Stabilization of Nasal Tip Support in Nasal Tip Reduction Surgery

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The usual culprit behind most post-rhinoplasty tip abnormalities is aggressive resection of the lower lateral cartilages (LLCs) in an attempt to refine the nasal tip. While the results may be esthetically and functionally acceptable in the short term, the dead space that is created is subject to continued, long-term contracture, resulting in undesirable esthetic and especially functional consequences.1

Herein, we describe a practical classification system for tip-plasty, which focuses on conservative measures aimed at stabilizing and reorienting the cartilaginous structures and support instead of reducing them. These 4 techniques preserve the structural integrity of alar cartilage, reduce the dead space for more predictable healing outcomes, and save or even strengthen the tip complex.

Methods

The current methods were approved by the institutional review board at each institution. A total of 102 patients were categorized into 1 of 4 groups based on their nasal tip deformity, and for each group, a corresponding corrective measure was used.

Type 1: lobular refinement using only a cephalic hinged flap. If only lobular refinement was necessary, without changes in tip projection or rotation, the hinged flap was used (14 patients).

The lateral crus (LC) and upper lateral cartilage were not separated in the scroll area, and the intercartilaginous ligament was preserved. The LC was horizontally demarcated, preserving at least 8 mm of cartilage caudally. The cartilage was incised without undermining of vestibular skin. Next, the cephalic portion was turned in as a hinged flap and stabilized with 5-0 or 6-0 nonabsorbable mattress sutures (Figure 1).

Type 2: reduction of vertical height of LC and concomitant use of a cephalic hinged flap. In the second group, 32 patients presented with a nasal tip that was bulbous or poorly defined. These patients were noted to have LLCs with vertical excess.

The exposure is done as mentioned above, but the middle crus (MiC) must be manipulated as well. The LC and MiC were horizontally demarcated by 2 lines, leaving at least 7 mm of LC laterally and approximately 5 mm medially at the domes. Horizontal excisions were planned, with the width and shape determined by the anatomy and degree of the deformity. The cartilage was incised, and the intervening cartilage was excised. The vestibular lining usually adapts readily, so no undermining or resection of this area was necessary. Again, the cephalic portion was turned in as a hinged flap and fixed (Figure 1).

Type 3: crural setback using cephalic hinged flap. In the third group, lobular definition is satisfactory and the goal is to deproject and alter the rotation of tip. The following method was used for shortening the LC in 25 patients.

The exposure of nasal tip and the incision of the cephalic part of the LC are the same as for type 1. The caudal/posterior portion of LC was then vertically marked in 2 points. The distance between these 2 points was related to the desired rotation, and the lateral point was at the junction of the lateral third to the medial two-thirds of the LC. Then the marked portion of LC was transected and the cartilage between 2 cuts excised. In addition, a triangular piece of cartilage was also excised from the anterior portion of the cephalic portion of the LC. The cut ends of the caudal portion were then fixed end to end. While the distal (anterior) part of the caudal portion was slid back, secondary movement of the cephalic portion occurred in an opposite direction. The cephalic portion was then turned in as a hinged flap and stabilized. Minor skin folding over the vestibule resolved in the first month postoperatively (Figure 1).

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Figure 1.
Type 4: horizontal and vertical reduction of LC with concomitant cephalic hinged flap. The type 4 maneuver is essentially a combination of type 2 and type 3, as described above. These are best used in patients with need of deprojection, rotation, and tip refinement (31 patients). Horizontal excisions are planned first, and any shape excision of the nasal tip cartilage is possible with proper design of excision but leaving at least 7 mm of LC laterally and approximately 5 mm medially at the domes. Vertical excision of the caudal portion of LC is performed similar to type 3; however, in most patients, excision of the triangular piece of cartilage from the anterior portion of the cephalic portion of the LC is not necessary (Figures 1 and 2).

Results
The follow-up period was between 8 and 26 months (mean, 15 months). Satisfactory results were achieved. In 1 patient with thin skin, revisions related to this technique (type 1) were required. Nasal valve collapse and pinch deformity were not observed in the postoperative period. There were no complications.

Discussion
Recently, various surgical techniques have been reported to preserve tip structures as much as possible. In contrast to previous popular methods such as cephalic excision of LLC, these techniques have attempted to reinforce the durability of LLC simultaneously with esthetic corrections. In contrast to the senior author’s prior publication, the technique described herein does not involve release of the scroll region, thereby improving support.

The techniques in this article can be used in a broad spectrum of tip deformities. The proposed classification cannot encompass all nasal tip deformities but does provide a framework for evaluation and treatment of the more common nasal tip reductive scenarios encountered. By creation of a cephalic hinged flap, the goal was to obtain a structural pentapod as a unified tip structure.

Author Contributions
Amir A. Sazgar, design, acquisition of data, analysis of data, drafting and revising article, final approval; Sam P. Most, corresponding author, design, analysis, interpretation of data, revising article, final approval.

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