

## Case report: Two cases of Cleft rhinoplasty

Hanane El Adak <sup>1,2,\*</sup>, Imane El Aissaoui <sup>1,2</sup>, Otmane Taybi <sup>1,2</sup>, Nada Imane Daghour <sup>1,2</sup> and Adil Dehhaze <sup>1,2</sup>

<sup>1</sup> Department of Burns and Plastic Surgery, Mohammed VI University Hospital, Tangier Morocco.

<sup>2</sup> Faculty of Medicine and Pharmacy of Tangier, Abdelmalek Saadi University, Morocco.

World Journal of Advanced Research and Reviews, 2024, 24(01), 870–876

Publication history: Received on 02 September 2024; revised on 06 October 2024; accepted on 09 October 2024

Article DOI: <https://doi.org/10.30574/wjarr.2024.24.1.3083>

### Abstract

The correction of cleft lip nose deformity remains a great challenge for any cleft surgeon. The nose is a prominent part of the face, and any cleft lip repair directs the beholders' eyes from the deformed lip to the deformed nose,

Controversies exist on the timing of rhinoplasty in cleft lip patients and is categorized as primary rhinoplasty performed at the time of cleft lip repair, intermediate rhinoplasty at the age of 5–11 years and definitive rhinoplasty.

This article presents two cases of unilateral nasal cleft in two adults treated by secondary rhinoplasty using an open technique.

The primary deformity is an imbalance between abnormal muscle insertion and maxillary skeletal hypoplasia. The general characteristics of this deformity are a very short columella, downward rotation of the tip and diminished nasal projection, and treatment of this depressed and hypoplastic bony scaffolding is the secret to successful secondary rhinoplasty.

Proponents of delayed nasal repair suggest that altering the cartilages in early nasal repair at the time of lip repair would complicate future corrective nasal surgeries if the primary repair would prove unsatisfactory. However, we know that repositioning the wing cartilage at the same time as closing the lip respects nasal growth by using a rigorous technique and control of scars

The aim of cleft lip rhinoplasty is both aesthetic and functional: to obtain a normal nose with nasal breathing.

**Keywords:** Cleft; Lip; Surgery; Rhinoplasty

### 1. Introduction

Rhinoplasty is an essential stage in the primary treatment of cleft lip, as well as in the secondary treatment of labio-nasal sequelae, including partial recurrence of the initial deformity and the scarring and aesthetic consequences of previous operations, and cases which rhinoplasty was not performed in primary treatment [4]. In fact, nasal repair is performed using the same technique, with a dual aesthetic and, above all, functional aim: to restore a normal nose, not only in terms of the cartilage, but also the bony skeleton. We present two cases of a rhinoplasty of unilateral cleft lip nasal deformity who was treated at the Burns and Plastic Surgery Department of Mohammed VI University Hospital in Tangier.

\* Corresponding author: Hanane El Adak

## 2. Case Report 1

A 37-year-old female was referred to our department of burn and plastic surgery with a complaint of deviated nose and smaller nostril on the left side. The patient's surgical history revealed that she had undergone cleft lip repair at the age of 2 months.

Extra-oral examination revealed a tilted dorsum nasal towards the noncleft side with an osseocartilaginous hump, the columella was short on the cleft side and deviated to the noncleft side, the lateral crux of the lower lateral cartilage was displaced lower on the cleft side, drooping and asymmetrical nose tip, nostril on the cleft side was small and the entire nostril was retropositioned (Figure1).

Intraoral examination finds a missing left upper lateral incisor with a residual vestibular fistula (Figure 1 (f)).

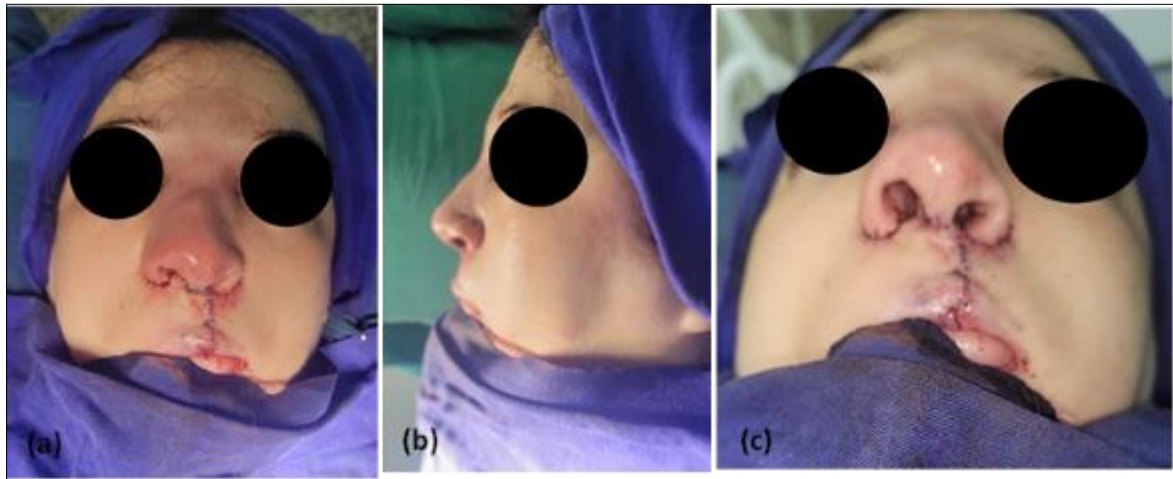


**Figure 1** Patients preoperative (a) front view, (b) profile view, (c) cleft nasal deformity inferior view. (d)  $\frac{3}{4}$  view, (e) superior view, (f) residual vestibular fistula

An open rhinoplasty was indicated for the cleft nasal deformity. The surgery was carried out under general anesthesia through orotracheal intubation. An inverted-V trans columellar incision with bilateral marginal incisions was done, the lower lateral cartilage and septal cartilage were exposed, the cartilaginous septum was separated from the maxillary crest and fixed to the midline using 5-0 PDS suture, And the deviated portions of the septum were removed, while preserving an adequate dorsal and caudal strut. The nose hump was removed. The tip projection and symmetry were increased with a strut graft in the columella in a pocket between medial crura after a triangular resection of the lower edge of the septum.

The alar hooding was improved, and alar collapse was avoided by placing a spreader graft. Postoperatively, healing was satisfactory, with no signs of infection or wound dehiscence. Nasal tip symmetry was achieved, with making the cleft

side nostril in same size as the non-cleft side, and good nasal dorsum and tip projection postoperatively (Figure 2). Results remained stable with no signs of relapse, with a one-year follow-up (Figure 3).



**Figure 2** Immediate postoperative results; (a) front view, (b) profile view, (c) inferior view



**Figure 3** 1-year postoperative photograph; (a) frontal view (b)  $\frac{3}{4}$  view, (c) superior view, (d) profile view, (e) residual vestibular fistula

### 3. Case Report 2

Our second case is about A 25-year-old female with nasal deviation and narrowing of the right nostril, the patient's surgical history revealed that she had undergone cleft lip repair at the age of 3 months.

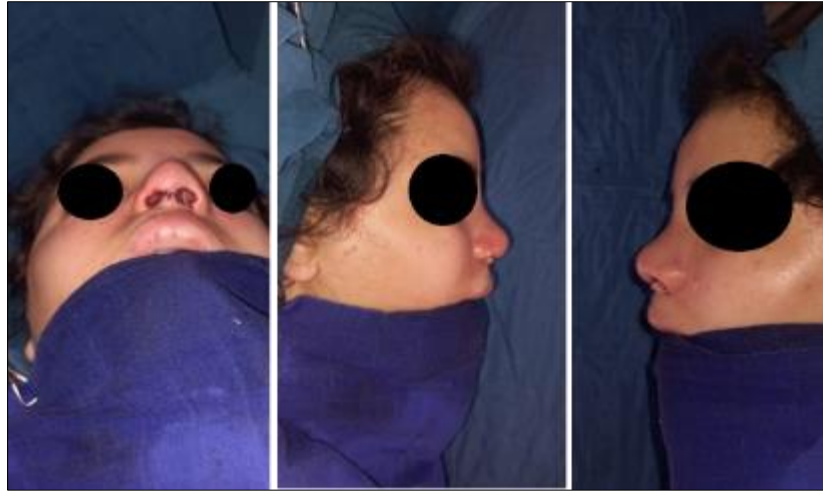
Extra-oral examination revealed a tilted dorsum nasal towards the noncleft side with a small cartilaginous hump, the columella was short on the cleft side and deviated to the noncleft side, drooping and asymmetrical nose tip, nostril on the cleft side was small (Figure 4).

An open rhinoplasty was indicated for the cleft nasal deformity. The surgery was carried out under general anesthesia through orotracheal intubation. An inverted-V trans columellar incision with bilateral marginal incisions was done, the lower lateral cartilage and septal cartilage were exposed, the cartilaginous septum was separated from the maxillary crest and fixed to the midline using 5-0 PDS suture, And the deviated portions of the septum were removed, while preserving an adequate dorsal and caudal strut. The nose hump was removed. The tip projection and symmetry were increased with a strut graft in the columella in a pocket between medial crura after a triangular resection of the lower edge of the septum.



**Figure 4** Patients preoperative (a) front view, (b) cleft nasal deformity inferior view, (c)  $\frac{3}{4}$  cleft side view (d) cleft side profile view, (e) non cleft side profile view, (f)  $\frac{3}{4}$  non cleft side view

The alar hooding was improved, and alar collapse was avoided by placing a spreader graft. Postoperatively, healing was satisfactory, with no signs of infection or wound dehiscence. Nasal tip symmetry was achieved, with making the cleft side nostril in same size as the non-cleft side, and good nasal dorsum and tip projection postoperatively (Figure 5). Results remained stable with no signs of relapse, with a one-year follow-up (Figure 6).



**Figure 5** Immediate postoperative results; (a) inferior view, (b) cleft side profile view, (c) non cleft side profile view



**Figure 6** 1-year postoperative photograph; (a) frontal view

---

#### 4. Discussion

Nostril repair should be performed in primary cleft lip and palate surgery, whether in unilateral or bilateral forms, to establish nasal breathing from the very first operation, which is essential for nasal and facial growth in general. Subject to rigorous technique and good control of scarring [ 5-6] .

The chronology of the repair is essential: at 6 months of age, the primary closure of the lip is simultaneous with the repair of the nasal sequela; this means that the primary repositioning of the wing cartilage conditions the permeability of the nostril orifice and the nasal valve, and initiates the programming of nasal ventilation with good aesthetic quality of the nasal correction. The restoration of a normal, functional nose is thus ensured by good labio-nasal muscle repair, which influences the width of the nostril threshold and clears the nasal vestibule flange [4].

In our case, rhinoplasty was not performed as primary surgery, and the patient presented a major functional, aesthetic and psychological prejudice despite labial and palatal repair, and in this situation secondary treatment of the labio-nasal sequel was indicated.

It should be noted that the sequela combines a partial recurrence of the original deformity with the scarring and functional consequences of previous operations[4].

For this reason, to elaborate a rational treatment plan, it is necessary to make a precise diagnosis of the deformities and dysfunctions; We must first assess the occlusion and the relationship between the two arches, because the bony platform has an influence on labial and nasal morphology; we must examine the level of the nostril margins and the height of the upper lip; we must study the symmetry of the landmarks on each level in relation to the midline, which is offset; and we must determine whether the patient has nasal ventilation by checking the presence of labial occlusion at rest, especially during sleep, asymmetry of the nostril wings, a wide or, on the contrary, stenotic scar threshold associated with labial deformities such as a lip that is too high or too short, flat with excess tension on the mucosal margin, a mediocre scar that is distorted when the lip moves, a mucocutaneous shift, a retracted or ptosed vermilion [7-8].

The Computed tomography (CT scans) show nasal deformities that were observed prior to any primary surgery, but modified by scarring and retraction from previous operations.

The labio-nasal revision technique combines repair of the labial deformity using Millard skin incisions to ensure philtral rotation and lateral advancement, with rhinoplasty using a marginal approach extended towards the tail of the lateral crus to expose the wing cartilage extensively, subperiosteal and subperichondral dissection must be extensive and sufficient to freely mobilize the labio-narillary muscles and nasal cartilage.

The dome is retracted into a W-shape, flattened and trapped in the gangue of its perichondrium. As soon as the perichondrium is dissected from the superficial surface and cephalic edge of the wing cartilage is excised, the dome opens out and projects.

Apart from the direct approach to the wing cartilage, what differentiates secondary surgery from primary surgery, and makes it so difficult, is the presence of the previous scars. Whether it's Tension's Z-plasty, the artificial repair of the mucocutaneous line, or worse, the multiple unjustified scars of certain external nasal approaches, these scars disrupt the anatomy.

Total reopening of the cleft provides access to the entire septo-vomerian luxation. In some cases, the hypertrophic inferior turbinate of the nasal cavity opposite the cleft must be resected [9-10-11].

In fact, the height of the lip, the vertical and horizontal positioning of the nostril bases, the level and width of the sill, the shape of the philtrum and the depth of the labial vestibule all depend directly on muscle repair. The quality of nasal repair depends more on the degree of cartilage mobilization and muscular reconstruction of the nostril and lip than on complex fixation procedures. When the reconstructed threshold brings the feet of the arch of wing cartilage closer together, the elasticity of the dome freed from its gangue of perichondrium rounds it out and projects it [4].

Some authors have abandoned direct sutures between the cartilages, preferring to reshape the tip of the nose under direct visual control at the end of the operation, with a system of internal and external silicone splints. According to Talmant et al. for the past 17 years, the permanent wearing of a removable nostril conformer has controlled postoperative scarring for the first four months, with good results at any age. [12]

In addition, the contour of the nostril and soft triangle must be preserved, as the nostril border is a landmark structure that must not be violated, especially at its junction with the columella: the soft triangle.

In the case of a deviated nose with excessive kyphosis, rhinoplasty is performed to realign and harmonize the nose. Rhinotomy is not always indicated or must be performed with care, as the ascending branch on the side of the cleft is generally hypoplastic and more posterior. A large hump should be reduced only after stabilization of the nasal tip projection. According to Talmant et al for 40 years' experience of secondary cleft surgery shows that it is not possible to accurately predict the degree of nasal tip projection and nasolabial angle that will persist six months to a year later with complete reopening and muscle reconstruction. For this simple reason, rhinoplasty to harmonize nasal proportions should only be undertaken as a tertiary procedure except in cases of minor adjustment. When the hump is resected, a crushed and longitudinally grooved septal cartilage graft on its superficial surface, long and wide enough to cover the entire bridge, will hide the asymmetry of the underlying clean bones and the constant residual septal curves of unilateral clefts [4].

At the tip of the nose, the continuity of the wing cartilage must be respected, and if a reduction in the projection or width of the tip of the nose is desired, the cartilage is sectioned with dissection of the two edges respecting their endonasal lining, followed by suture with overlapping the cartilage.

## 5. Conclusion

The correction of cleft lip nose deformity remains a great challenge for any cleft surgeon. Correction of the deformity requires a thorough and in detail understanding of the anatomy of cleft pathology and accurate assessment of both esthetic and functional impairments. An individualized treatment plan is needed taking into consideration the above-mentioned factors. Open external approach rhinoplasty allows maximum exposure for structural graft placement to improve tip projection, definition, support, and function.

---

## Compliance with ethical standards

### *Disclosure of conflict of interest*

The authors declare that they have no affiliations with or involvement in any organization or entity with any financial interests in the subject matter or materials discussed in this manuscript.

### *Statement of ethical approval*

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional research committee and the 1964 Helsinki Declaration. Written informed consent was obtained for the publication of the photos.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

### *Author Contributions*

H. EA contributed to the design and writing of the manuscript. A. D conceived and supervised the original project.

---

## References

- [1] Sykes JM, Senders CW. Surgical treatment of the unilateral cleft nasal deformity at the time of lip repair. *Facial Plastic Surgery Clinics of North America*. 1995 Feb 1;3(1):69-77.
- [2] Sykes JM, Senders CW. Pathologic anatomy of cleft lip, palate and nasal deformities. In: Meyers AD, editor. *Biological Basis of Facial Plastic Surgery*. New York: Thieme Medical Publishers; 1993. p. 57-71.
- [3] Baskaran M, Packiaraj I, Arularasan SG, Divakar TK. Cleft rhinoplasty. *Journal of Pharmacy and Bioallied Sciences*. 2015 Aug 1;7(Suppl 2):S691-4.
- [4] Talmant JC. Cleft rhinoplasty, from primary to secondary surgery. In *Annales de Chirurgie Plastique et Esthétique* 2014 Sep 26 (Vol. 59, No. 6, pp. 555-584).
- [5] Talmant JC. Evolution of the functional repair concept for cleft lip and palate patients. *Indian J Plast Surg* 2006;39:196—209.
- [6] Talmant JC, Talmant JC, Lumineau JP Secondary surgical treatment of cleft lip, alveolar palate.. *EMC-Chirurgie Plastique Reconstr et Esthétique*. 2012 Feb.
- [7] Pawar SS, Wang TD. Secondary cleft rhinoplasty. *JAMA facial plastic surgery*. 2014 Jan 16.
- [8] Chaithanyaa N, Rai KK, Shivakumar HR, Upasi A. Evaluation of the outcome of secondary rhinoplasty in cleft lip and palate patients. *Journal of plastic, reconstructive & aesthetic surgery*. 2011 Jan 1;64(1):27-33.
- [9] Talmant JC, Lumineau JP. Cleft lip and palate. Primary treatment . *Encycl. Med. Chir. Elsevier Masson*. 2011:45-580.
- [10] Tschopp HM. "The Open Sky Rhinoplasty" for Correction of Secondary Cleft Lip Nose Deformity: Technique and Recent Results. *Scandinavian Journal of Plastic and Reconstructive Surgery*. 1988 Jan 1;22(2):153-8..
- [11] Tebbets John B. Primary rhinoplasty. *Redefining the logic and techniques*, Second Ed., Mosby Elsevier; 2008: 2—12.
- [12] Talmant JC. Current trends in the treatment of bilateral cleft lip and palate. *Oral and Maxillofacial Surgery Clinics of North America*. 2000 Aug 1;12(3):421-41.