

Case Report

Secondary Rhinoplasty in Post-operative Cleft Lip and Cleft Palate

**Mahesh Virupakshi Kattimani^{1*}, Rajkumar Verma², Dev Saini³
and Divya Prakash Dubey³**

¹Associate Professor, ²Senior Resident, ³Junior Resident

Department of ENT, Pacific Medical College and Hospital, Udaipur, Rajasthan, Bharat

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***Corresponding Author Email:** magz0705@gmail.com

ABSTRACT

A 21yr old male patient presented with cosmetic deformity of nose. He was operated for cleft palate at the age of 8yrs. Open septo-rhinoplasty involving spreader graft placement, tip refinement, columellar strut graft placement was performed. Postoperative improvement in tip projection, nasal airway and overall cosmesis was noted.

KEYWORDS: Secondary rhinoplasty, Cleft lip, Cleft palate, External osteotomies, Open rhinoplasty

PRESENTATION OF THE CASE

A 21-year-old male presented to the outpatient department of ENT, PMCH, Udaipur with complaints of left nasal blockage since early childhood. There was no history of trauma, nasal bleeding, headache, or nasal discharge. The patient had been previously operated for cleft palate and cleft lip at the age of 8 years. On diagnostic nasal endoscopic examination, the patient had gross deviation of the nasal septum to the left side. Based on Mladina's Classification, the septal deviation was of type 6.

Cottle's test and Modified Cottle's test were positive suggesting both external and internal valve obstruction.

External nose was examined in various profiles viz. Lateral, anterior, bird's eye view and basal view and documented with the help of photographs [Figures 1, 2 and 3]. The following deformities were noted:

1. Polly beak deformity
2. Type 4 external deformity based on Yong Jo Jang's Classification
3. Dorsal nasal hump

Oral cavity and oropharyngeal examination revealed high arched palate. The patient was planned for open septo-rhinoplasty under general anesthesia.

Procedure

An open rhino-septoplasty surgery was planned.

In the setting of a cleft nasal deformity an external rhinoplasty helps in directly visualizing nasal structures and achieving a good reconstruction aimed at a resulting structure akin to normal anatomical structure. Via total transfixion and infra-cartilaginous incisions visualizing the

lower lateral cartilages as well as the nasal septum is commonly carried out practice. Medial crura should not be injured while elevating the columella thus additional care has to be taken during this procedure⁶.

1. Incision – Mid columellar inverted v shaped incision was made, connected with total transfixion incision and bilateral infra-cartilaginous incisions [Figure 7].
2. Exposure – Sub SMAS layer dissection was done [Figure 8] and exposure till radix was obtained [Figure 9]. Lower lateral cartilages were split, upper lateral cartilages were separated.
3. Septoplasty – Septoplasty was done with preserving dorsal, anterior strut and adequate septal cartilage was harvested for reconstruction. Septal quilting sutures were placed.
4. Hump Reduction – cartilage and bony hump were rasped initially using a coarse rasp and a fine later. Then the hump was taken down with osteotome and assessed in lateral profile
5. Spreader graft placement was done and quilting sutures were placed [Figure 10].
6. Columellar strut graft was anchored with medial crus of lower lateral cartilage.
7. Alar strut graft was secured with lateral crura of lower lateral cartilage.
8. Nasal Tip Reconstruction – Inter-domal and trans-domal sutures were given. Tip reconstruction was done after securing columellar graft.
9. External osteotomies were done with 2mm and osteotomes. Bleeding which followed was controlled with pressure and cold compression.
10. Septal quilting sutures were given.

Nasal packing was done. Cast was applied for 2 weeks and patient was followed up for 3 months every fortnightly and photo documented. Post operative and preoperative pictures were compared [Figures 4, 5 and 6].

Post-operatively –

1. There was significant improvement in nasal airway;
2. Tip projection improved;
3. Tip definition also improved;
4. Columellar structure also improved;
5. Left ala definition improved.



Figure 1: Pre-operative Lateral Profile



Figure 2: Pre-operative Lateral Profile



Figure 3: Pre-operative Basal Profile



Figure 4: Post-operative Lateral Profile



Figure 5: Post-operative Basal View



Figure 6: Post-operative Lateral Profile



Figure 7: Transcolumellar Incision, Total Transfixion Incision, Bilateral Infracartilaginous Incision



Figure 8: Sub SMAS Dissection



Figure 9: Dissection upto Radix

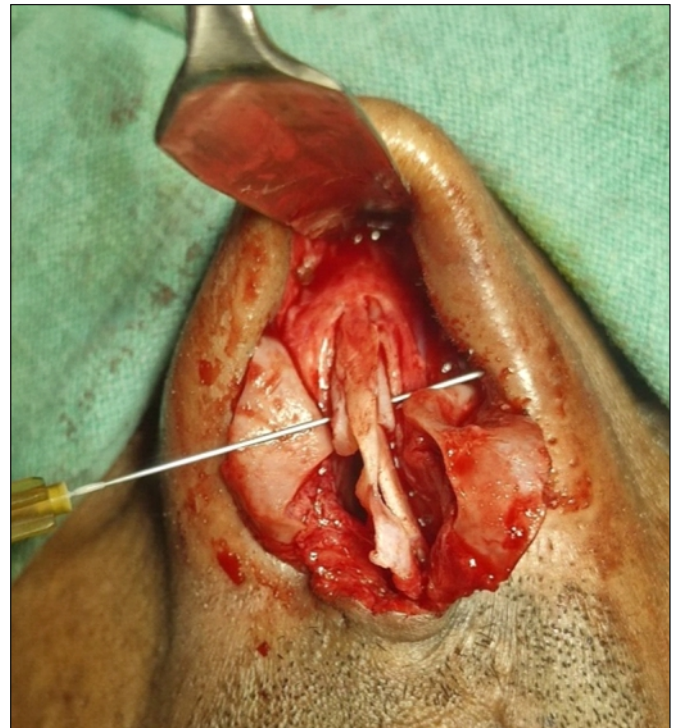


Figure 10: Spreader Grafts

DISCUSSION

Medial, lateral nasal and maxillary prominences fuse in an improper way during development ultimately leading to cleft lip formation. The medial nasal process and the maxillary processes fail to unite leading onto the defect in cleft patients¹.

The discontinuous orbicularis oris musculature, creates unopposed forces further which define the aberrant clinical features of the cleft nose².

The orbicularis oris inserts in a discontinuous and haphazard manner onto contralateral side (normal side) instead of a regular horizontal and continuous decussation, the orbicularis oris inserts in a discontinuous manner into the columella on the non-cleft side. An unopposed force that pulls the columella and caudal nasal septum to the non-cleft side is achieved³.

Timing of cleft lip nasal surgery can be divided into primary, intermediate, and secondary repairs.

Primary rhinoplasty is defined as nasal surgery at the time of primary cleft lip repair. The benefit of early intervention allows for an earlier restoration of nasal shape with the potential for more symmetric nasal growth. Intermediate rhinoplasty is usually performed before the cleft patient enters school, between 4 and 6 years of age⁴. The major goal of surgery is to correct the aberrant position of the cleft-side lower lateral cartilage so that future nasal growth will not exacerbate the cleft nasal deformity.

Once facial growth is completed secondary rhinoplasty is employed. Usually at around 14 to 16 years old in female patients and 16 to 18 years old in male patients' facial growth reaches the maximum⁵. The open approach is preferred for better exposure and visualization of the nasal elements. Placement of cartilage grafts for support and reinforcement is a major component of the cleft rhinoplasty operation. Use of the cartilage grafts reinforces the structural support of the nose, allowing for improved tip definition, and preventing wound contracture and collapse.

One of the complexities faced during secondary rhinoplasty is the nasal vestibule contracture, resulting from either the primary repair or revisions. Scarring can lead to nostril stenosis and collapse of the external nasal valve. Local tissue rearrangement with healthy tissue can be used to reconstruct this and disrupt the constrictive forces in the external nasal valve⁷.

CONCLUSION

The nasal deformity associated with cleft lip and palate is an uncommon problem that has a typical set of deformities and needs different approach to tackle those difficulties. Considerable scar tissue due to previous surgeries of cleft lip and palate present a unique challenge in reconstruction. Secondary rhinoplasty which is usually performed after achievement of nasal growth and is done via an open technique to adequately visualize the nasal structure. Cleft nasal deformity is a complicated problem that should be addressed during multiple stages of the patient's life.

CONFLICT OF INTEREST: None

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