Commentary on: The Alar Rim Flap: A Novel Technique to Manage Malpositioned Lateral Crura

Mark B. Constantian, MD, FACS

The authors have described a technique for correcting the aesthetic and functional deformities inherent in cephalic rotation (“malposition”) of the alar cartilage lateral crura, using a method in which each lateral crus is split transversely, creating a 2 to 3 mm wide transposition flap based medially at the lateral genu. These lateral crural flaps are rotated inferiorly and anchored along the alar rims, extended with cartilage grafts if necessary. In their experience with 12 patients, the procedure described corrected the external deformity and stabilized the alar walls, which no longer collapsed upon inspiration. Their patients noted not only subjective but objective improvements in airflow as measured by pre- and postoperative Nasal Obstruction Symptom Evaluation (iNOSE) questionnaires and by paranasal computed tomography measurements of the columellar/alar sidewall angles. The mean preoperative iNOSE score was 70.42 and the mean postoperative score was 13.75 (p < .05). The mean preoperative and postoperative columellar/alar sidewall angle increased from 7.21° (preoperative) to 9.06° (postoperative) for the right side and from 7.23° to 9.19° for the left side (p < .05).

There are several important explicit and subliminal messages in this paper. First, the authors emphasize that alar cartilage malposition is common. That is very true; but in fact, when Sheen first described the anatomical variation in his classical 1978 textbook, he thought it was a rare condition and had recognized only four cases at that time. As he subsequently realized, and as I have tried to emphasize myself over the years, malposition is very common, occurring in approximately 50% of primary rhinoplasties and more than 80% of secondary rhinoplasties and almost consistently present in “ball” or “box” tips and on the cleft side in cleft lip nasal deformities. Along with low radix or low dorsum, narrow middle vault, and inadequate tip projection, malposition is one of only four anatomical variants that account for almost all secondary rhinoplasty deformities; 80% of secondary patients originally had three or all four variants before their first surgeries. Patients may complain of “ball” or “box” tips, but if the surgeon focuses on the cosmetic deformity and ignores the fact that most of these patients have cephalically-rotated lateral crura and therefore suboptimal external valvular function, traditional tip reduction will weaken the alar rims and cause at least external valvular incompetence and often rim retraction and new aesthetic deformities. Unfortunately, many secondary patients still present with deformities caused by unrecognized malposition.

The authors have called appropriate attention to the functional deficit that accompanies malposition. Reconstruction of incompetent external valves doubles airflow in most patients.

They have described their technique and proven that it actually works by measuring subjective and objective airway function preoperatively and postoperatively. This is laudable and regretfully still unusual. Too often technical rhinoplasty papers that impact the lateral nasal walls, which affect the

Dr Constantian is Attending Staff, Department of Surgery (Plastic Surgery), St. Joseph Hospital, Nashua, New Hampshire; Adjunct Professor of Surgery, Department of Surgery, Division of Plastic Surgery, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin; and Visiting Professor of Plastic Surgery, University of Virginia Health System, Charlottesville, Virginia.

Corresponding Author:
Dr Mark B. Constantian, 19 Tyler Street, Suite 302-4, Nashua, NH 03060, USA.
E-mail: mbconstantian@gmail.com
airway more than the septum or turbinates, do not sufficiently consider the unintended consequences that some cosmetic changes have on nasal function. New procedures that create attractive results but weaken the nasal sidewalls do not serve our patients; these authors have strengthened their report by showing that this procedure also improves nasal function.

The authors suggest that moving only a segment of the lateral crus may have the advantage of not weakening the scroll area. That may or may not be important. The scroll area has often been considered clinically critical, and it is axiomatic that violations of the scroll area can create scarring that compromises the airways. However, the same has also been said of the intercartilaginous incision. Many of these traditional views originated in the days when rhinoplasty was only a reduction operation. We now know that even a 2 mm thick cartilaginous roof resection allows the middle vault to collapse. My speculation is that surgeons who observed narrowing of the internal valves following the intercartilaginous incision drew the wrong conclusion that this narrowing was caused by “scar contracture” at the internal valve or by damage to the scroll area, when in fact they were actually seeing the effect of roof resection on middle vault stability. This logic is always a problem when we attribute some postoperative consequence to any single rhinoplasty maneuver. Rhinoplasty is always a multi-step operation, each part of which introduces enough variables that it is impossible to determine which procedure has produced which outcome. However, there may be an advantage to preserving the scroll. Nature does not create anatomical details by accident, and I hope that these authors will provide us further information about the anatomic and functional importance of the scroll area in the future.

The authors’ two illustrative clinical cases are good results. My approach to these two particular patients would have been simpler because their alar cartilages, although malpositioned, are not excessively bowed or deforming. A simpler technique would have been to conservatively reduce the cephalic margin of each lateral crus and brace the area of alar hollowing and valvular deficiency with cartilage grafts placed in pockets beneath the collapsing segments. However, when the skin is thinner and the cartilages are buckled, excessively bowed, or otherwise deforming, I do resect and replace the lateral crura using Sheen’s technique, which has been consistently reliable for me. In deciding which technique to use, I am strongly influenced by the patient’s aesthetic. Resection and replacement of the lateral crura alters tip configuration and removes the lateral alar wall convexity, which is too radical a change for some patients. Like Sheen and Sheen, I have even treated patients who missed their lateral crural bossing so much that they wanted their malposition configuration restored, which can be done easily with conchal cartilage grafts.

One point to emphasize is that moving part or all of the lateral crus decreases tip projection, so the surgeon must watch for that secondary effect and be prepared to re-support the tip as necessary. However, most patients with malposition already have inadequate tip projection, so that increasing tip projection is required anyway and does not add a new step.

It is refreshing to see a technical innovation that corrects an important anatomical variation and is accompanied by both good case examples and nasal airflow measurements that confirm the validity of the technique. I hope that the authors will continue their careful work to advance our aesthetic and functional rhinoplasty results.

Disclosures
The author declares no potential conflicts of interest with respect to the research, authorship, and publication of this article.

Funding
The author received no financial support for the research, authorship, and publication of this article.

REFERENCES