Asian-American Rhinoplasty

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Background: Although a number of studies have discussed rhinoplasty of the Asian nose, few have focused specifically on the Asian-American nose, which incorporates characteristics from various Asian nationalities and/or ethnic groups.

Objective: The authors propose a classification system for aesthetic correction of the Asian-American nose and outline surgical techniques with general application to this patient population.

Methods: Patients were classified into 3 categories based on morphologic characteristics, as follows: type I (vertical deficiency), type II (vertical deficiency and broad nasal width), and type III (type I or II with glabella deficiency). The treatment protocol included cartilaginous augmentation of the tip, columella, and dorsum for type I patients, using the ear as a donor site. Type II patients underwent similar augmentation and also reduction of the tip and nasal bone, and in some cases reduction of the nasal base. Type III patients received the same treatment as type I or II cases, but in addition required glabella augmentation with hydroxylapatite.

Results: Representative case studies and results are illustrated for each of the 3 types of patients.

Conclusions: A successful approach to Asian-American rhinoplasty should be based on preservation of the patient’s ethnicity and achievement of facial balance while refining individual facial features. Augmentation of vertical deficiencies is essential to an aesthetic outcome, while glabella correction can be crucial to the overall result in type III patients. (Aesthetic Surg J 2004;24:423-430)
finding is an insufficient overall vertical height. The apparent broad nasal features (nasal bones and nasal base) are relative to the vertical deficiency. This type of patient does not have a significant, absolute increase in nasal base width or nasal bone width.

Type II (next most common—7 patients) is the patient who also is deficient in overall vertical height (dorsal deficiency, tip hypoplasia, and/or columella deficiency) but in addition exhibits an absolute increase in width of the nasal tip, nasal bones and/or nasal base. The ala itself can be somewhat enlarged and the skin may be thick.

Type III (occasional—4 patients) is the patient who has features characteristic of type I (and sometimes II) but in addition has a glabella deficiency. The root of the nose is usually diminutive, so that in some of these patients the eyelids are anterior to the nasal root.

**Surgical Treatment**

**General principles**

The choice of using an open versus a closed approach in treating all 3 of these morphologic types of Asian-American noses can vary according to particular circumstances. In our series of cases, the open approach was usually preferred because it provided better visualization. Because aesthetic correction of the Asian-American nose was typically an augmentation rhinoplasty, the skin was brought under slight stretch. Therefore, potential problems of late postoperative edema and fibrosis caused by an inability of the skin envelope to accommodate the new, larger nasal framework were not significant. The closed approach was generally reserved for patients who preferred not to have an external scar and when deemed more appropriate because of other factors, such as local circulatory conditions (eg, scarring of the skin, smoking, etc).

**Type I patients**

Type I patients received a surgical correction to each nasal component that contributed to the overall unaesthetic appearance. Dorsal deficiency (including radix) was generally treated by placement of a dorsal graft using ear cartilage. The specific technique for harvesting concha cymba and cavum, and structuring it into a tandem unit that can provide substantial dorsal augmentation, has been

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*Figure 1. A basal view is best to demonstrate (A) tip deficiency, (B) columella deficiency, or (C) tip and columella deficiency.*

*Figure 2. An abnormally curved columellar strut graft (eg, from the ear) can be straightened by applying a mattress suture of 5-0 nylon to the convex side of the graft. Note that the suture enters the cartilage perpendicular to the longitudinal direction of the cartilage.*
described in detail elsewhere. The important point is that augmentation of the dorsum (preferably with autogenous material) is a key ingredient. Columella deficiency was treated with a columellar strut (preferably autogenous septal cartilage, but, when necessary, ear cartilage). The concha cymba can provide a substantial (4 mm × 25-30 mm × 1 mm) strut. If ear cartilage was used and happened to have an undesirable curvature (convexity), a mattress suture was used to straighten it out (Figure 2). Tip deficiency was corrected with an anatomic tip graft and support graft.

Type II patients

Type II Asian-American patients received essentially the same treatment as type I patients but also required reduction of the absolute width of the nasal bone region and/or the nasal base. Excessive nasal base width was corrected with a conservative excision (3-4 mm) of the medial aspect of the ala or the nostril sill, depending upon which contributed more to the excessive width of the nasal base. In some instances, the entire nasal base width was reduced further by undermining the entire nasal base (which includes ala, sill, and columellar base) and adjacent premaxillary (pyriform) tissue. After this undermining, a pair of large sutures (2-0 nylon) was passed from one ala to the other (spanning sutures) in order to narrow the overall nasal base even further (Figure 3). The details of this type of nasal base reduction procedure are provided elsewhere. We have not favored more radical excisions of the ala itself because in our experience such procedures can occasionally result in an unnatural appearance.

Because the bulbous or broad tip cannot be camouflaged very well by a tip graft, type II patients required a tip-plasty (open or closed), which included cephalic trim of the lateral crus (leaving a 6-mm wide lateral crus) and then application of the suture algorithm suggested elsewhere for the bulbous or broad nasal tip. This algorithm includes (1) the transdomal suture, (2) the interdomal suture, (3) the lateral crural mattress suture (to eliminate convexity of the lateral crus) and, if needed, (4) the columella-septal suture (to secure the tip complex to

Figure 3. Nasal base reduction is performed by first resecting either a portion of the ala or a portion of the nostril sill. A, The periosteum and soft tissue of the ala is then elevated from the bone with a Freer elevator. B, A tunnel is made from one alar wound to the other. C, A pair of 2-0 nylon sutures approximates the dermis of one ala to the other ala. D, Slight overcorrection is performed when tightening the suture.
the caudal septum). Lateral osteotomies were performed by the buccal sulcus approach. However, many methods, including the external percutaneous approach, will work equally well. Medial or medial oblique osteotomies were not required to narrow the dorsal width because type II patients received a dorsal/radix graft that camouflaged the old dorsum.

Type III patients

Type III patients received glabella augmentation in addition to the above-mentioned correction of vertical deficiency and (if needed) correction of the increased absolute width of the nasal bones, nasal base, and/or tip. A small incision was made within the hairline of the central forehead, and a pocket was developed with a periosteal elevator over the glabella region. Hydroxylapatite (mixed as prescribed by Hobar et al) was placed within the pocket until the glabella exhibited a smooth contour. Usually, 5 mL was required. Care was taken to maintain a separate pocket for the glabella so that no granules of hydroxylapatite migrated into the nasal dorsum. During the early postoperative course (when the hydroxylapatite was still malleable), digital molding of the glabella area was necessary in some cases in order to maintain a smooth contour that was free of irregularities.

Results

Case study results are illustrated for each of the 3 morphologic types treated in our series.

Type I

This 20-year-old woman requested a “taller” nose and more defined upper lids. The physical examination revealed an overall vertical deficiency (dorsal deficiency, tip hypoplasia, and columellar deficiency). There was an involuted hemangioma on the left side of the nose dating from childhood, which the patient did not want treated, and an ill-defined supratarsal fold. Using an open approach, the dorsum was augmented with a tandem graft from the ear. The septum was used for a tip graft and columellar strut. At 10 months postoperatively, the nose had an appearance of greater vertical height and an overall more aesthetic appearance (Figure 4).

Type II

This 26-year-old man requested a “less flat” nose. The physical examination revealed a broad nasal base (primarily the nostril sill) and vertical deficiency (a short col-
umella, tip deficiency, and dorsal deficiency). Surgical correction included a tip graft, columellar strut, and dorsal augmentation with a tandem ear graft. A nasal base reduction was performed in which a section of the nostril sill was excised, the soft tissue of the alar was freed from the premaxillary (pyriform) region, and a pair of 2-0 nylon (spanning) sutures was used to reduce the nasal base width even further. At 13 months postoperatively, the nose width was improved because part of the nose was literally narrowed and because the overall vertical height of the nose was increased (Figure 5).

**Type III**

This 30-year-old woman requested more prominence to her dorsum, including the nasal bridge. The physical examination revealed a lack of vertical height (a short columella, tip deficiency, and dorsal deficiency). She also exhibited severe glabella deficiency, with the eyelids anterior to the nasal root. Surgical correction included a tip graft, columella graft, and dorsal tandem graft (the ear was the donor site). The glabella was augmented with 5 mL of hydroxylapatite. She also received an upper blepharoplasty, chin augmentation, and submental lipoplasty. At 2 and one-quarter years postoperatively, there was significant improvement in the nasal appearance, particularly the glabella deficiency (Figure 6).

**Discussion**

Our approach to Asian-American rhinoplasty emphasizes the need to preserve the patients’ ethnicity and achieve facial balance. The operations we have been performing are not directed toward “Westernization” of the Asian face, but rather to refining of the individuals’ facial features regardless of their heritage.

A review of our experience with the Asian-American nose reveals that however we chose to categorize the Asian-American nose (which is difficult because of the variability among Asian national groups as well as within each group), Asian-American rhinoplasty is an operation that requires vertical augmentation and, on occasion, width reduction. Specifically, it most often involves augmentation of 3 areas: the dorsum, the tip (infratip lobule), and the columella (type I). On occasion, width reduction is also necessary and involves the nasal tip, nasal bones, and nasal base (type II). Less frequently, the glabella needs augmentation as well (type III).

Studies involving other types of non-Caucasian nose have had similar findings. In their extensive review of Mestizo noses, Ortiz-Monasterio and Michelana found it necessary to perform dorsal augmentation, add a triangular tip graft and a major columellar strut to open the

![Figure 5](image-url)
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columella-labial angle, and increase tip support. Nostril sill excisions were also a paramount feature of their algorithm. The Hispanic noses in Daniel’s review also often required augmentation of the types mentioned above. In those cases, however, there were more Caucasian-like features (his type I) that needed to be corrected by dorsal reduction and narrowing of the bony vault. In our patients, dorsal augmentation was accomplished almost exclusively with cartilage harvested from the ear. However, other donor sites are perfectly acceptable (eg, the septum and rib). Parsa favored the use of calvarial bone, but in our experience bone is much more difficult to sculpt and tends to absorb to a greater degree than cartilage. Some surgeons are simply more comfortable and experienced with one method over the other. Our choice of the ear as a donor site was dictated by its low morbidity, by the newer techniques that permit conversion of normally curved cartilage into a reasonably straight structure that simulates the normal dorsum and radix, and the ability to harvest ear cartilage under local anesthesia (unlike some rib graft techniques). Use of the ear as a donor site for the dorsum also allows the septum to be available for carving a columellar strut and tip graft.

Osteotomies in the type I nose are not performed because the absolute width of the nasal bones is normal; it simply appears broad when the dorsum is deficient. Tip work (in the form of cephalic trim of the lateral crura and suture techniques to contour the nasal tip complex) is also not performed in type I cases. This is because the tip cartilages in this situation are quite deficient, rendering these kinds of techniques of little value other than to create more edema and potential subsequent fibrosis.

Although alloplastic materials have worked well for some authors, we purposely did not use them for either the dorsum or the columella because of our experience of having to deal with late extrusion and ulceration problems when using any alloplastic material. Our experience with Alloderm (Lifecell, The Woodlands, TX) has been satisfactory in terms of extrusion and infection but not in terms of absorption. By contrast, our experience with cartilage is that it is the gold standard for nasal reconstruction. If the new method of using diced cartilage within a fascial or Surgicel cover (Ethicon, Johnson & Johnson, New Brunswick, NJ) proves to be as successful as the initial reports indicate, we may use this procedure to replace our current ear cartilage technique. It appears to be easier to execute. Time will tell what the
long-term survival of diced cartilage is and whether it can retain its aesthetic shape and definition.

None of our patients had a significantly hanging ala. However, we only examined 23 cases. Had this been a particular problem, we would have chosen a procedure such as that of Boo-Chai24 to correct the ala ptosis. There are a variety of other techniques to improve alar base size, contour, and nasal base width.25,26 We currently favor conservative skin excision, because excessive skin resection in an attempt to reduce the overall width of the nasal base can result in an unesthetic shape for the ala. Consequently, we would rather limit our alar surgery to reduction of the overall nasal base length by the method described above, which mobilizes the soft tissue of the entire base and maintains its narrowness with permanent sutures. Admittedly, partial recurrence of ptosis will occur in some patients.9 However, in our judgment it is better to repeat the procedure the following year if need be. Once too much ala is resected in an attempt to reduce the overall nasal base width, it is extremely difficult, if not impossible, to restore its natural appearance. Whatever quantity of ala is excised, placing the incision just off the alar fold, as Daniel14 describes, is an excellent method that produces the most natural result.

Premaxillary deficiency and midface hypoplasia are problems that occasionally require treatment in some non-Caucasian noses.27,28 We did not find them to be a particular problem in our small group of patients. We did note, however, that nasal base reduction with the spanning suture tends to create a slight degree of premaxillary fullness because the paranasal tissues are brought together towards the midline. The nasal base reduction procedure as described above even provides a small amount of tip projection. Glabella deficiency (hypoplasia), as seen in our type III patients, is not discussed often in the literature.29 We suspect that glabella deficiency is often untreated in the Asian-American population, perhaps because it is not recognized that the glabella can easily be augmented or because it increases the cost of surgery. It may also be mistakenly assumed that dorsal augmentation will correct the glabella deficiency. To some extent, a dorsal graft can improve the inferior aspect of the glabella deficiency. Unfortunately, however, a dorsal graft placed at or above the level of the nasion may create an unesthetic high take-off at the root of the nose, giving the patient an excessively long nose.

In our experience, simple recognition that glabella deficiency is one of the potential problems to be corrected in the Asian-American nose and recognition that hydroxyapatite is an excellent choice of materials for treating this problem have rendered better overall aesthetic results for improvement of the Asian-American nose. Other materials are available for glabella and/or forehead augmentation,10 but we have found that hydroxyapatite conforms to the contours of the glabella/medial brow/nasion region better than hard materials, whether synthetic or autogenous (eg, cartilage).

Conclusion

Because the Asian-American population encompasses many nationalities, nasal morphologic features among this population are relatively diverse. We have proposed a classification system for the Asian-American nose on the basis of morphologic differences, focusing specifically on correction of vertical deficiencies, broad width, and glabella deficiency, and indicated a surgical approach for each type of patient that has general application to this particular patient group.

References


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