Surface Aesthetics in Tip Rhinoplasty: A Step-by-Step Guide

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Abstract
Tip rhinoplasty is a key component of aesthetic rhinoplasty. An understanding of the correlation between tip surface aesthetics and the underlying anatomic structures enables proper identification and correction of tip abnormalities. Surface aesthetics of the attractive nose are created by certain lines, shadows, and highlights with specific proportions and breakpoints. In this Featured Operative Technique, the authors describe a stepwise process for tip rhinoplasty that conceptualizes aesthetic subunits as geometric polygons to define the existing deformity, the operative plan, and the aesthetic goals. Tip rhinoplasty is described in detail, from initial markings through incisions and dissection. The autograft concept is explained, and lateral crural steal and footplate setback techniques are described for the attainment of symmetric domes with correct lateral crural resting angles. Methods in columnar reconstruction are described, including creating the columnella (C') breakpoint and the infralobular caudal contour graft. The principal author (B.Ç.) has applied these techniques to 257 consecutive "polygon rhinoplasties" over the past 3 years.

Keywords
rhinoplasty, nasal surface aesthetics, nasal aesthetic polygon, lateral crural resting angle, cephalic dome suture, autograft, infralobule caudal contour graft

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Nasal tip surgery is a critical step in aesthetic rhinoplasty. A disfigured nasal tip results in a poor surgical result, even in an otherwise attractive nose. Therefore, an understanding of aesthetic tip procedures and the correlation between tip surface aesthetics and underlying anatomic structures is mandatory for any rhinoplasty surgeon. The aesthetically pleasing nasal tip is a composite of lines, shadows, and highlights with specific proportions and breakpoints that can be conceptualized as a series of geometric forms. Specifically, the nasal tip includes the dome triangles, the lateral crus polygons, the interdomal triangle, the facet polygons, the infralobular polygon, the columnellar polygon, and the footplate polygons (Figure 1). In this Featured Operative Technique, we describe "polygon rhinoplasty," in which precise nasal tip proportions and breakpoints are considered to define an operative plan and create the desired aesthetic result.
The aesthetic nasal tip can be conceptualized as a series of polygons delineated by precise breakpoints. An understanding of the relative sizes and proportions of these aesthetic subunits in the attractive nose enables the surgeon to define an operative plan for any rhinoplasty case.

The Lateral Crus Resting Angle

The scroll line is a groove indicating the transition from the upper lateral polygon to the lateral crus polygon (Figure 1). The scroll junction between the upper lateral cartilage and the lateral crus marks the transition from the static nasal body to the dynamic nasal tip. The grooves over the scroll area should meet in the center to create a supratip breakpoint corresponding to the common apices of the dome triangles and the interdomal triangle.

The Nasal Tip Diamond

Our concept of tip surface aesthetics involves 2 dome triangles, an interdomal triangle, a pair of facet polygons, and an infralobular polygon. Together, these components create a diamond-shaped highlight effect when photographed by a standard 2-flash technique on frontal view (Figure 3). Proper creation of this diamond-shaped reflection is characteristic of an aesthetic result following tip surgery.

Defining Breakpoints of the Nasal Tip

The oblique and lateral views of the nose reveal important break points at the tip surface that precisely define the tip polygons. These include the superior tip (T_s), the inferior tip (T_i), the medial rim (R_m), and the lateral rim (R_l) (Figure 4). T_s corresponds to the combined vertices of the dome triangles. The T_i points correspond to the inferomedial corners of the dome triangles, hence the 2 inferolateral vertices of the interdomal triangle. These points should be positioned in the same vertical plane in the lateral profile view to create an aesthetically pleasingly shaped tip. The R_m and R_l points represent the medial and lateral ends of the lateral crura at the caudal border, respectively (Figure 4).

The Dome and Interdomal Triangles

The dome triangles are a pair of isosceles triangles between the T_s, T_i, and R_m points, and the base of each triangle is in contact with the facet polygons. The positions of the lateral crura can be defined in 2 planes. The first is the longitudinal axis of the lateral crus, which represents the divergence of the lateral crus relative to the contralateral lateral crus, that is, the intercrustral angle. In its correct position, the longitudinal axis of the lateral crus intersects the lateral canthus of the ipsilateral eye. The second plane is the axial rotational position of the lateral crus, which gives rise to the lateral crural resting angle (Figure 2). With the normal lateral crural resting angle, the lateral crus lies almost in a horizontal plane, with the cephalic margin slightly superior to the caudal margin. When the cephalic edge is considerably more superior than the caudal edge, structure and aesthetics may be negatively affected. The resting angle of the lateral crura must be considered in tip surface aesthetics. A resting angle of 100° or less creates a well-defined scroll groove. Lateral crura with an abnormal resting angle (>100°) lack a scroll groove and present with excessive fullness in the supratip region, suggesting cephalic malpositioning of the lower lateral cartilages (LLC). This phenomenon is described as pseudocephalic malposition of the lateral crura. A resting angle of 180° or more results in medialization of the cephalic border of the lateral crus vs the upper lateral cartilage, creating a “pinched nose” appearance (Figure 2).
Figure 2. The lateral crural resting angle determines the position of the lateral crus rotational angle to the upper lateral cartilage. Ideally, this angle should be 100° between the lateral crus and the upper lateral cartilage. (A) This 26-year-old woman presented with an abnormal lateral crural resting angle of 150° that manifested as excessive fullness in the supratip region and apparent cephalic malpositioning of the lower lateral cartilages. (B) One month after rhinoplasty with reduction of the lateral crural resting angle to 100°. Note the well-defined scroll groove and the aesthetically appealing supratip region. From Çakır et al. Reprinted with permission from Sage Publications.

Figure 3. (A-C) The aesthetically pleasing natural nose of a 34-year-old woman. (A) Note the paired light reflections at the nasal tip when imaged using paraflash photography. From Çakır et al. Reprinted with permission from Sage Publications.
The interdomal triangle is between the dome triangles created by Ts and the bilateral Ti points (Figures 1 and 4). The base of the interdomal triangle is the widest area of the tip and connects the 2 Ti points (Figures 1 and 4). The medial edge of each dome triangle corresponds to the lateral edge of the interdomal triangle. The relative ratio of tip width to nasal width at the keystone area is wider in females than in males.

The Facet and Infracellular Polygons

The facet polygon lies between the Ti, Rm, and Rl and C′ points (Figure 4) and is a critical surface structure in the nasal tip that must be taken into account to optimize the overall tip aesthetic result (Figure 1). The infralobular polygon is formed between the interdomal triangle and the columellar polygon (Figure 1). The superior edge of this polygon corresponds to the interconnection of the Ti points. The base of the infralobular polygon is at the columella breakpoint and connects the C′ points (Figure 4). This breakpoint is ideally 1 mm anterior to the apical edge of the nostrils. A lower columellar breakpoint would present as a more exposed nostril from a frontal view. The superior edge of the infralobular polygon is wider in females.

The Columellar and the Footplate Polygons

The columellar polygon is located between the infralobular polygon and the footplate polygon (Figure 1). It begins at the columellar breakpoint and extends to the divergence of the medial crura. The footplate polygon begins at the divergence of the medial crura footplates and ends just above the lip junction. These polygons reflect the underlying division of the medial crura into a columellar segment and a footplate segment.

Correlation of Surface Geometry with Underlying Structure

The rhinoplasty surgeon must consider how the underlying tip infrastructure relates to polygonal aesthetic subunits on the surface. A precise understanding of dome shape and position enables correct management of aberrant structures to create an aesthetically pleasing external surface. What we see preoperatively as the “dome” typically is the middle crura of the LLC, which are guided into position by septal growth.

The key to nasal tip reshaping is establishing proper length and symmetry of the lateral crura. The total length...
of the LLC (lateral, middle, and medial portions) is adequate in most patients, obviating the need for an onlay tip graft (eg, Peck or shield). The lateral crural steal procedure can increase tip rotation as well as tip projection, especially when combined with repositioning and setback of the footplate.5 The ratio of lateral to medial crura, the position of footplates, and the lateral crural resting angle provide the underlying structure responsible for the aesthetic subunits of the nasal tip surface.1

During the past 3 years, 257 consecutive polygon rhinoplasties, including primary and secondary cases, have been performed by the principal author (B.Ç.) according to the concepts and techniques described herein. Eighty percent were women and 20% were men; the age range was 19 to 56 years (average, 27 years). The average follow-up period was 1.5 years. Two cases of bleeding (0.78%) and no cases of infection were observed. The rate of revision for the entire series was 5%.

SURGICAL TECHNIQUE

A video that demonstrates polygon rhinoplasty may be viewed at www.aestheticsurgeryjournal.com or www.surgery.org/videos.

Step 1: Preoperative Markings and Simulation

Preoperatively, points corresponding to the existing and planned nasal tip are marked on the lateral cheek skin, and the expected surgical result is simulated with Photoshop CS6 (Adobe Systems, San Jose, California) (Figure 5).

Step 2: Incisions

The open approach is performed through a transcolumellar V-shaped incision that is extended with bilateral infracartilaginous incisions. It is important to retain the superficial musculoaponeurotic system (SMAS) in the nasal flap while performing an open-approach incision. This tissue fills the infralobular polygon and prevents a depression when the incision is closed. Alternately, the closed approach is performed through posterior transfixion incisions combined with intercartilaginous and infracartilaginous incisions targeted for dome delivery (Figure 6A).

If the lateral crura are wide and extend cephalically and caudally, the nasal tip will have a bulbous appearance. Caudal excess narrows the facet polygon, and its resection can cause notching of the nostril. If excessive caudal lateral crus is noted before the incision is made, an autorim graft can be performed. In this case, the infracartilaginous incision (ie, the infracartilaginous incision within the cartilage) is placed 1 to 3 mm cephalically, leaving the caudal portion of the lateral crus behind on the nostril side (Figure 6B,C). Resecting the caudal portion corrects the bulbous tip deformity, increasing the facet polygon size, reinforcing the rim margin, and preventing notching of the nostril. Given the in situ attachment of the cartilage that is left behind, the autorim graft is a more effective and symmetric option than a classic rim cartilage graft placed into a prepared pocket. The autorim graft also is softer and more natural looking than the rim graft, without compromising strength. This maneuver, performed at the beginning of the operation, enables manipulation of the facet polygon, narrowing the lateral crus polygon while directly increasing the facet polygon size.

Step 3: Footplate Setback

Management of the footplates is an important step, especially in cases of tension tip noses. This deformity involves an enlarged high pedestal upon which the nasal septum and LLC are positioned that manifests as an overprojected nose.6 Correct management of this pedestal and the anterior nasal spine should precede any maneuver dedicated to tip reshaping.

Once the septal position is stabilized and the enlarged pedestal is reduced, the LLC footplates are dissected and set back, resulting in depARATION of the nasal tip. The setback amount for each footplate is calculated according to the extent of pedestal reduction and the relationship between the infralobular and columnellar polygons. Dome positioning via the lateral crural steal procedure can compensate for reduced projection and can increase the rotation. In fact, footplate

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Figure 6. (A) The dome delivery technique is utilized to access the nasal tip of this 24-year-old woman. A total subperichondrial/subperiosteal dissection enables controlled management of Pitanguy’s midline ligament and the scroll ligaments. Skeletonization of thinner, more pliable cartilage requires thinner and more delicate sutures for cartilage shaping. (B) The infracartilaginous incision (ie, an intracartilaginous incision made within the cartilage) is made 1 to 3 mm cephalically, leaving the caudal portion of the lateral crus on the nostril side and creating the autorim graft. (C) Design and effect of the autorim graft. Resection of the caudal portion corrects the bulbous tip deformity, increasing the facet polygon size while enhancing rim margin reinforcement and preventing notching of the nostril. This technique should be planned and attempted before any cephalic resection. (D, E) The medial crura are pulled and held under tension, and the middle crura symmetry mark is made for reference. (F) The new dome position is determined by simulating the lateral crural steal procedure on 1 side and marking the new dome such that it aligns with the planned tip marking on the cheek.
setback enables the lateral crural steal procedure to increase projection further than if no setback was performed.5

**Step 4: Dissection**

Dissection should be performed in the total subperichondrial/subperiosteal plane7 for 2 reasons: (1) control and management of Pitanguy’s midline ligament and scroll ligaments and (2) skeletonization of thinner, more pliable cartilage requiring thinner and more delicate sutures for cartilage shaping (Figure 6A). Pitanguy’s midline ligament is marked with sutures, and an incision is made in the open approach to enable repair and to control the supratip region at the end of the operation. Note that the closed approach does not require transection of the ligament.

Nasal dissection is initiated at the lateral crura completely in the subperichondrial plane. This enables the analysis of asymmetries between the 2 crura and the nasal tip as a whole. Wide dissection is performed. The LLC (medial and lateral portions) are excised via the nostrils in the closed approach (Figure 6A), whereas extended visibility is achieved via the open approach. The interdomal and Pitanguy’s midline ligaments are split longitudinally for 3 to 5 mm, enabling the lateral crural steal procedure. These ligaments then are sutured immediately before the dome-equalizing suture is placed (step 9).

**Step 5: Cartilage Marking**

The LLC are marked to ensure correct manipulation. The medial crura are pulled and kept under tension, and symmetric reference markings are made on the middle crura of the cartilages (ie, the middle crura symmetry mark; Figure 6D). This is especially important for asymmetric tips in which the domes are not aligned. The middle crura symmetry mark must divide the lateral crura into equal lengths.

**Step 6: Cartilage Resections and the Autorim Graft**

Resection of the LLC consists of caudal and/or cephalic resections that should target defects of the surface polygons, especially the facet polygon (Figures 1 and 4). Cephalic resections of the LLC should be conservative and should enable proper eversion of the lateral crura by means of cephalic dome sutures (CDS; step 8). Overresection of the cephalic portion introduces a structural defect in the scroll area. For this reason, we try to maintain contact of the upper lateral and lateral crural cartilages by reconstructing the scroll ligament.7

Caudal resection must account for the facet polygon. Correct planning and utilization of the autorim graft at the incision step is mandatory for proper management of this polygon (Figure 6B,C). In the case of narrow facet polygons, caudal resection of the LLC, either at this step or earlier as part of the autorim graft, enables their enlargement and correction. Lateral crural caudal edges often are wide, with a tendency to bend inward, resulting in contour deformity and narrow facet polygons. Excision of these curved edges increases the facet polygon but may result in notching in the soft triangle area. Retaining the resected part in the rim as an autorim graft eliminates the potential for this deformity and stabilizes the rim. The autorim graft provides structural support and increased safety if subsequent resections are made from the caudal portion. A 3-mm autorim graft enables an extra caudal resection of 1 to 2 mm. Caudal resections are made, leaving a 5-mm-wide strip of cartilage in the dome region. The lateral crura should be trimmed mid-length, leaving cartilage that is 5 to 7 mm wide. With a strong autorim graft in place, caudal excisions and mucosa repair also help define the scroll line, reducing the appearance of cephalic malpositioning. Planning is necessary to ensure that cephalic resections can compensate for the caudal counterparts and to determine whether caudal trimming will be performed. Caudal resections are indicated only in combination with the CDS, which repositions the lateral crura at the correct resting angle.1

**Step 7: Marking the Dome-Defining Point**

Proper reshaping of the dome, especially in cases of asymmetric tip, requires precise identification of the dome-defining point. It is at this point where tip projection and rotation are determined and where the lateral crural steal amount for each LLC is planned. As described in step 5, the lateral crura must be symmetrical and of equal lengths, and the middle crural symmetry mark provides a point of reference to achieve this symmetry (Figure 6D,E). To determine the new dome position, the lateral crural steal procedure is simulated on 1 side, and the new dome is marked to align with the planned tip marking on the cheek (step 1). To ensure symmetry, the distance between the new dome marking and the middle crural symmetry mark is measured, and the same distance is marked on the contralateral lateral crus. By marking the planned positions of the new domes on the lateral crura, symmetry is ensured even in the previously asymmetric tip (Figure 6E,F).

**Step 8: Cephalic Dome Sutures**

With the planned dome positions marked on the lateral crura, the lateral crural steal can be performed to create new domes via CDS. When placed properly, CDS function as lateral crus angling sutures that stabilize the middle and lateral crura in different planes, correct the resting angles of the lateral crura, and evert them onto the appropriate surface polygons. The lateral crural steal is performed to increase tip rotation and to define the position of the dome. If the footplate has not been repositioned, the lateral crural
steal typically will not increase tip projection. However, when footplate setback is planned at the beginning of the operation, the lateral crural steal procedure can be used to compensate for the lost projection caused by footplate setback. CDS are placed 3 mm from the cephalic edge of the cartilage on both sides, as marked previously (Figure 7). Additional CDS are placed as needed, including when the medial and lateral crura remain far apart, for a hanging columella, and to correct the lateral crural resting angle.

The lateral crural steal controls rotation and projection of the tip and enables elongation of the infralobular and facet polygons. Approximately 70% of our patients present with a short infralobular polygon; the lateral crural steal maneuver corrects this deformity automatically. For the remaining 30% of patients, the infralobule-to-nostril ratio is normal, or the tip is already overprojected. Lateral crural steal in these patients would undesirably increase the infralobular polygon and could introduce a hanging columella. Instead, the middle crura are transected and an overlap procedure is performed. The overlap procedure involves transection of the medial crura such that the medial end is moved beneath its domal end counterpart, resulting in overlapping of the middle crus on top of the medial crus (Figure 8A). If indicated, this technique can be modified to correct a hanging columella deformity while maintaining the correct infralobule-to-nostril ratio. Specifically, the anterior overlap procedure incorporates posterior rotation of both ends, leaving a triangular overlap of the anterior medial crura (Figure 8B).

The rhinoplasty surgeon must be able to anticipate the overall effects of the various maneuvers described here for proper tip surgery. Footplate setback, the lateral crural steal maneuver, and the medial crural overlap procedure all contribute to tip projection and rotation. The surgeon must ensure balance of the infralobular, facet, columellar, and footplate polygons by combining these techniques, to different extents, as needed for each patient.

**Step 9: The Dome-Equalizing Suture**

Once the domes are stabilized, the skin is redraped (or reduced in place in the closed approach), and tip rotation is inspected. If tip rotation is adequate, the domes are exposed, and dog-ears created by the CDS are resected.
Figure 8. (A) The overlap procedure employs transection of the medial crura, where the medial end is moved beneath its domal end counterpart to overlap the middle crus on top of the medial crus. (B) A hanging columella deformity can be handled while maintaining the correct infralobule-to-nostril ratio via the anterior overlap procedure. In this case, posterior rotation of both ends leaves a triangular overlap of the anterior medial crura.

Because this step is irreversible, it should be performed only when the surgeon is certain that the new domes have been positioned appropriately. Both domes are then exposed (from 1 side in the closed approach), and the dome-equalizing figure-of-8 suture is placed (Figure 9) while the split interdomal and Pitanguy’s midline ligaments are repaired. The less-skilled surgeon is advised to perform the dog-ear excision step after the columellar strut graft (step 10) to verify the correct position of the tip.

Step 10: Columellar Strut Graft

A curved columellar strut graft can be placed as long as the inferior edge is posterior (cephalic) to the medial crura caudal edges (Figure 10A). The columellar strut graft is set into a pocket between the medial crura. The tip point of the graft is secured with a figure-of-8 suture. Positioning the strut cephalically in relation to the medial crura prevents its visibility and creates the empty space that is required for proper reconstruction of the polygons, specifically the transition from the infralobular polygon to the columellar polygon via the C′ breakpoint.

Step 11: C′ Breakpoint Remodeling

The C′ breakpoint is a key feature of the nasal tip surface that exists at the transition line from the infralobular polygon to the columellar polygon (Figures 1 and 4). Reshaping of this breakpoint is performed using a suture placed 5 to 7 mm inferior to the dome triangle apex and 1 mm anterior to the apical edge of the nostrils. The C′ breakpoint suture is placed from 1 side through the columellar strut, passing close to the cephalic edge of the medial crus. It is then passed back through the medial crus, this time close to the caudal edge and in front of the strut (without going through it) and through the contralateral crus close to the caudal edge. Finally, the suture is passed backward, close to the cephalic edge and medially toward the strut, and the knot is tied (Figure 10B,C).

Step 12: The Infralobule Caudal Contour Graft

Approximately 5% of our patients present with very pliable cartilages. The lateral crural steal procedure transfers these pliable domes to the C′ breakpoint area. This approach would yield a poorly defined infralobular polygon. To overcome this deformity, a mini-contour graft (4-5 mm long; 1 mm thick) is placed and secured over the caudal edge of the middle crus (Figure 10D,E). Tip projection is increased in these patients only if the tip of the graft is extended to the dome. Extension to the T point facilitates definition of the dome triangles. Extension to the Rm point increases tip projection by 1 to 2 mm (Figure 4) and helps distinguish the border between the infralobular and facet polygons.
Figure 10. (A) A curved columnellar strut graft can be placed as long as the inferior edge is posterior (cephalic) to the medial crural caudal edges. (B) The columnella (C') breakpoint suture is placed from 1 side through the columnellar strut, passing close to the cephalic edge of the medial crus. It then is passed back through the medial crus, this time close to the caudal edge in front of the strut (without going through it) and through the contralateral crus close to the caudal edge. Finally, the suture is passed backward, close to the cephalic edge and medially toward the strut, and the knot is tied. (C) C' breakpoint reconstruction is performed by placing a suture 5 to 7 mm inferior to the dome triangle apex and 1 mm anterior to the apical edge of the nostrils. This suture creates the C' breakpoint, defining a distinct border between the infralobular polygon and the columnellar polygon. (D, E) In cases of pliable and soft domes (middle crura), a mini-contour graft (ie, infralobule caudal contour graft; 4-5 mm long and 1 mm thick) is placed and secured over the caudal edge of the middle crura to add definition to the infralobular polygon.
Figure 11. This 24-year-old woman presented with an asymmetric bulbous and deprojected nasal tip, bony and cartilaginous hump, right septal deviation, right deviation of the nasal axis, left inferior conchal hypertrophy, and thick skin. (A) Frontal, (C) lateral, (E) oblique, and (G) basal preoperative views. Closed dome delivery was performed in the subperichondrial/subperiosteal dissection plane. The left concha was reduced by submucosal resection, the hump was reduced, and septoplasty was performed. The lateral crura were trimmed cephalically, and both domes were elevated 3 mm. The medial crura were overlapped 2 mm with anterior modification, and a columellar strut graft was placed. The lateral crura resting angles were corrected using 3 cephalically positioned dome sutures. The dorsum was reconstructed by means of autospreader flaps in combination with diced cartilage. (B) Frontal, (D) lateral, (F) oblique, and (H) basal views of the patient 1 year postoperatively.
Figure 11. (continued) This 24-year-old woman presented with an asymmetric bulbous and deprojected nasal tip, bony and cartilaginous hump, right septal deviation, right deviation of the nasal axis, left inferior conchal hypertrophy, and thick skin. (A) Frontal, (C) lateral, (E) oblique, and (G) basal preoperative views. Closed dome delivery was performed in the subperichondrial/subperiosteal dissection plane. The left concha was reduced by submucosal resection, the hump was reduced, and septoplasty was performed. The lateral crura were trimmed cephalically, and both domes were elevated 3 mm. The medial crura were overlapped 2 mm with anterior modification, and a columellar strut graft was placed. The lateral crura resting angles were corrected using 3 cephalically positioned dome sutures. The dorsum was reconstructed by means of autospreader flaps in combination with diced cartilage. (B) Frontal, (D) lateral, (F) oblique, and (H) basal views of the patient 1 year postoperatively.
Figure 12. This 28-year-old woman presented with a long nose, right septal deviation, dorsal hump, cephalically malpositioned lateral crura, short columella, and thin skin. (A) Frontal, (C) lateral, (E) oblique, and (G) basal preoperative views. Closed dome delivery was performed in the subperichondrial/subperiosteal dissection plane. The hump was reduced, internal valve mucosa were repaired, and septoplasty was performed. The lateral crura were trimmed 3 mm cephalically and 2 mm caudally. Both domes were elevated 3 mm. A columellar strut graft was placed. The lateral crura resting angles were corrected using 3 cephalic dome sutures. The dorsum was reconstructed by means of modified Libra spreader grafts and diced cartilage. (B) Frontal, (D) lateral, (F) oblique, and (H) basal views of the patient 1 year postoperatively.
Figure 12. (continued) This 28-year-old woman presented with a long nose, right septal deviation, dorsal hump, cephalically malpositioned lateral crura, short columella, and thin skin. (A) Frontal, (C) lateral, (E) oblique, and (G) basal preoperative views. Closed dome delivery was performed in the subperichondrial/subperiosteal dissection plane. The hump was reduced, internal valve mucosa were repaired, and septoplasty was performed. The lateral crura were trimmed 3 mm cephalically and 2 mm caudally. Both domes were elevated 3 mm. A columellar strut graft was placed. The lateral crura resting angles were corrected using 3 cephalic dome sutures. The dorsum was reconstructed by means of modified Libra spreader grafts and diced cartilage. (B) Frontal, (D) lateral, (F) oblique, and (H) basal views of the patient 1 year postoperatively.
Step 13: Columellar Polygon Reshaping

The C′ suture sets the superior edge of the columellar polygon. The remaining medial crura are sutured to the columellar strut in continuous fashion to create the remainder of the columellar polygon from the C′ breakpoint to the footplate. For patients with a short columellar polygon and a long footplate polygon, the footplates cartilages are sutured together (ie, stealing from the footplate polygon to the columellar polygon) to increase the size of the columellar polygon and reduce the footplate polygon size.

Step 14: Redraping

To complete the procedure, the skin is redraped (or in the closed approach, the cartilages are replaced). Care should be taken at this step to ensure correct reduction and setting of Pitanguy’s midline ligament and the SMAS between the medial crura.7 Pitanguy’s midline ligament and the scroll ligaments help control the supratip and lateral supratip skin, while stabilizing the lateral crural cephalic edges.7 Misplacement of these soft-tissue components would introduce asymmetries and deformities to the tip, disrupting efforts to improve surface aesthetics.

Clinical results utilizing the aforementioned techniques with respect to nasal tip surface aesthetics appear in Figures 11 and 12.

DISCUSSION

The aesthetic concepts and stepwise surgical techniques described here enable the rhinoplasty surgeon to properly rearrange the underlying anatomic structures and achieve an aesthetically pleasing nasal tip surface. Several techniques associated with polygon rhinoplasty require preoperative analysis to maximize their combined utilization and address each patient’s specific needs. For instance, the choice to perform an auricular graft must be made at the beginning of the operation because it alters the course of the surgery from the first incisions. Inclusion of the auricular graft also affects subsequent caudal and cephalic resections of the lateral crura and maneuvers to adjust the facet polygon. The concepts of lateral crural steal, footplate setback, and medial crura overlap require thorough preoperative planning and combined utilization to achieve desired aesthetic results. Together, these techniques enable correction of tip rotation, tip projection, the infralobule-to-nasal ratio, and facet polygon size in a single strategical maneuver without the need for onlay cartilage grafts. The columella-related aesthetic concepts discussed in this article also can have dramatic effects on tip aesthetics and nasal shape. Proper reconstruction of the C′ breakpoint should be a primary goal for all rhinoplasty procedures.

CONCLUSIONS

To achieve desired nasal tip aesthetics, the surgeon must prepare a detailed preoperative plan for each patient. Incorporating the techniques we have outlined will help ensure that the polygonal aesthetic subunits of the tip surface are manipulated in the correct manner and proportions.

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