CLEFT RHINOPLASTY

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Craniofacial Nasal Defect

Tessier # 2 facial cleft

Tessier # 3 facial cleft
Cleft Nose Defect

SEPTAL DEVIATION towards non cleft side due to lateral position of anterior nasal spine

SCAR of the cleft lip surgery distorting the ala

Underlying alveolar and piriform BONY DEFECT not stabilized
Maxillary Hypoplasia on cleft side

NASALIS MUSCLE not positioned during primary lip repair

OVERLYING SKIN stretched over the nostril on cleft side

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Cleft Nose Defect: Problem Pentacle

Skin

Spirit

Air

Water

Cartilage

Muscle

Bone

Earth

Fire

Scar

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Cleft Rhinoplasty

Treatment for the cleft nose has to include all or some of the following

Rhinoplasty with

Secondary lip repair,

Alveolar bone grafting and

Maxillary advancement

We should call it PROFILOPLASTY
Anatomy of cleft nose: Unilateral Cleft

- The alar cartilages will not be at the same level
- The septum will be deviated towards the non cleft side
Anatomy of cleft nose: Bilateral Cleft

• The alar cartilages may be at the same level but will be buckled.
• The septum will not be deviated but will also be buckled.
Surgical Approach
Open Rhinoplasty

1. Using Septal Graft

2. Using Costo-chondral or alloplastic implants
The Need for Maxillary Advancement
Prior to Rhinoplasty
The Need for Bone Grafting
Prior to Rhinoplasty
Surgical approach:
Unilateral Cleft with Septal Grafting

- Columella Lengthening,
- Septal Repositioning,
- Radix Grafting,
- Tip Augmentation,
- Lower Lateral Cartilage Repositioning,
- Alar Base Wedge Resections,
- Piriform Augmentation,
- Nasal Bone Osteotomies

Cleft Rhinoplasty

Unilateral Cleft with Septal Grafting Marking

Tejima
- Decreases the excess soft triangle tissue and reduces the nasal web.

V- Y
- Increases length of columella
- Especially increases length of medial crura
- Revise the cleft lip scar contracture.
Cleft Rhinoplasty

**Unilateral Cleft with Septal Grafting Marking**

**Tejima**
- Decreases the excess soft triangle tissue and reduces the nasal web.
- Medial rotation of tejima flap gives columellar length on cleft side

**Transcolumellar**
Indicated in
- Narrowed cleft nostril
- Scar at columellar base
The rule of 5 R’s for Deviated Nasal Septum

- Relieve,
- Resect,
- Reposition,
- Restructure
- Restrengthen
Cleft Rhinoplasty
Unilateral Cleft with Septal Grafting

- Relieve
- Exposing the septum

- Note the extreme angle of caudal part of the septum due to its attachment to the anterior nasal spine which in cleft defects is lateralized towards the cleft side.
**Resect**

- At least 1 cm should be maintained superiorly and anteriorly in an ‘L’ shaped configuration to provide support for the nose.

- Septoplasty is done by resecting the posterior and inferior end of the septum.

- The extended septal graft is then stabilised anterio-caudally by drilling a hole into the bone on the cleft side.
Cleft Rhinoplasty
Unilateral Cleft with Septal Grafting

Reposition
• The septal graft extends into the medial crura and rests upon the maxillary septal groove. The septal graft also acts like a spreader graft as it is placed on the cleft side in between the upper lateral and septal cartilage.

• Closing upper lateral cartilage
  • The upper lateral cartilage needs to be opened when there is gross deviation of septum to release the bend in the septum.
• **Restructure & Restrengthen**

• An 18-gauge needle is inserted through the skin at the level of alar base groove and exits at the anterocaudal part of extended septal graft.

• The antero-caudal part of septal graft is fixed in position by two bilateral alar nasalis muscle sling sutures using 4-0 polypropylene sutures.

• Medial crural footplates are sutured with septal cartilage using horizontal mattress sutures.
Quilting sutures are placed using 3-0 vicryl sutures over the nasal septum to eliminate the dead space between the dissected perichondrium on either side.
Cleft Rhinoplasty
Unilateral Cleft with Septal Grafting
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Cleft Rhinoplasty
Bilateral Cleft with Septal Grafting
Cleft Rhinoplasty
Bilateral Cleft with Septal Grafting

- Marking
Cleft Rhinoplasty
Bilateral Cleft with Septal Grafting

• Exposing the septum
  • Note the extreme angle of caudal part of the septum due to its attachment to the anterior nasal spine which in cleft defects is lateralized towards the cleft side
  • Septoplasty is done by resecting the posterior and inferior end of the septum
Cleft Rhinoplasty
Bilateral Cleft with Septal Grafting

• Positioning the strut made from the excised inferior and posterior part of septum
• Closing upper lateral cartilage
  • The upper lateral cartilage needs to be opened when there is gross deviation of septum to release the bend in the septum
Cleft Rhinoplasty
Bilateral Cleft with Septal Grafting
Cleft Rhinoplasty
Bilateral Cleft with Septal Grafting
Cleft Rhinoplasty
Bilateral Cleft with Septal Grafting
Cleft Rhinoplasty
Bilateral Cleft with Septal Grafting
Cleft Rhinoplasty
Unilateral Cleft with Costa-Chondral Grafting
Cleft Rhinoplasty
Unilateral Cleft with Costa-Chondral Grafting

- Positioning and fixing the strut
Cleft Rhinoplasty
Unilateral Cleft with Costo-Chondral Grafting

- Positioning the Baton graft to strengthen the ala on the cleft side
Cleft Rhinoplasty
Unilateral Cleft with Costa-Chondral Grafting

- Closure
Cleft Rhinoplasty
Unilateral Cleft with Costa-Chondral Grafting
Assessment of nostril symmetry after primary cleft rhinoplasty in patients with complete unilateral cleft lip and palate

Srinivas Gosla Reddy, Visalakshi Devarakonda, Rajgopal R. Reddy

The aims of this study was to assess the nostril symmetry following primary rhinoplasty done with either a dorsal onlay or columnar strut graft in patients with non-syndromic complete unilateral cleft lip and palate. In this retrospective study 30 consecutive patients treated with autogenous or alloplastic dorsal onlay grafts and 30 consecutive patients treated with autogenous or alloplastic columnar strut grafts were compared. After cleft rhinoplasty the patients were divided into 2 groups: Group 1 - 30 consecutive patients with dorsal onlay grafts and Group 2 - 30 consecutive patients with columnar strut grafts. The parameters used to assess symmetry namely nostril width, nostril height and nostril gap were compared statistically. None of the parameters showed statistically significant changes. A satisfactory, though not statistically significant difference in symmetry outcome could be achieved in both the groups with the exception of nostril width symmetry in group treated with dorsal onlay graft.

1. Introduction

Despite a plethora of surgical approaches aimed at correcting the cleft nose defect, no one procedure has been universally satisfactory in the repair of nasal deformities associated with cleft lip abnormalities (Tsirke et al., 1997). The various treatment options for the correction of cleft rhinoplasty include columnella lengthening, septal repositioning, radix grafting, tip augmentation, tip grafting, lower lateral cartilage repositioning, alar base wedge resection, plinth augmentation and nasal bone osteotomies (Tremlett et al., 1997). The etiological problem of all the unilateral cleft nasal deformities is that all the nasal symmetry must be addressed in the nasal symmetry. Each of the surgical techniques that have been used to correct the unilateral cleft nasal deformity has attempted to improve symmetry by translocation of the alar cartilage with its attached vestibular lining into a normal position, thereby establishing the normal vault and shape of the cartilage (Rocher et al., 2011). Several methods are reported in the literature to assess cleft lip nasal deformities but difficulties in standardization make these studies less reproducible (Sarikawa et al., 2010).

2. Materials and methods

The present study is an attempt to quantify and evaluate nostril symmetry achieved after primary rhinoplasty in patients with complete unilateral cleft lip and palate (UPC) using a dorsal onlay and strut columnar technique. The effects of these two surgical techniques on the shape of the nostril were studied.

2.1. Surgical technique

Open structured rhinoplasty was performed by a single surgeon on all the patients. After a transcolumellar incision approach, the alar cartilages were exposed and released from their mucosal attachments. A hook was then placed in the cleft side nasal vestibular mucosa to ensure a satisfactory lift of the buckled cleft side alar cartilages.

Patients with a depressed nasal bridge, drooping nasal tip and short columna were treated with a dorsal onlay graft and Patients with depressed nasal bridge, drooping nasal tip and short columna were treated with a dorsal onlay graft.
Conclusion:

A decrease in the cleft side nostril width less than that of the noncleft side was noted after using a dorsal graft inspite of a near perfect symmetrical outcome in terms of nostril height and nostril gap area.

Thus a satisfactory symmetrical outcome could be achieved in both the treatment groups with the exception of nostril width symmetry in group treated with dorsum graft.

There was an improvement in the nostril symmetry in patients undergoing strut grafting. This improvement, however, was not statistically significant.
3 Dimensional Photographic Analysis
3 Dimensional Photographic Equipment

3 Dimensional LASER Equipment
3 Dimensional Photographic Analysis

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Complex nasal deformities
Complex Nasal Deformities

Nasal Duplication
Heminasal Aplasia
Heminasal Aplasia
Complex Nasal Deformities

Nasal Aplasia

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Tessier # 0-14 Facial Cleft
Complex Nasal Deformities

Tessier # 2 Facial Cleft
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Tessier #14 Facial Cleft
Complex Nasal Deformities
Lyophilised Cartilage Graft
Complex Nasal Deformities