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A. Emre Ilhan, Basak Caypinar Eser & Betul Cengiz

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IDEAS AND INNOVATIONS

"The magic finger technique" a simplified approach for more symmetric results in alar base resection

A. Emre Ilhan[1] · **Basak Caypinar Eser**[1] · **Betul Cengiz**[1]

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Abstract Alar base surgery is one of the most important and challenging steps of aesthetic rhinoplasty. While an ideally shaped alar base is the goal in a desired nose, nearly all patients have asymmetric nostrils preoperatively.

Ethnicity, trauma, cocaine use, or previous rhinoplasties are some factors affecting the width and shape of the nasal base.

After the conclusion of all planned rhinoplasty sequences and closure of the mid-columellarincision, we mark the midline inferior to the columella at the nasolabial junction and use acaliper to measure an equal distance from the mid-columellar point to the alar creases on eachside, and mark the medial points of the alar creases. Next we draw on the natural creasesbilaterally extending to 3 o'clock on the right side and 9 o'clock on the left side as the limit ofthe lateral excisions to avoid scarring. We then gently depress the alae and alar-facial grooveswith the index finger and allow the formation of new creases superior to the original alarcreases in order to detect excess skin to remove. After marking, the resection was performed with a no. 15 blade. The excision was closed using 6-0 Prolene sutures.

We aimed to describe a simple technique for making asymmetric resections in which theapplication of pressure by a finger reveals excess skin in both nostril sill and nostril flareindependently for each alar base. With these asymmetric excisions from the right and left alar bases, a more symmetric nostrils and nasal base can be achieved.

Level of Evidence: Level IV, therapeutic study.

Keywords Alar base · Rhinoplasty · Symmetry · Asymmetry

✉ Basak Caypinar Eser
bskcypnr@hotmail.com

[1] ENT Clinic, Rino Center, Istanbul, Turkey

Introduction

Alar base surgery is one of the most important and challenging steps of esthetic rhinoplasty. While an ideally shaped alar base is the goal in a desired nose, nearly all patients have asymmetric nostrils preoperatively.

"Alar base" refers to the bottom third of the nose when the head is tilted back [1]. It is generally accepted that reduction of the nasal base width should be considered when interalar distance exceeds intercanthal distance in the Caucasian patient [2–7], and ethnic variations in alar base anatomy have been described [8–9]. Ethnicity, trauma, cocaine use, or previous rhinoplasties are some factors affecting the width and shape of the nasal base [10, 11].

Surgery through the alar base aims to avoid overstraightening the ala, to preserve the natural curvature of the ala, to avoid apparent incisions into the nostril opening, and to have a more symmetric appearance between the nostrils.

Although the concept of nasal base narrowing was introduced over a century ago and numerous techniques and various modifications have been devised for alar base remodeling, it continues to be controversial and sometimes confusing for the rhinoplasty surgeon. Basically, the most challenging aspect of intervention through the alar base is creating more symmetry in the sizes and shapes of the nostrils, as they are frequently asymmetric preoperatively.

Surgical technique

Preoperative evaluation is critical and should include the size, shape, and symmetry of the nostrils; the width and position of the columella; the relationship between columellar length and

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Fig. 1 Preoperative (*left side*) and postoperative (*right side*) pictures of the patient in operation room

height of the lobule, which should be nearly 2:1; and the thickness and contour of the alae (Fig. 1) [10].

After the conclusion of all planned rhinoplasty sequences and closure of the mid-columellar incision, we mark the midline inferior to the columella at the nasolabial junction and use a caliper to measure an equal distance from the mid-columellar point to the alar creases on each side and mark the medial points of the alar creases (Fig. 2a–c). Next we draw on the natural creases bilaterally extending to 3 o'clock on the right side and 9 o'clock on the left side as the limit of the lateral excisions to avoid scarring (Fig. 2d). We then gently depress the alae and alar–facial grooves with the index finger and allow the formation of new creases superior to the original alar creases in order to detect excess skin to remove (Fig. 2e–h). With this technique, the surgeon can plan asymmetrical excisions of different thicknesses and widths from each ala with a simple and easy maneuver, resulting in a more symmetric alar base and nostrils in all kinds of alar base anatomies. Furthermore, with a simple press of the finger, this technique allows the surgeon to identify how much tissue should be excised from the nostril sill and how much from the nostril flare in patients undergoing alar base resection.

After marking, the resection was performed with a no. 15 blade. The excision was closed using 6–0 Prolene sutures (Fig. 1). Antibiotic cream was applied on the incision lines, and all Prolene sutures were removed on the fifth postoperative day.

Case Presentation

Here we present a female patient aged 24 years old. She had rhinoplasty and alar base resection in this operation. She had asymmetrical alar bases with the compound problems of nostril flares and wide nasal sills. She had 3 mm resection for left

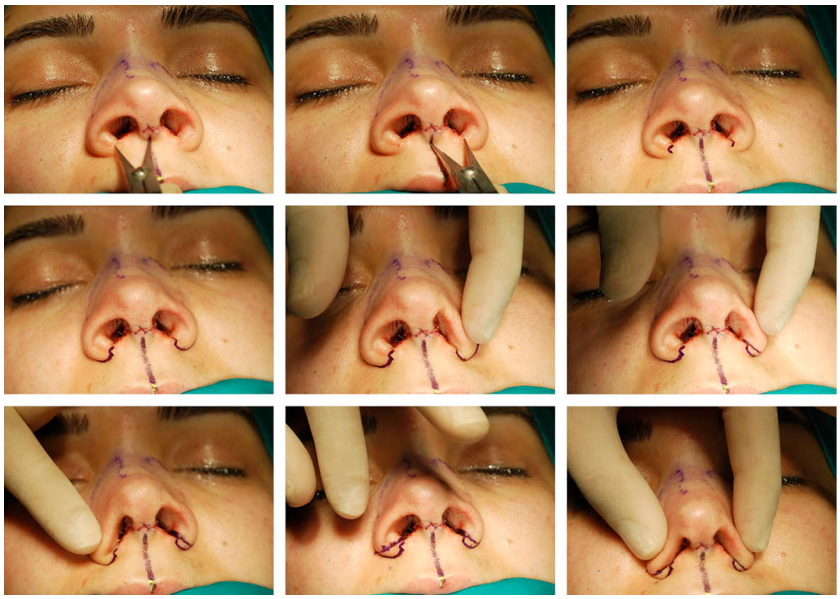

Fig. 2 **a**, **b** Measuring for each nostril sill equally. **c** Marking the midline of nasal base and medial portions of creases**. d** Marking the inferior border of the natural creases**. e** Depressing the alae and alar–facial grooves with the index finger**. f** Allowing and marking the formation of new creases superior to the original alar creases in order to detect excess skin to remove for left side**. g** Allowing and marking the formation of new creases superior to the original alar creases in order to detect excess skin to remove for right side**. h** Showing the excess skin for both sides without depressing alaes and alar–facial grooves with the index finger. Showing the excess skin for both sides with depressing alaes and alar–facial grooves with the index finger

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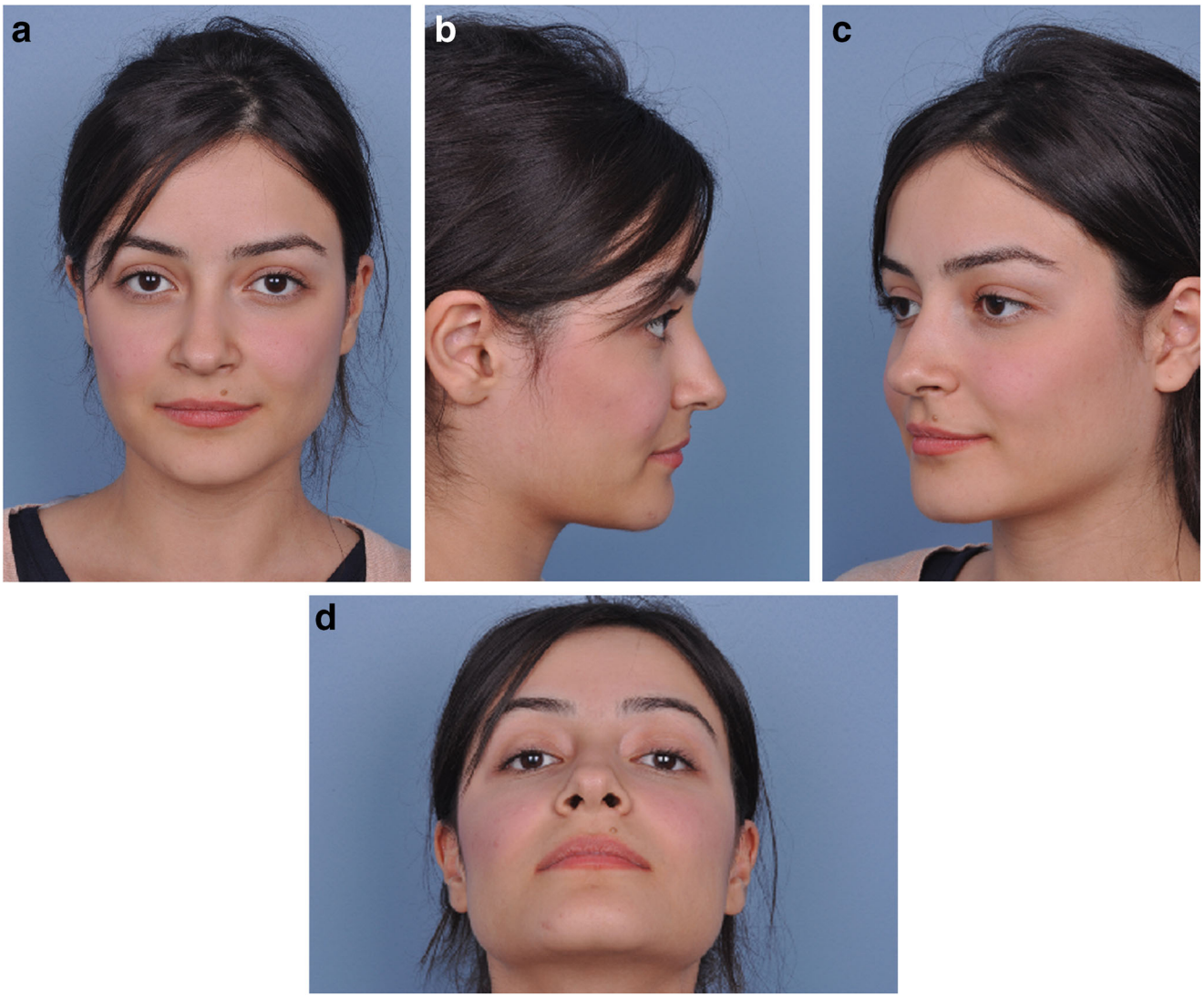

Fig. 3 Preoperative views: **a** frontal view, **b** lateral view, **c** oblique view, and **d** inferior alar base view

side nostril and 2 mm resection for right side nostril with the described technique (patient pictures) (Figs. 3 and 4).

A total of 184 patients who underwent primary rhinoplasty by the same surgeon with alar base reduction using this technique between August 2012 and August 2015 were followed for a mean period of 18 months (range, 8 to 36 months). No cases of postoperative bleeding, infection, vestibular stenosis, or nasal obstruction were encountered. Cosmetically, the external alar wedge excision resulted in an inconspicuous scar that was well hidden in the depth of the alar–facial crease and did not result in obliteration of the natural crease in any of our cases. No keloid or hypertrophic scar formation occurred, and no dermabrasion of the scars was needed to eliminate apparent suture track marks.

In all cases, alar base excision achieved effective narrowing of the nasal base with elimination of excessive flaring and resulted in narrower, more vertically oriented nostrils and a better-proportioned, more symmetric nasal base.

Discussion

The alar base is an often neglected and not fully understood anatomical region [12, 13]. Preoperative evaluation is

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Fig. 4 Postoperative views: **a** frontal view, **b** lateral view, **c** oblique view, and **d** inferior alar base view

fundamental for rhinoplasty, but alar base reduction is usually performed as the final maneuver of the operation because any narrowing of the nasal tip or change in tip projection would have a direct effect on alar base configuration [14]. The surgeon took the patient consent form for every patient which may need this maneuver in operation. Achieving symmetry of the nostrils is one of the primary and most difficult goals of alar base surgery. Nostril asymmetry may be caused by a wide columella, caudal septal deviation, prominent medial crural feet, congenital defects, or nasal masses; it is a disturbing problem and a common cause of revisions for patients undergoing rhinoplasty surgery [15]. The nostrils should be pear shaped, about the same width as the columella, and have their long axis oriented at an approximately 45° angle to the vertical axis of the columella [7, 16, 17]. An additional anatomic consideration for alar base reduction is that of the alar axis. Sheen described the alar axes as divergent, straight, or convergent [18]. Farkas et al. [19] studied morphometric features in various ethnic groups in their objective assessment of nostril types.

External alar wedge excision was first described by Robert Weir in 1892 to correct the unattractive alar flare resulting from reduction rhinoplasty [16, 20]. Joseph [21] and Aufricht [8] later modified the Weir incision (or alar wedge excision) in 1931 and reported narrowing the alar base using internal excisions from the nostril base and vestibular floor [16]. Many authors [8–10] subsequently used

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their modified technique, mainly to avoid the external scars resulting from the classical Weir excision. However, since the early 1980s, many surgeons have returned to a preference for the external cutaneous excision [22] to avoid the risk alar rim retraction following vestibular skin excision. Furthermore, Foda performed combined internal–external excisions as "boomerang-type alar base excision" to correct a wide nasal base with excessive flaring [14].

McKinney et al. [23] also described a standardized approach to alar base surgery. Gilbert [24] especially focused on scarring. Gruber et al. stated that the nostril–sill junction varies with ethnic factors [25] and described that pressing on the ala with the index finger causes a fold at the ala/sill junction. Gruber also claimed from his surgical experience that scars tend to be more inconspicuous when incisions are made on the fold at the ala/sill junction created with this finger pressing technique [26, 27].

Becker et al. [4] described grading scales and different surgical approaches for varying alar bases. Daniel et al. performed valuable cadaveric studies to investigate the anatomy of the nasal base as distinct cartilaginous and soft tissues [28].

In this report, we summarized the ideal alar base, basic surgical approaches, and the importance of the alar base in rhinoplasty. We would especially like to increase awareness of possible asymmetry problems in the nasal sill and nostrils in primary rhinoplasties and even revision cases.

Our aim is to share our experiences with a simple and efficient technique for making asymmetric resections in which the application of pressure by a finger reveals excess skin in both nostril sill and nostril flare independently for each alar base together with current knowledge from the literature. With these asymmetric excisions from the right and left alar bases, a more symmetric nostrils and nasal base can be achieved. Overall, we intend to facilitate the analysis and approach and aid the surgeon in achieving the most natural and symmetric outcomes possible.

Compliance with Ethical Standards

Conflict of interest A. Emre Ilhan, Basak Caypinar Eser, and Betul Cengiz declare that they have no conflict of interest.

Patient consent Patient provided written consent before her inclusion in this study. Additional consent was obtained for the use of her images.

Ethical standards For this type of article formal consent form a local ethics committee is not required.

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