

## CASE REPORT

# A Novel Approach for Full-Thickness Defect of the Nasal Alar Rim: Primary Closure of the Defect and Reduction of the Contralateral Normal Ala for Symmetry

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In full-thickness defects of the nasal alar rim, to achieve projection and maintain airway patency, cartilage graft is frequently needed. However, cartilage graft presents a challenge in considerations such as appropriate donor site, skeletal shape and size, and healing of the donor area. To avoid these demerits, we tried primary closure of alar rim defects by also making the contralateral normal ala smaller. We treated two patients who had a full-thickness nasal alar defect after tumor excision. Cartilage graft was considered for the reconstruction. However, their alar rims were overly curved and their nostril openings were large. To utilize their nasal shape, we did primary closure of the defect rather than cartilage graft, and then downsized the contralateral nasal ala by means of wedge resection to make the alae symmetric. Both patients were satisfied with their aesthetic results, which showed a smaller nostril and nearly straight alar rims. Moreover, functionally, there was no discomfort during breathing in both patients. We propose our idea as one of the reconstruction options for nasal alar defects. It is a simple and easy-to-perform procedure, in addition to enhancing the nasal contour. This method would be useful for patients with a large nostril and an overly curved alar rim. (**Ann Dermatol 27(6) 748 ~ 750, 2015**)

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## -Keywords-

Acquired nose deformities, Nasal alar rim defect, Reconstructive surgical procedures

## INTRODUCTION

Functional and aesthetic reconstruction of the nasal ala is particularly challenging in cases with rim defects. Because of the absence of an intrinsic skeletal structure, cartilage reinforcement of the alar tissue is often needed to repair defects of the alar rim<sup>1</sup>. Conchal cartilage graft along the alar rim is widely used to maintain the nasal opening and prevent nasal valve compromise<sup>1</sup>. However, this is a time-consuming procedure that requires great skill and effort.

We suggest a simpler and useful alternative for the reconstruction of full-thickness defects of the nasal alar rim. We present two cases of Korean female patients with low nasal bridges and alar flaring, who underwent reconstruction with primary closure of the nasal alar rim and contralateral alar reduction.

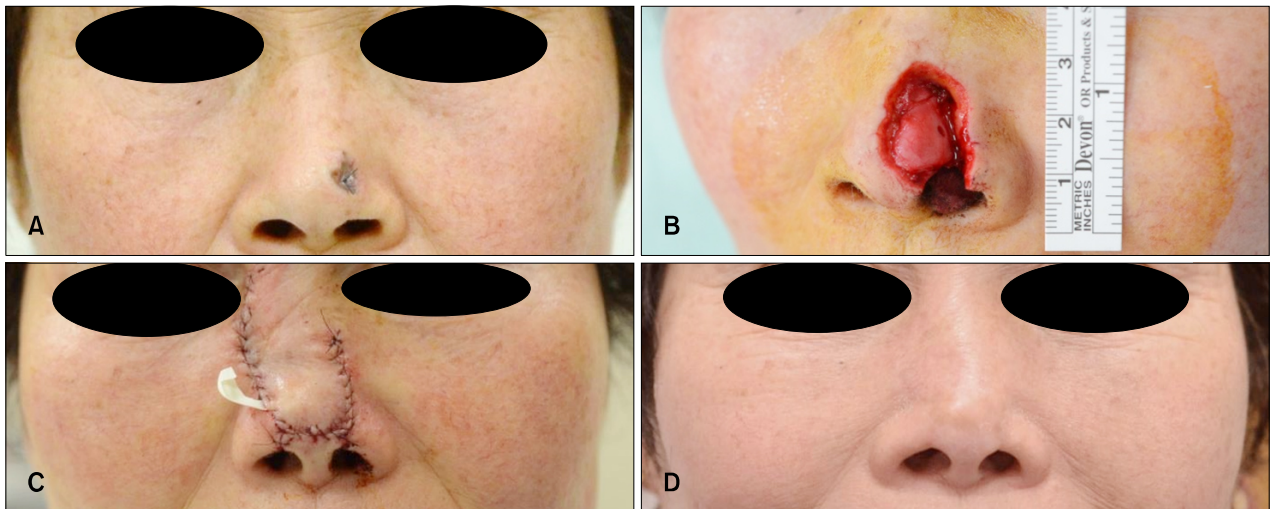
## CASE REPORT

### Case 1

A 54-year-old Korean woman presented with a slightly erythematous papule on her left nasal ala that had been present for 1 year (Fig. 1A). The punch biopsy was suggestive of neurothekeoma, and wedge resection was performed. Because of the depth of the mass, full-thickness defect of the ala and alar rim was noted after excision (Fig. 1B). Owing to the wide alar base and nostril, reconstruction of the nasal alar tissue was conducted by using primary



**Fig. 1.** (A) A 0.8-cm slightly erythematous papule was seen on the left nasal ala. An incision line was drawn on the normal ala similar to that in the involved ala (dotted line). (B) A full-thickness alar rim defect after mass excision was noted. (C) At the 2-week postoperative evaluation, reduction of both alae with minimally visible scars was observed.



**Fig. 2.** (A) Basal cell carcinoma was noted on the left nasal tip and ala. (B) A 1.5×2.0 cm alar rim defect after Mohs micrographic surgery was noted. (C) The alar rim defect was closed primarily, and then the remaining defect was reconstructed with concurrent reduction of the contralateral normal ala and the dorsal nasal flap. (D) At the 9-month visit, the postoperative scars were minimally visible.

closure. To obtain bilateral symmetry, the contralateral (unaffected) ala was likewise resected, resulting in a sharp and slightly notched appearance of the nostril. No postoperative functional discomfort was noted, and she was satisfied with the result at the postoperative 2-week visit (Fig. 1C).

### Case 2

A 65-year-old Korean woman was referred for basal cell carcinoma of the left nasal tip and ala (Fig. 2A). After Mohs micrographic surgery, a 1.5×2.0 cm full-thickness defect involving the left alar rim was noted (Fig. 2B). She had a low nasal tip and increased alar flaring that compensated for the loss of tip projection. Because of excessive alar flaring, primary closure of the alar rim was possible without high tension. The normal right alar rim was also reduced to make the size of nostril comparable to that of the left nostril, and then the remaining defect was repaired by means of construction of a dorsal nasal flap (Fig. 2C). The nasal openings were reduced postoperatively, with no

airway compromise. Minimally visible postoperative scars and patient satisfaction were noted at the 9-month visit (Fig. 2D).

### DISCUSSION

Because of its complex three-dimensional contour and location in the center of the face, the nose plays a critical role in the assessment of overall facial beauty. In addition to its cosmetic importance, its functional role in nasal airway maintenance must be considered during nasal reconstruction<sup>2</sup>. Accounting for one-third of all nasal defects, the ala is commonly involved in nasal reconstruction<sup>1</sup>. In a survey assessing patient satisfaction after nasal reconstruction, the patients were relatively less satisfied with their reconstructed ala<sup>3</sup>.

About two-third of alar reconstruction procedures require a framework with ear, septal, or rib cartilage to sustain contour and provide a patent airway<sup>1</sup>. Among the alar rim de-

fect repair procedures, grafts are commonly used in cases of resection-induced destruction of the alar rim, or when the defect is very close to the intact rim<sup>1,2,4</sup>. Although the alar lobule has no natural cartilage, it behaves like a cartilaginous subunit because of the coarse fat layer and the interdigitation of the muscular components with the external skin<sup>2</sup>. Therefore, alar rim defects require nonanatomic support grafts to prevent alar notching, nasal obstruction secondary to alar collapse, and flap contraction even in the absence of a cartilage deficit. For free cartilage grafts, cartilage is generally harvested and carved to achieve a suitable shape and thickness. The surgeon needs to possess the necessary skill and experience to perform cartilage graft procedures. Some grafts, including the composite graft, tend to heal with a color mismatch with the adjacent alar skin and with unpredictable alar notching<sup>1</sup>. Nevertheless, cartilage graft is considered necessary in alar rim defects<sup>2</sup>.

In this report, we present the primary closure of alar rim defects as a simple and efficient alternative for postoperative reconstruction in selected patients. In these cases, patients with a low tip projection, wide alar base, and alar flaring were deemed suitable for cosmetic alar flaring reduction<sup>5</sup>. As the final outcome, primary closure of alar rim defect was found to be simple, in addition to producing enhanced aesthetic results. Through the primary closure of the alar rim in the second case, we were able to perform a dorsal nasal flap reconstruction, which has limitations for defects that are close to the alar rim<sup>1</sup>. In both cases, during the postoperative follow-up periods, excellent cosmetic and functional results with good patient satisfaction were noted with only a faint scar in both alae. Although, in the contralateral ala, we resected the same portion of defect in both cases, it might be possible to perform resection on the base of the contralateral ala, as is done in alar reduction rhinoplasty. By resection on alar base rather than in the counter part of the defect, additional scar on normal tissue as seen in our cases could be avoided; however, it will require somewhat more skillful techniques for maintaining alar symmetry.

We present a novel method that saves time and effort, and avoids potential morbidity from additional surgical procedures. The conventional alar repair method such as composite graft is absolutely still useful. However, our new concept of primary repair with alar reduction could be considered in selected patients as one of the alternative options for the repair of nasal alar rim full-thickness defects.

To avoid complications such as alar notching and a poor cosmetic result, this procedure is limited to those with the

appropriate nasal structure and defect. Generally, most Asians have a low and flat nose with enough alar bulging. Compared with Caucasians, Orientals have low nasal bridges with thick skin, weak alar cartilage, loose muscle, and unclear subunit distinction, and these characteristics are favorable for our method<sup>6</sup>. Furthermore, the size of the alar defect is an important factor in the indication. Of course, the defect size suitable for primary repair depends on the patient's original alar shape and flaring; however, excessive loss of nostril tissue makes repair impossible without grafting. Therefore, we suggest that if there is more than one-fourth of nostril loss, our method is not recommended in consideration of the distortion of configuration resulting from primary closure. Informed consent of patients is also essential to decide the repair method. Removal of the skin lesion and repair including alar reduction rhinoplasty is performed in one step in our method. It is simple and time saving to do all procedures at a time; however, because of the uncertainty about postoperative outcomes before surgical removal, a thorough explanation and discussion with patients is necessary.

We propose a new notion in alar repair without cartilage graft. However, the variety in nasal structures and the defect in each patient must be considered. Precise preoperative assessment for potential excess alar base width, alar flare, nostril shape or size, feature of the defect, and detailed informed consent is necessary to achieve postoperative patient satisfaction and proper function.

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