup>. In this case, the incisions were well-contoured into natural lines, and the flap did not cross the cheek-nose concavity. Our patient had mild obliteration of the cheek-nose concavity and little pincushions, but she improved after intralesional steroid injections.

The defect of the left ala was located on the lobule between the alar rim and the crease. The close proximity of the caudal margin of the surgical defect to the free alar rim must be carefully considered in determining the local flap. In this particular situation, the bilobed transitional flap, the alar rotation flap, and the medially or bilaterally-based O-to-T flap have the risk of pincushioning, alar rim flattening, and nasal asymmetry. The island pedicle flap is a versatile method and can be used to repair small-to-medium sized defects involving any area of face, including the nasal ala. The nasal sidewall may be a potential donor site for defects of the nasal ala<sup>9-12</sup>. So, the defect of the left ala was reconstructed by a subcutaneous island pedicle flap. A triangular incision was prepared. We undermined the perimeter of the defect and the secondary defect was closed in a V-Y fashion.

The final shape and texture of the nose, including both nasal alae, were satisfactory. The flap survived, nasal symmetry was preserved, and the patency of the airway was maintained. This method offers a superior esthetic and functional result owing to minimized tension. A combined nasolabial transposition and island pedicle flaps may be a valuable reconstructive option in bilateral nasal alae defects.

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