Rhinoplasty with Alar Crura Detachment to Correct Nose Tip: A Case Series Study with 12-Months Follow-Up

Rafael Biguria¹ and Mario Jose Jo²

¹Plastic Surgeon, Guatemala, Guatemala. Hospital Renova.
²MD. Guatemala, Guatemala. Hospital Renova.

Abstract

Background: Knowing and understanding completely the anatomy of the nose especially the septum and its relation with the osteocartilaginous framework and nasal airway is vital for the surgeon during a rhinoplasty. The management of the nasal tip is one of the most difficult aspects of rhinoplasty due to the different techniques, maneuvers, skin thickness, skin memory, soft tissue scarring, and variations in the nasal tip structure components.

Methods: Alar cartilages were dissected using a marginal extended incision, then cutting the cephalic portion leaving 4-5 mm of the alar cartilage. Medial crura are pulled, transected and a new dome is chosen to determine the final nose tip projection.

Results: From March 2016 to April 2017, 20 patients underwent primary rhinoplasty to correct nose tip (15 women and 5 men). The average age was 23 years and the average follow-up was at 13 months after surgery. After the surgical procedure, no infections, hematomas, hypertrophic scars, allergic reactions were observed in the operated patients.

Conclusion: Alar crura detachment to correct nasal tip is a viable option for giving tip support and projection.

Introduction

Knowing and understanding completely the anatomy of the nose specially the septum and its relation with the osteocartilaginous framework and nasal airway is vital for the surgeon during a rhinoplasty.

The anterior septal angle represents the anterior most projecting point of the septum and it contributes to the nasal tip support, tip projection, nasal length, airway function, and internal nasal valve function. The anterior septal angle anatomy is the cornerstone for dorsal approach to rhinoplasty [1].

During open rhinoplasty, the upper and lower lateral cartilages may not have a recognizable point of separation. As in the closed rhinoplasty, this is not a concern when the incision is made intranasal over the caudal edge of the upper lateral cartilage.

The lower lateral cartilages provide the support for the nasal tip. Each one is composed of medial, middle, and lateral crura. It is the relation between the three crura, the overlying skin, and soft tissue that finally determines the final nasal appearance [2].

The management of the nasal tip is one of the most difficult aspects of rhinoplasty due to the different techniques, maneuvers, skin thickness, skin memory, soft tissue scarring, and variations in the nasal tip structure components.

There are different techniques that can be applied for the different objectives of the nasal tip rhinoplasty such as tip suturing, tip grafting, columellar strut graft, and alar rim strip.

Patients and Methods

From March 2016 to April 2017, twenty patients underwent rhinoplasty with alar crura detachment to correct nose tip and followed up until April 2018. All the cases where primary rhinoplasties. We included all patients who underwent aesthetic rhinoplasty. Written consent was obtained from all patients. Other concomitant facial procedures done at time of surgery were buccal fat pad removal (bichectomy) and blepharoplasty. Minimal follow up time to be included in the study was 12 months.

Surgical method

Alar cartilages are dissected using a marginal extended incision. After delivering the alar cartilages, the cephalic portion is cut in order to leave 4-5 mm of the alar cartilage. Then, the medial crura are pulled in order to put tension on them and are marked in a symmetric way. After the crura have been marked, the new dome can be chosen and marked. This maneuver will determine our final nose tip projection. With this maneuver, nasal tip projection can be changed either to lower it, or elevate it. After, the cephalic dome suture is place to form the new dome. In order to erase the old dome cartilage memory, an incision is done all the way through it. The two portions are then overlapped and sutures (using 6-0 nylon) are placed to hold the cartilage. A collumellar strut graft is placed after to give tip projection and support to the new dome and fixed with a 5-0 permanent suture. After achieving the proper tip desired, two sutures (using the same 6-0 nylon) are placed from the most cephalic portion of the domes to the nasal septum. The septum in fixed with 3-0 vicryl, using transeptal sutures in order to not leave any internal nasal packing. Incisions are
closed using catgut 4-0 and external nasal stenting is placed.

Figure 1: The natural dome of the crura is marked as showed

Figure 2: New dome is chosen in order to project the tip as desired.

Figure 3: A suture is placed in the new dome position to hold it in place

Postoperative care

An external nasal splint was used for 7 days followed by adhesive tape stenting for 14 more days. No internal nasal packing is used. We used prophylactic antibiotic with amoxicillin plus clavulanate or clindamycin in case of penicillin allergy. Patients where revised postoperatively for at least 6 months.

Results

A total of twenty patients underwent primary rhinoplasty correcting tip projection (15 woman and 5 men). The average age was 23 years and the average follow-up was at 13 months after surgery. After the surgical procedure, no infections, hematomas, hypertrophic scars, allergic reactions were observed in the operated patients. Average surgical time for this procedure was 85.9 minutes being 30 minutes de shortest and 160 minutes the longest.

In all of the 20 patients, alar crura detachment was done. New dome was chosen, and tip supported with a stut graft. All of our patients showed a good outcome and tip projection with support [Figures 4, 5, 6, 7].

Figure 4: 4a and 4b pre operative patient lateral and frontal view.

Figure 5: 5a and 5b show same patient 10 months postoperative frontal view and 12 months post operative lateral view.

Also it was found that placement of a columnellar strut increased tip projection in all three types of crura [4]. Although this statements and studies show the opposite, we can see that our results show a good tip projection and definition the crura, either symmetric or asymmetric, are transected and repositioned.

The retrospective longitudinal study by Kim, Song, Park, Oh, and Lee on the safety and efficacy of tip extension sutures for Asian rhinoplasty showed satisfying results. They describe the tip extension suture as a variation of the lateral crural spanning suture method by suturing the nasal septum to the cephalic aspect of the medially moved lower lateral cartilage, after advancing the alar cartilage caudally with a two-pronged skin hook allowing to rebuild the nasal tip framework [5]. We used a suture fixation from de domes to the septum similar to this conclusions and believe that this gives a support, especially when the inter domal ligament, or Pitanguys ligament is cut.

A comparative study between septal extension graft and double layered conchal cartilage extension graft by Suh, Jeong, and Choi showed that both nasal tip techniques are similar in terms of stability [6]. Our study demonstrated that although the crura was transected, a nasal tip stability is obtained if its is later sutured to a strut graft.

Conclusion
According to our experience, alar crura detachment to correct nose tip is a viable option to give tip support and projection.

References