

A New Approach in Open Rhinoplasty: New Alar Rim Raising Technique

Mahmood Sadooghi, MD and Ali Kouhi, MD

ABSTRACT

Background: The relationship of the alar rim to the columella and its contour has great aesthetic importance, and correcting its deformities is sometimes challenging, especially if it is hanging, asymmetrical, or sigmoid—especially in the African or Asian nose.

Methods: The new method of alar rim incision is described here. This new approach combines the alar rim incision and incisions necessary for external rhinoplasty (modified external approach).

Results: All 24 patients noticed improvement and were satisfied with the results. Alar function was preserved in all cases. There were no complications, but two cases had asymmetrical alar width.

Conclusion: Our new incision for alar rim excision not only decreases incision lines in the limited area of the nose, resulting in decreased risk of tissue compromise, but also provides a controlled method to remove excessive skins of the rim.

SOMMAIRE

Contexte: Le rapport entre le bord alaire et la columelle et son contour revêt une grande importance esthétique, et la correction de défauts présente parfois des difficultés, surtout dans les cas où l'aile du nez est tombante, asymétrique ou sigmoïde, en particulier chez les personnes d'origine africaine ou asiatique.

Méthodes: L'article décrit une nouvelle technique d'incision, qui associe à la fois l'incision du bord alaire et les incisions nécessaires à la rhinoplastie externe (voie d'abord externe modifiée).

Résultats: Vingt-quatre patients ont été opérés, et tous ont constaté une amélioration de l'apparence et se sont dits satisfaits des résultats. Le fonctionnement des ailes a été conservé dans tous les cas. Il n'y a pas eu de complications, mais, dans deux cas, la largeur des ailes du nez était asymétrique.

Conclusion: La nouvelle incision pratiquée en vue de l'excision du bord alaire non seulement diminue les lignes d'incision dans la zone limitée du nez, ce qui réduit les risques de lésion des tissus environnants, mais elle permet également de retrancher avec précision les excès de peau du bord alaire.

Key words: hanging ala, rhinoplasty, rim raising

Rhinoplasty, the most common aesthetic surgery in our country, is challenging most of the time. Great varieties of techniques have been discussed regarding the osteocartilaginous part of the nose. However, the alar rim and its relationship to the columella have been neglected.

The relationship of the alar rim to the columella and its contour has great aesthetic importance, and correcting its

deformities is sometimes challenging, especially if it is hanging, asymmetrical, or sigmoid, which is commonly encountered in the African or Asian nose.¹⁻³ To date, most patients and surgeons prefer not to mention these problems owing to difficulties of corrective techniques and a relatively high rate of complications, most of which are skin scars and unpredictable results.²⁻⁵ The other important issue is that with previous methods of alar rim modification,⁶ multiple skin incisions (especially when alar base resection was planned) lead to a very narrow-based pedicle of skin with a high possibility of ischemia.^{4,5,7}

The new method of alar rim incision is described here. This new approach combines alar rim incision and incisions necessary for external rhinoplasty (modified external approach). The method is designed to appropriately address the alar rim–columellar relationship with a decreased complication rate and good outcomes.

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Methods and Materials

Study Group

Twenty-four consecutive patients (mean age 24 years; range 18–34 years) who were candidates for open rhinoplasty were included in the study. Most of the patients were female (female to male ratio 7:1), and all of them had hanging or sigmoid ala requiring correction. All operations were done under general anesthesia and were performed by the senior author (M.S.). This study was performed during a 10-year period (1998–2008), and the study protocol was reviewed and approved by the Tehran University of Medical Sciences Research Ethics Review Board.

Technique

All of the rhinoplasty operations were done by an open approach. To aid planning the desired aesthetic result, the excision area was painted, simulating the postoperative contour. The amount of resection was estimated by aesthetic analysis of preoperative photographs (especially the lateral view), and the columellar-alar relationship. So the amount of elevation of the alar margin determined the amount of skin resection. Classic transcolumellar incision was performed. Instead of classic marginal incision (which is done near the caudal edge of the lower lateral cartilage), a new modified incision was made along the caudal alar rim and in the vestibular area and curves to the outer surface skin of the ala just after the soft triangle. Therefore, the lateral portion of the incision was just where we planned to resect the excessive ala skin. After thorough



Figure 1. Schematic view of the incision line around the columella and ala. Great care is taken regarding soft triangle scarring. The incision is continued to the external surface after the soft triangle is passed. The *dashed* part represents the intranasal parts of the incision.

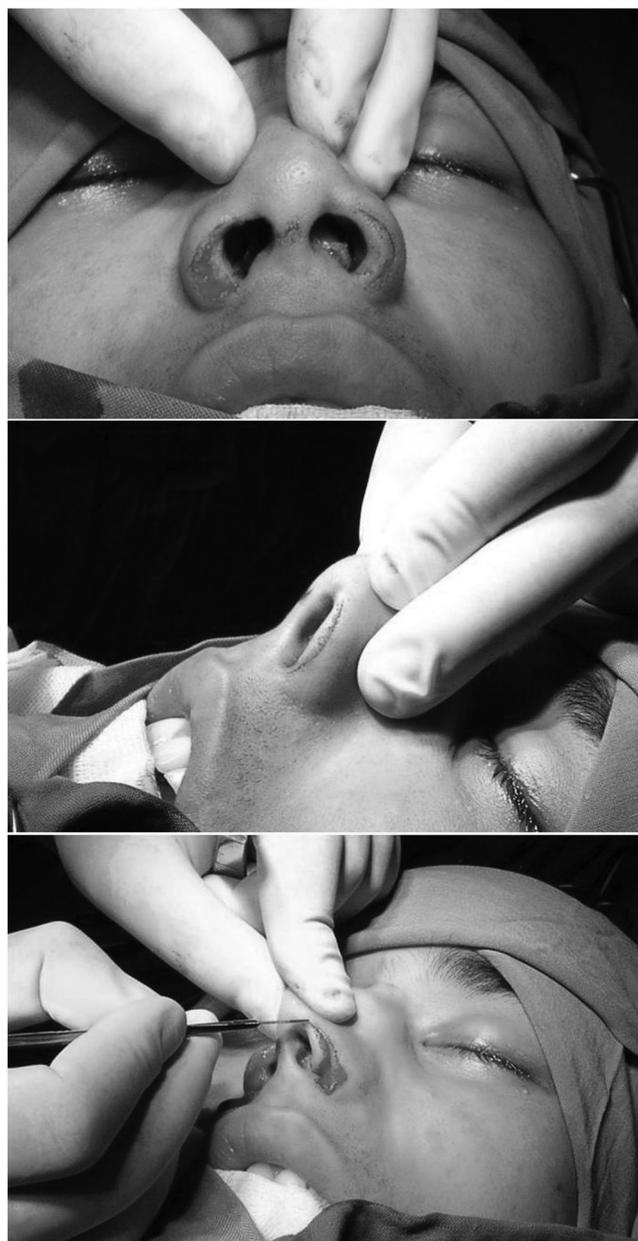


Figure 2. View of the new alar rim incision and handling of the hanging ala during this approach. The intranasal part of the incision is not shown.

judgment of the need for alar base resection and if alar base resection is planned, it was continued laterally as needed (Figure 1).

Excess alar rim skin was trimmed appropriately, and after elevating the skin and soft tissue flap and performing the necessary steps of the rhinoplasty, a newly designed alar rim was created by suturing the skin. The suture line was kept as inward as possible. To achieve this, the medial skin flap was trimmed a little

more so that the longer lateral skin flap could be returned inside; minimal undermining loosens the skin and helps achieve this (Figure 2). This helps reduce the risk of a visible scar.

The nasal cavity was packed with antibiotic-soaked gauze. Skin sutures were kept moist with antibiotic ointment and were removed by the fifth postoperative day.

Surgical outcomes were evaluated by analyzing pre- and postoperative photographs. Patients marked their perception of the columellar-alar aesthetic improvement on a visual analogue scale. Improvement of more than 50% was assumed as satisfaction. The alar-columellar relationship was studied and analyzed by a paired *t*-test.

Results

Of 24 patients, 21 (87.5%) were followed for a mean of 27 months (6–39 months). Seventy-one percent of the patients underwent alar base resection or suturing concurrently (17 of 24). All patients noticed improvement and were satisfied with the results (at least 50% improvement on the visual analogue scale). Alar function was preserved in all cases. A visible columella was significantly increased (1 mm preoperatively to 3 mm postoperatively; $p < .001$). Figure 3 and Figure 4 show pre- and postoperative photographs, respectively. Most patients (91.7%) had a symmetrical ala-columella, and the mean side to side difference was 0.7 mm (range 0–3 mm). There was no complication except two cases with asymmetrical alar width, which was not so noticeable as to require revision. Edema was resolved more slowly than expected, perhaps owing to the fact that the majority of the cases had thick sebaceous skin.

Discussion

The alar-columellar relationship and alar rim contour have great impact on the appearance of the nose, especially from a lateral view. In spite of wide description of this relationship, little is discussed about correcting techniques, and they are rarely performed. Whereas alar base wedge resection is employed in 15 to 98% of aesthetic nose surgeries, rim excision is used in only 1%.⁸ Although alar wedge resection, when properly performed, changes nasal base width as desired, it has little effect on rim width.^{9,10} This low rate of rim excision in rhinoplasty (1%) may be due to low incidence of hanging alae, but an important reason for this is the lack of a proper technique with good outcomes and minor complications. However, even when performed, the classic method results in multiple skin incisions on the basal area of the nose during open rhinoplasty (columella, alar base, and alar rim) and increases the risk of tissue ischemia and necrosis significantly.¹¹

Our new incision for alar rim excision not only decreases incision lines in the limited area of the nose, resulting in a decreased risk of tissue compromise, but also provides a controlled method to remove excessive skin of the rim. In spite of traditional “piece of pie” methods for alar rim excision, as described by Ellenbogen and Blome,⁶ this method enables the surgeon to address hanging, low, or disproportionate alae. The most important difference our new method provides is combining multiple incisions. Therefore, in spite of previous methods,⁶ the alar-columellar relationship and alar base resection can be addressed by just one incision. This approach can be a very helpful method in the Asian and non-Caucasian nose owing to a high prevalence of hanging alae in these groups. It should be mentioned that with this new approach, a thick alar rim can also be addressed, and excessive subcutaneous tissue can be trimmed properly. With good

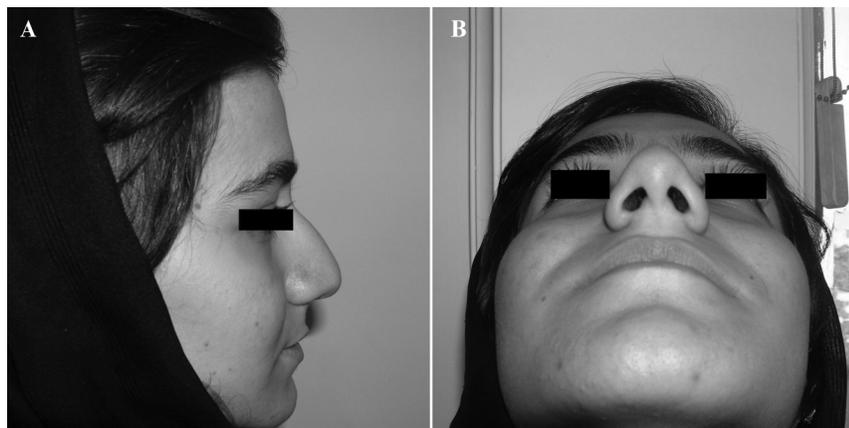


Figure 3. Preoperative views of a patient undergoing this approach. A, Lateral view. B, Basal view.

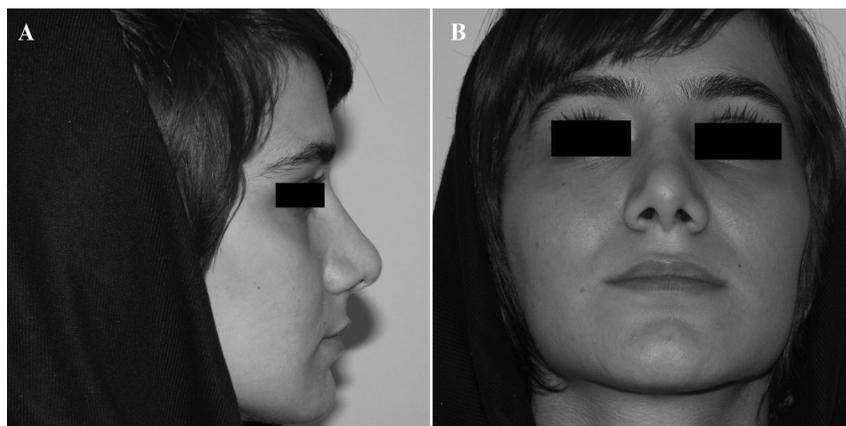


Figure 4. Postoperative view of the same patient. *A*, Lateral view shows improvement in the columellar-alar relationship. *B*, The nostril has no visible scar or deformity caused by the alar incision.

judgment and estimation, it can help correct the thick alar rim, enlarging the small nostrils and even equalizing asymmetrical nostrils. Also, if any rim augmentation is planned, we can do it easily from this incision.

Technically, to avoid possible complications, great care should be taken regarding soft triangle scarring. The incision is continued to the external surface after the soft triangle is passed. As Figure 1 shows, the dashed line is the intranasal part of the incision. Although a visible scar is a potential complication, as our experience and other reports⁶ show, it is not a great concern. However, even if scar formation occurs, it will not be visible as it lies in the ala margin.

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