Cephalo-Crural Suture: A New Way to Deal With Supratip Fullness

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Background: Supratip fullness is a common postoperative problem in rhinoplasty. There are approaches designed to reduce or augment the underlying framework and/or reduce the “dead space” between the skin and the cartilaginous structure, but these fail to create a stable midline framework in the supratip area.

Objective: In this report, a technique is described to surgically obtain a clinically desirable supratip breakpoint by creating, in the midline, a stable, symmetric, “stronger,” well-shaped cartilaginous framework (flat or concave as needed) in the supratip area, with maximum preservation of the native alar cartilage.

Methods: An open approach was used for maximum preservation of the lateral crura by means of sutures and excision of only the overlapping midline lateral crura. A suture was placed between the preserved lateral crus, running caudally to both middle crura and back cephalically to the opposite lateral crus at the same level, and was tightened as needed. By doing this, a flat or concave supradomal structure was created in the midline.

Results: The procedure was performed in 20 primary open rhinoplasty patients with a minimum follow-up of 9 months. A pleasing supratip contour was obtained in all cases. The patients were satisfied and no functional complaints were noted.

Conclusions: The use of the cephalo-crural suture improves the likelihood of obtaining a clinically acceptable supratip breakpoint, with good supratip contour and maximum preservation of nasal anatomy and physiology.


Traditionally, rhinoplasty has been considered a combination of reduction/augmentation and shaping of the osteocartilaginous framework. More recent trends in rhinoplasty (and in other cosmetic procedures), emphasize a more conservative approach with respect to preservation of the native underlying structure. Actually, a good starting point is to consider rhinoplasty as surgery of the nasal skeleton. Once this principle is taken into account, it is easy to accept the fact that the final shape of the soft tissues depends mainly on the underlying framework. If so, why resect a purpose-driven structure?

This concept can be applied to the supratip area, and in particular to the treatment of supratip fullness, commonly called “Pollybeak deformity.” This problem is a manifestation of the inability of the soft tissue envelope to adapt to the new underlying framework. A skeletal over-resection, caused by a relative “redundancy” of the soft tissue envelope, can be corrected by performing augmentation of the framework. Sutures have been used to reduce the possibility of creating dead space between the skin and cartilage. Treatment by injection of steroids, such as triamcinolone, has also been reported. Direct skin excision has rarely been used.

In this report, a technique based on the Tebbetts’ approach and performed in 20 patients is described, along with a further modification designed by the author and termed the “cephalo-crural suture” (CeCS).
to the nasal lobule, and a stable, symmetric, well-shaped structure in the midline with a planned “level of discrepancy” was established. If it became necessary to have a flat or concave supradomal framework, the need for CeCS was evaluated (Figures 1 and 2). The suture (5-0 vascular Prolene), was placed in a point in the midline between the point of maximum tip projection and the intact cephalic border of the lateral crura to create a concavity or flattening as needed. It then ran downward to the lobular segment of the middle crura, taking bilateral purchase, and back to the opposite lateral crus at the same level (Figures 3 and 4). Care was taken to avoid overtightening, which could distort the cartilage. In my experience, 1 suture was sufficient; however, as many sutures as are necessary can be used. Once the desired supradomal cartilaginous shape is achieved, oth-

Figure 1. Schematic representation of suture placement from supradomal portion to both middle crura. Two or more sutures can be used as deemed necessary by the surgeon; in my own experience, 1 suture has been sufficient.

Figure 2. Transoperative lateral view after placement of columellar strut and domal spanning sutures, but before tightening of the CeCS. (Note the convexity of the supradomal area.)

Figure 3. Transoperative cephalic view before (left) and after (right) tightening of the CeCS, showing preservation of the anatomy in the midline. (Previously, overlapping midline lateral crura were resected and placement of domal spanning sutures and columellar strut was performed.)

Figure 4. Transoperative lateral view after tightening of the CeCS, showing reshaping with minimal resection that improves the contour in the supradomal area.
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Figure 5. A, C, E, Preoperative views of a 27-year-old man. Preoperative markings below eyes were used to locate the Frankfurt plane; those at nose were used to locate the caudal border of the nasal bones. B, D, F, Postoperative views 11 months after hump reduction, placement of spreader grafts, sepioplasty, lateral osteotomies, lateral crura spanning sutures, and placement of domal spanning sutures and a columellar strut. Footplates plicature and CeCS but no tip grafting were performed in this patient.
Figure 6. A, C, E. Preoperative views of a 23-year-old patient. Preoperative markings below eyes were used to locate the Frankfort plane; those at nose were used to locate the caudal border of the nasal bones. B, D, F. Postoperative views 1 year after hump reduction, placement of spreader grafts, lateral osteotomies, septoplasty, excision of the caudal border of the septal cartilage, and placement of lateral crura spanning sutures and domal spanning sutures. A Sheen-type tip graft and CeCS were performed in this patient.
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Figure 7. A, C, E, Preoperative views of a 44-year-old woman. Preoperative markings below eyes were used to locate the Frankfurt plane; those at nose were used to locate the caudal border of the nasal bones. B, D, F, Postoperative views 9 months after hump reduction, placement of spreader grafts, lateral osteotomies, and placement of domal spanning sutures and a columellar strut. A Sheen-type tip graft and CeCs were performed in this patient. Submandibular lipoplasty, resection of Bichat’s fat pads, and a 3-mm chin implantation were also performed.
Figure 8. A, C, E, Preoperative views of a 28-year-old woman. Preoperative markings below eyes were used to locate the Frankfurt plane; those at nose were used to locate the caudal border of the nasal bones. B, D, F, Postoperative views 1 year after hump reduction, placement of spreader grafts, lateral osteotomies and placement of domal spanning sutures, lateral crura spanning sutures, and a columellar strut. A Sheen-type tip graft and CeCS were performed in this patient. Some columellar retraction is visible in the lateral view.
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Figure 9. Structural tetrapod.

Figure 10. The supratip-infratip angle (SIA) narrows as the CeCS is tightened.

Results

Representative cases are shown in Figures 5 through 8. The minimum follow-up was 9 months. There were no complaints of nasal obstruction. All the patients showed improvement in the supratip area, but one patient showed a discrete columellar retraction (Figure 8).

Discussion

A crucial goal in rhinoplasty is to create a good nasal framework. In nasal lobule surgery (as in all the areas of the nose), it is important to surgically create a good “level of discrepancy” after performance of a domal spanning suture (DSS), lateral crura spanning suture (LCSS), wedge excisions, and tip grafting as needed, minimizing the cartilaginous resection to preserve the anatomy as much as possible. By doing this, a tetrapod concept of nasal configuration is introduced (Figure 9), rather than the well-known tripod concept defined by the meeting of the medial and lateral crura. The tetrapod is like the tripod, but it includes a fourth arm—the most medial portion of the sculpted and surgically shaped lateral crura—which is central and cephalic to the point of maximum tip projection. This fourth arm can be used and modified to one’s convenience in any direction: vertically (elongated or shortened), horizontally (toward one side or other), and anteroposteriorly (concave, flat, or even filled when there is a deficiency). Ideally, the tetrapod should be a symmetric, stable, strong, and well-shaped structure. The CeCS shapes the fourth arm (flat or concave as needed) when more refinement is required between the point of maximum tip projection and the cephalic border of the lateral crura.

A possible drawback could be the surgical creation of a retracted columella. My suggestion would be that when no columellar “lifting” is needed, careful attention must be paid to not place the middle crura “bite” more posterior to the maximum point of the “hanging” point of the middle crura, and perhaps never in the medial crura; in other words, typically the suture should be placed near the domal segment. This possible drawback can be also used intentionally when more columellar retraction is desired.

Interestingly, in the lateral view the angle between the supradomal area and the middle-medial crura narrows, forming what I call the “supratip-infratip angle” (SIA) (Figure 10), a finding not previously described.

Obviously, to perform the CeCS it is mandatory for the surgeon to be familiar with open-tip procedures. It is equally true that when another surgical maneuver is performed, more transoperative variations can occur, involving, to some extent, a greater degree of difficulty. However, in my opinion the preservation of a “purpose-driven” structure outweighs the inconveniences of this procedure.

Conclusion

In accordance with the growing tendency in rhinoplasty to “reshape rather than resect,” the author designed a surgical step consisting of creation of a well-shaped cartilaginous framework in the midline, cephalic
to the domes; flat or concave as needed, between the nasal dorsum and the point of maximum domal projection, after minimal resection of overlapping native lateral crura in the midline. This step improves the likelihood of obtaining a clinically acceptable supratip breakpoint, with maximum preservation of the anatomy and physiology and minimal risk of secondary deformities, in patients in whom there is no framework in that area. This initial report demonstrates aesthetic improvement and no functional complaints. Additional studies will be undertaken to further support the results.

References

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