

CLEFT RHINOPLASTY

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Congenital Nasal Defect



Cleft Nasal Defect

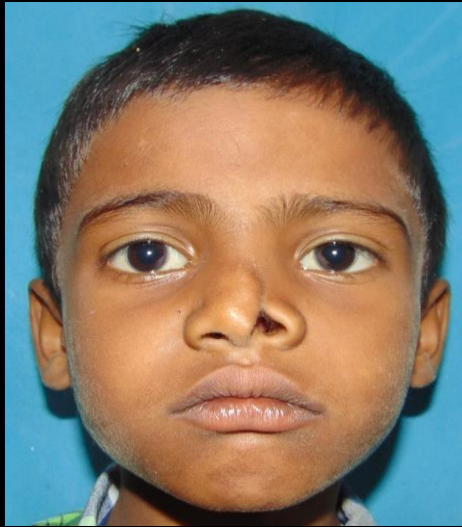


Craniofacial Nasal Defect



Craniofacial Nasal Defect

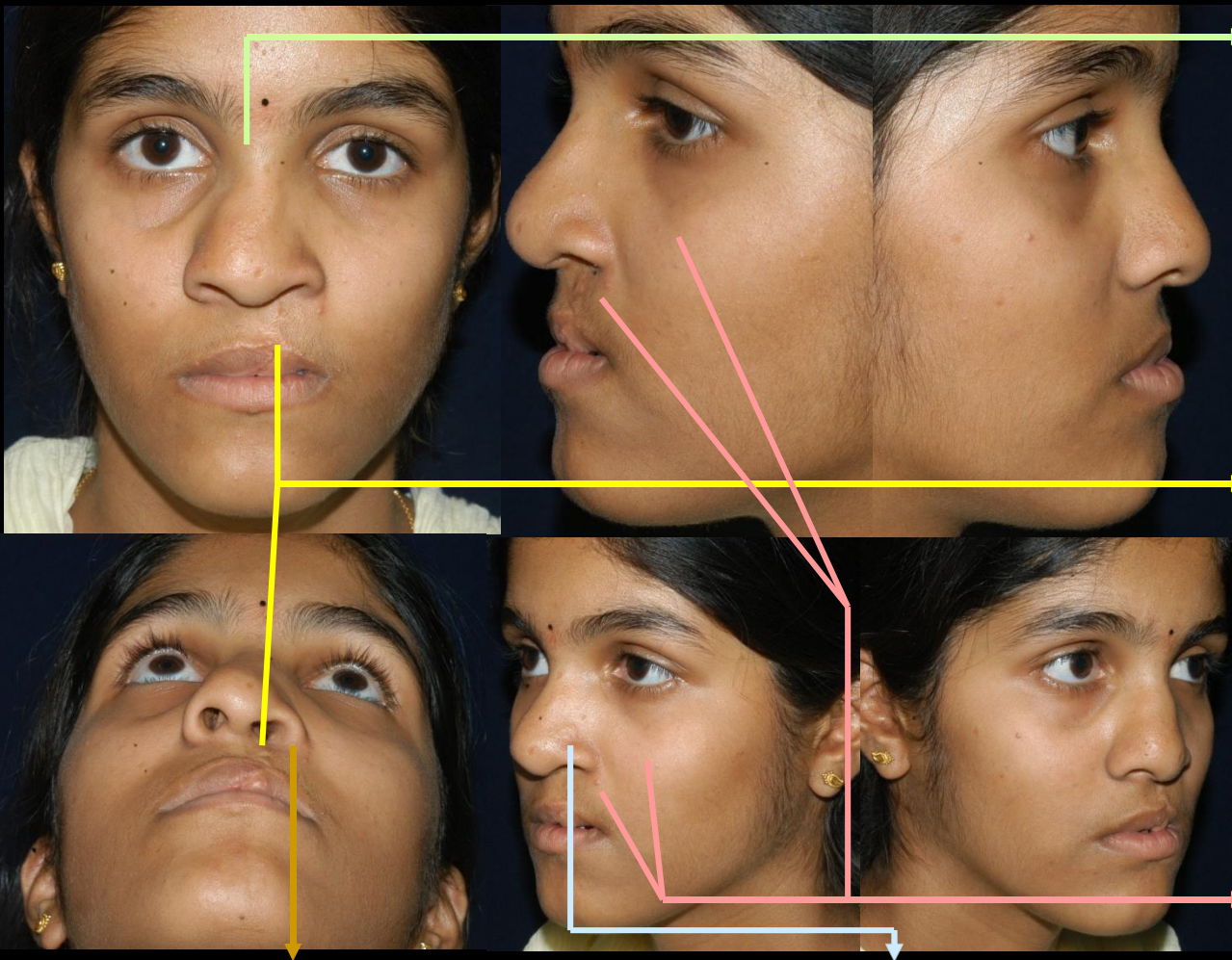
Tessier # 2 facial cleft



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

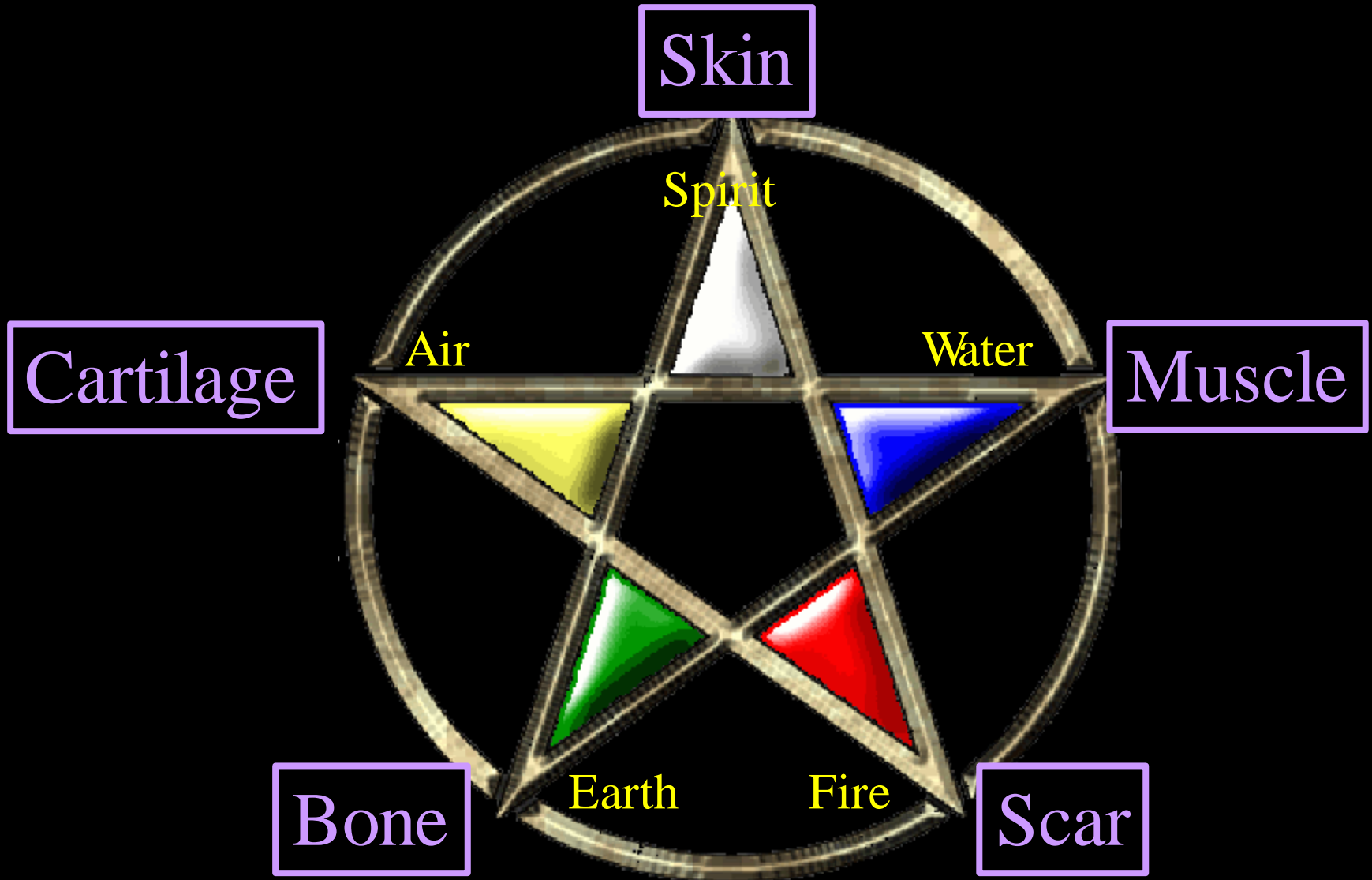
**Underlying alveolar and
piriform BONY DEFECT**
not stabilized
**Maxillary Hypoplasia on
cleft side**

NASALIS MUSCLE not
positioned during
primary lip repair

OVERLYING SKIN
stretched over the nostril on
cleft side



Cleft Nose Defect: Problem Pentacle



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



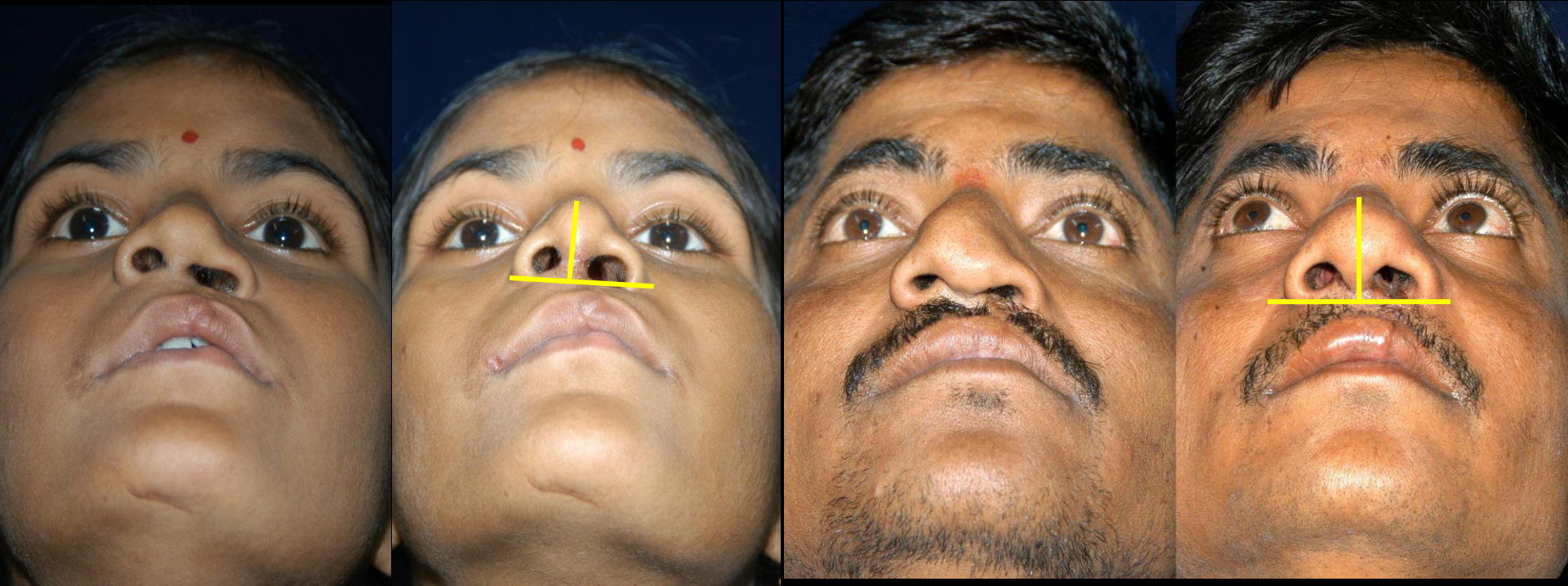
The Need for Maxillary Advancement

Prior to Rhinoplasty



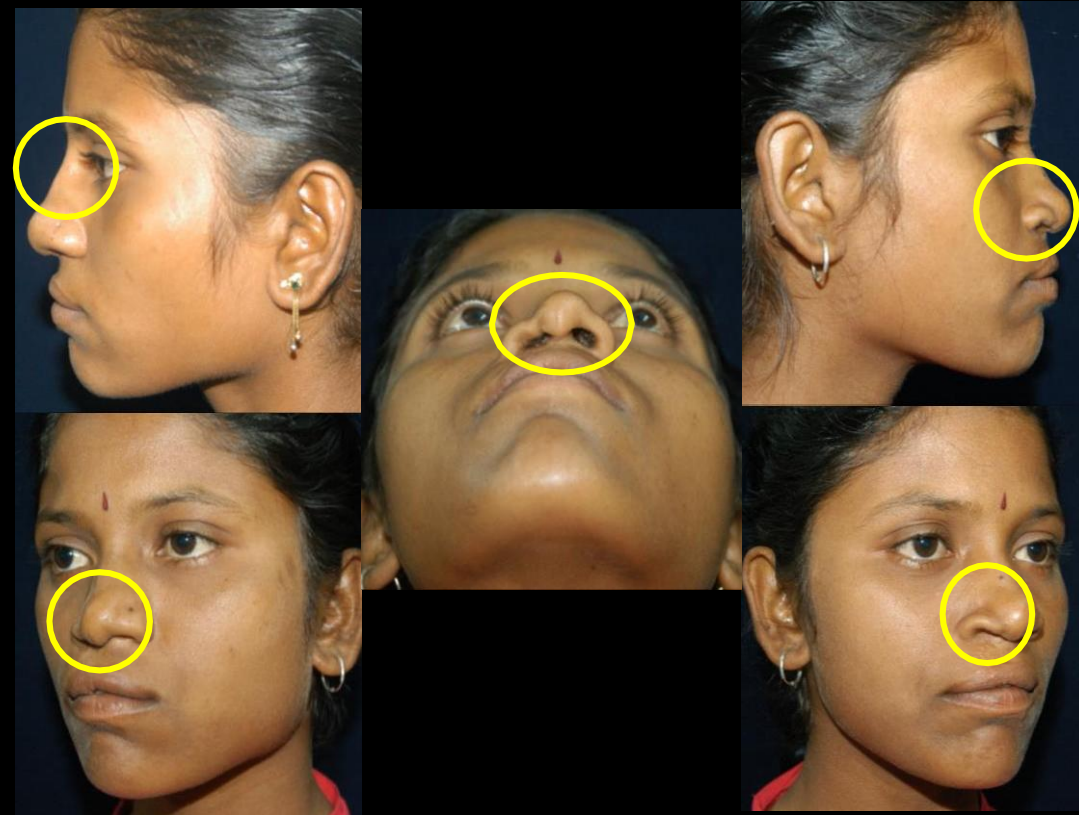
The Need for Bone Grafting

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

S. Gosla Reddy et al. / Assessment of nostril symmetry after primary cleft rhinoplasty in patients with complete unilateral cleft lip and palate; Journal of Cranio-Maxillo-Facial Surgery 41 (2013) 147 -152



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.



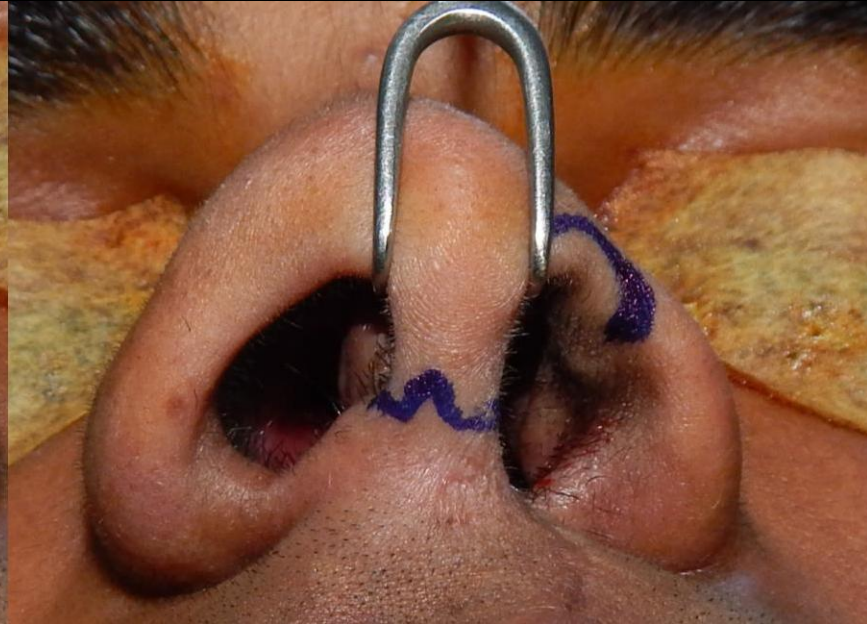
Cleft Rhinoplasty

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



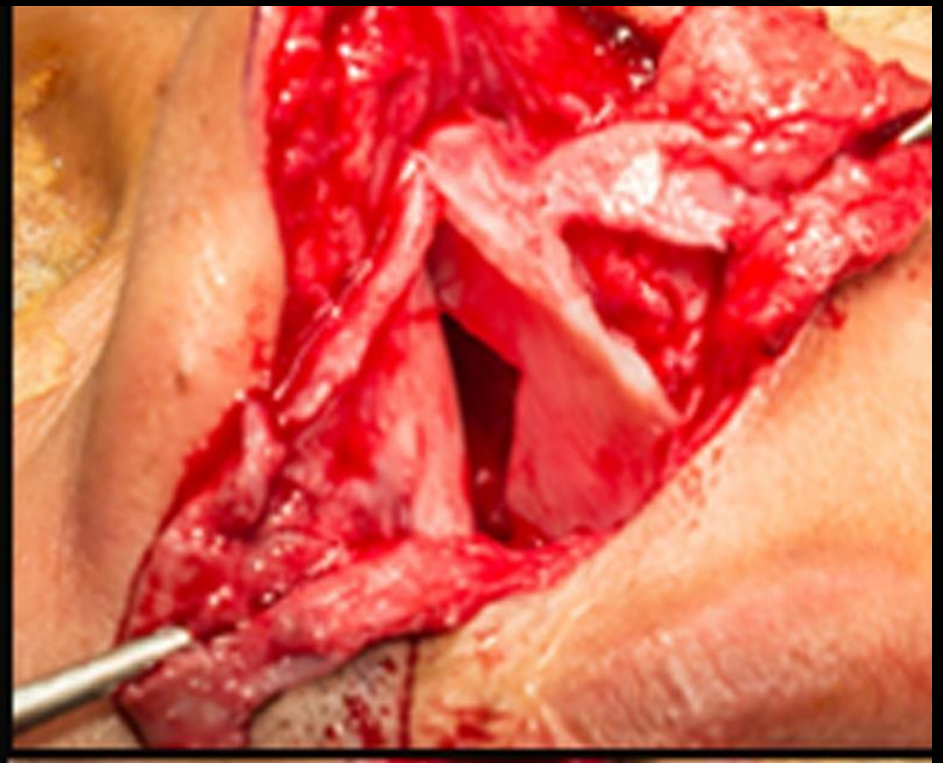
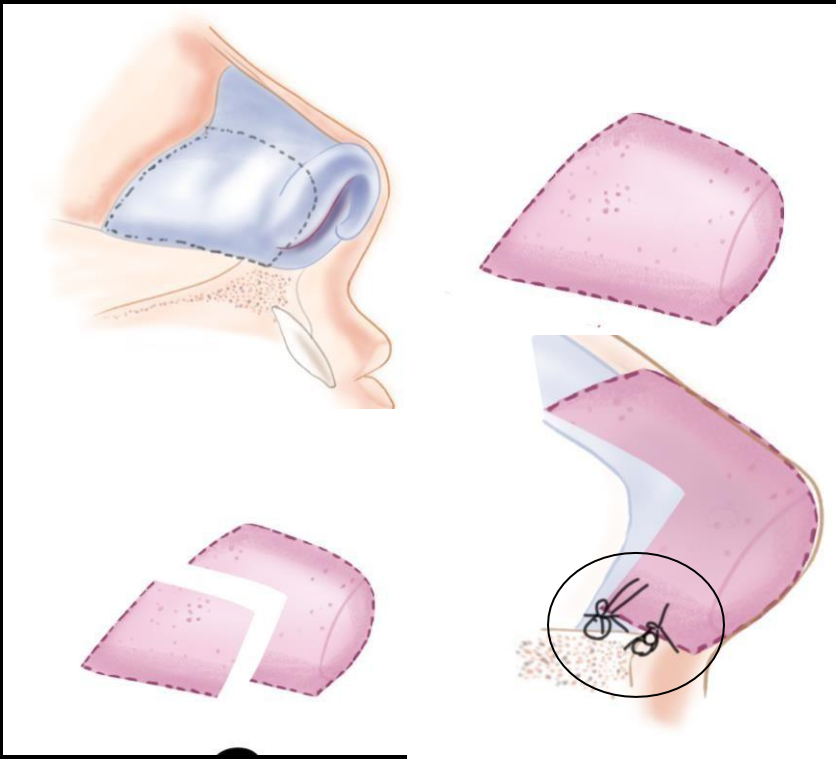
Cleft Rhinoplasty

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.





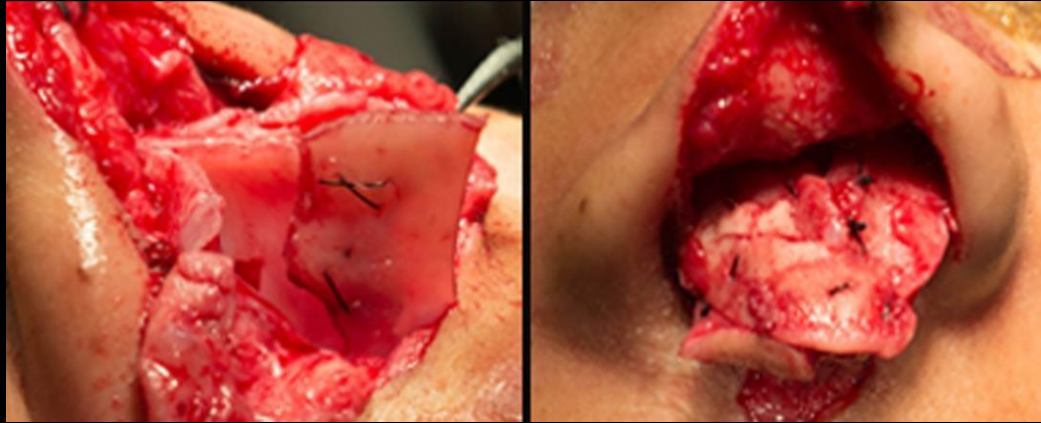
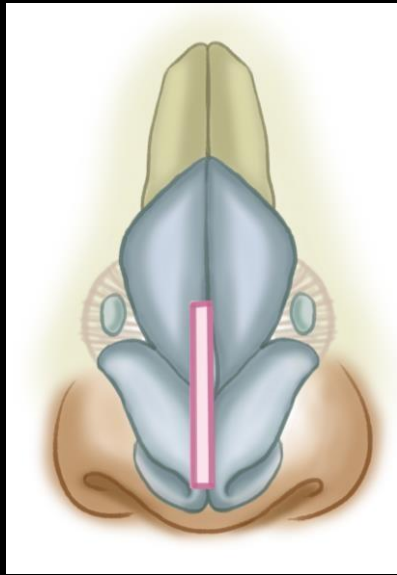
Resect

- 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 antero- 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 antero-caudal 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.



Closure



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



Cleft Rhinoplasty

Unilateral Cleft with Septal Grafting



Cleft Rhinoplasty

Unilateral Cleft with Septal Grafting



Unilateral Cleft with Septal Grafting



Unilateral Cleft with Septal Grafting



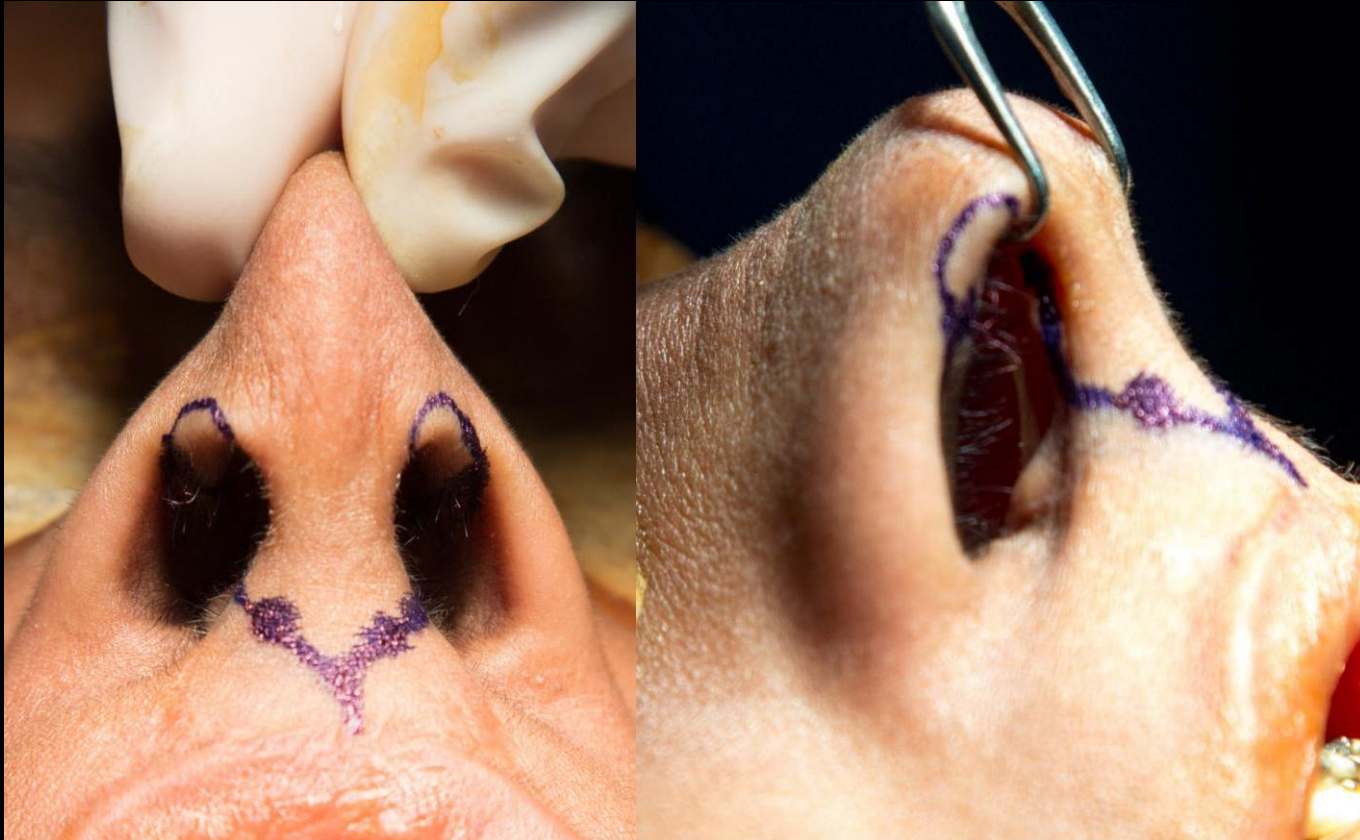
Cleft Rhinoplasty

Bilateral Cleft with Septal Grafting



Cleft Rhinoplasty

Bilateral Cleft with Septal Grafting

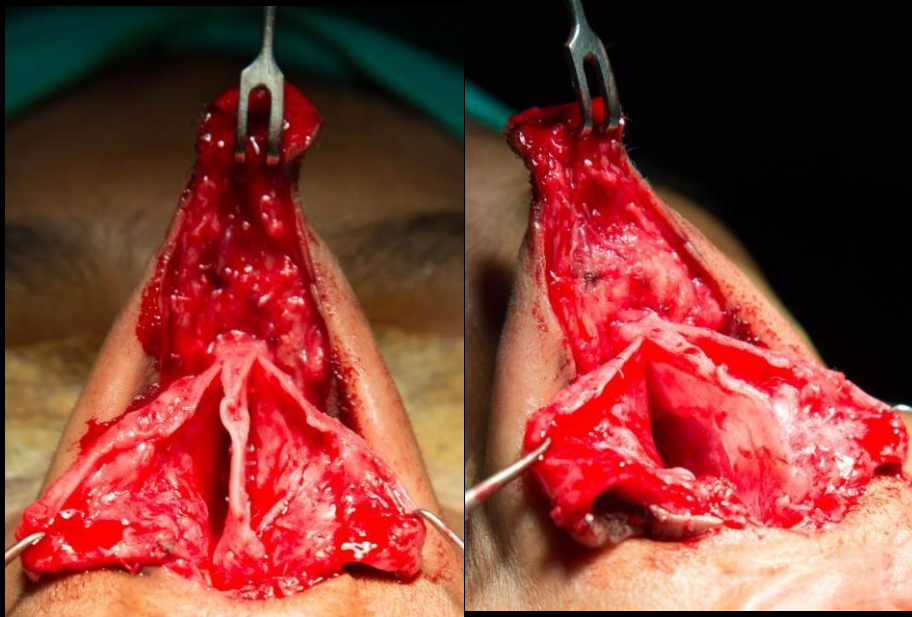


- Marking



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



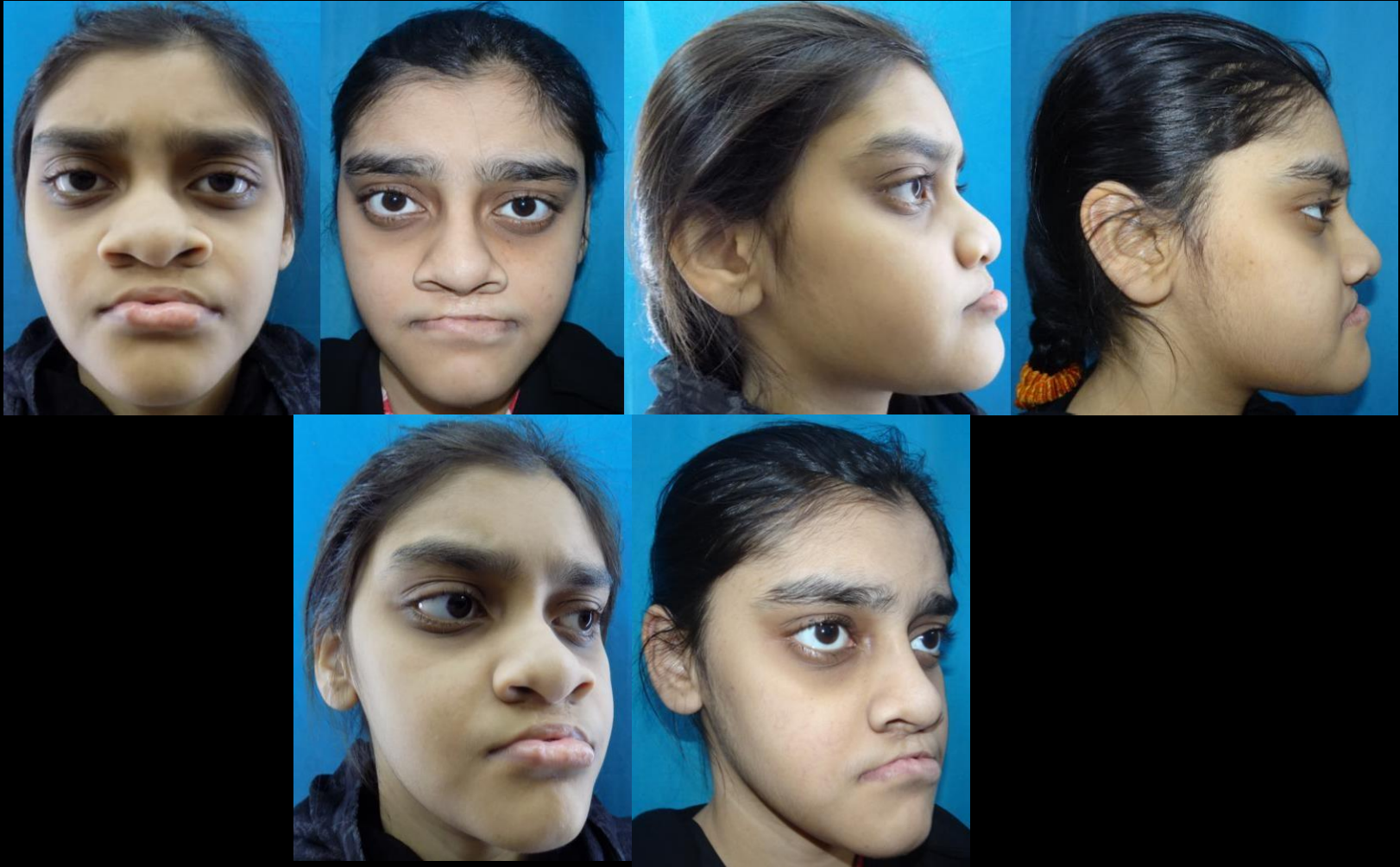
Cleft Rhinoplasty

Bilateral Cleft with Septal Grafting



Cleft Rhinoplasty

Bilateral Cleft with Septal Grafting



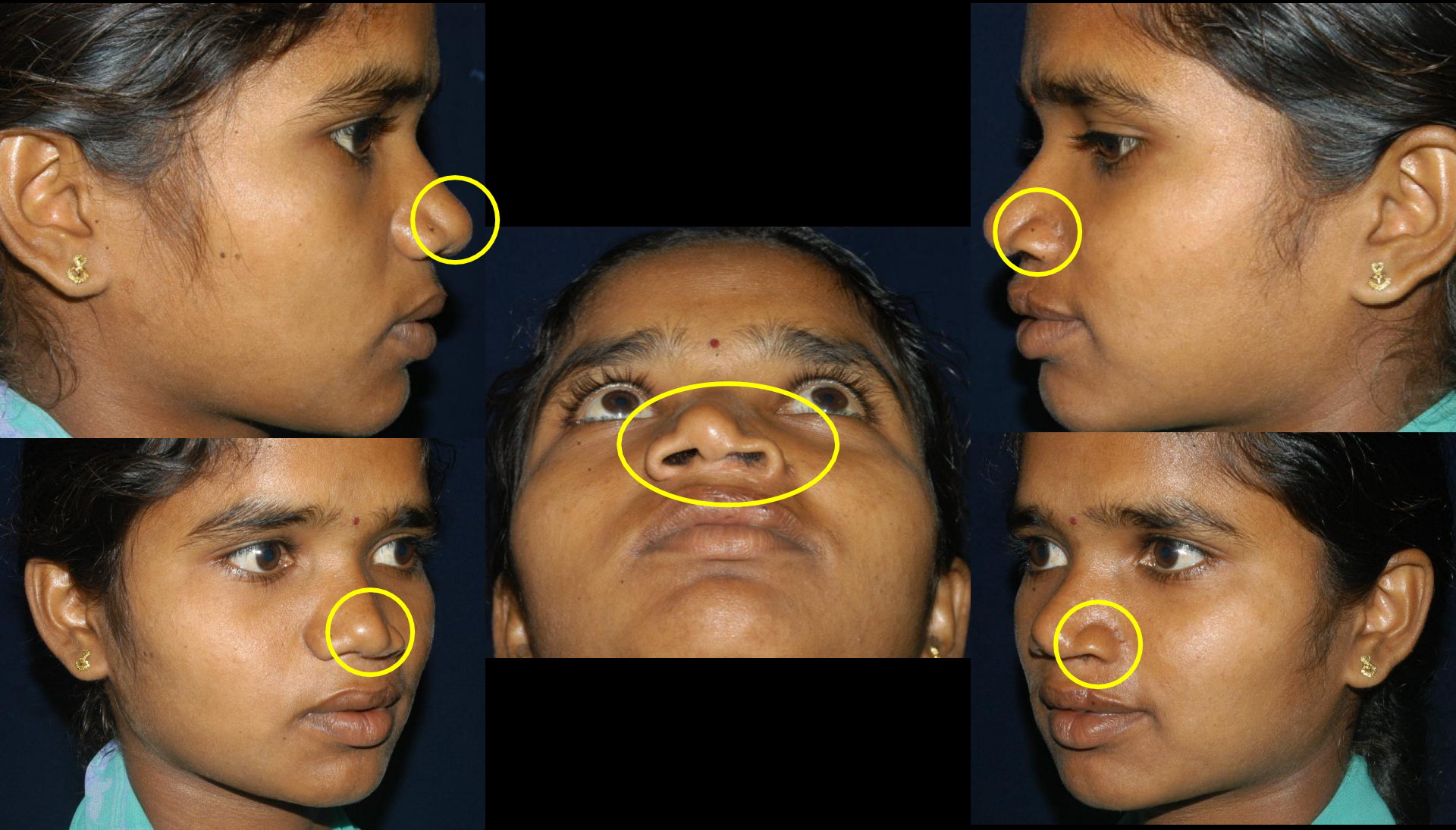
Cleft Rhinoplasty

Bilateral Cleft with Septal Grafting



Cleft Rhinoplasty

Unilateral Cleft with Costo-Chondral Grafting



Cleft Rhinoplasty

Unilateral Cleft with Costo-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 Costo-Chondral Grafting



- Closure



Cleft Rhinoplasty

Unilateral Cleft with Costo-Chondral Grafting





Assessment of nostril symmetry after primary cleft rhinoplasty in patients with complete unilateral cleft lip and palate[☆]

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ABSTRACT

The aim of this study was to assess the nostril symmetry following primary cleft rhinoplasty done with either a dorsal onlay or columellar 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 columellar strut grafts for complete unilateral cleft nose reconstruction were analyzed for nasal symmetry. The autogenous grafts used were costochondral or septal cartilage and the alloplastic graft used was high density polyethylene (Medpore®). Assessment of the nostril symmetry was done using a two-dimensional nasal analysis 24–30 months postoperatively. Ratios between cleft and noncleft side nostril for three parameters were used to assess symmetry namely nostril width, nostril height and nostril gap area. None of the three parameters showed statistically significant changes. A satisfactory, though not statistically significant, difference in symmetrical outcome could be achieved in both the groups with the exception of nostril width symmetry in group treated with dorsal onlay graft.

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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 (Trenite et al., 1997). The various treatment options for the correction of cleft rhinoplasty include columella lengthening, septal repositioning, radix grafting, tip augmentation, tip grafting, lower lateral cartilage repositioning, alar base wedge resections, piriform augmentation and nasal bone osteotomies (Trenite et al., 1997). The typical problem with all the unilateral cleft nasal deformity which must be addressed is the nasal asymmetry. 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 (Bashir 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 (Tanikawa et al., 2010).

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 (UCLP) using a dorsal onlay and a columellar strut graft. The effect of these two techniques on the shape of the nostril was studied.

2. Materials and methods

To address the nasal deformity a retrospective study was conducted on patients operated for unilateral cleft nose deformity at our institute between January 2007 and February 2009. Thirty consecutive patients (11 males and 19 females) with dorsal grafting and 30 consecutive patients with strut grafting (11 males and 19 females) were enrolled in the study.

2.1. Surgical technique

Open structured rhinoplasty was performed by a single surgeon on all the patients. After a transcollellar incision approach, the alar cartilages were exposed and released from their mucosal attachments. A back cut was given 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 columella of the nose were treated with a dorsal onlay graft

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Group 1- 30 consecutive patients with dorsal grafting
Group 2- 30 consecutive patients with strut grafting





Measurement of nostril width and height



Measurement of nostril gap area

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





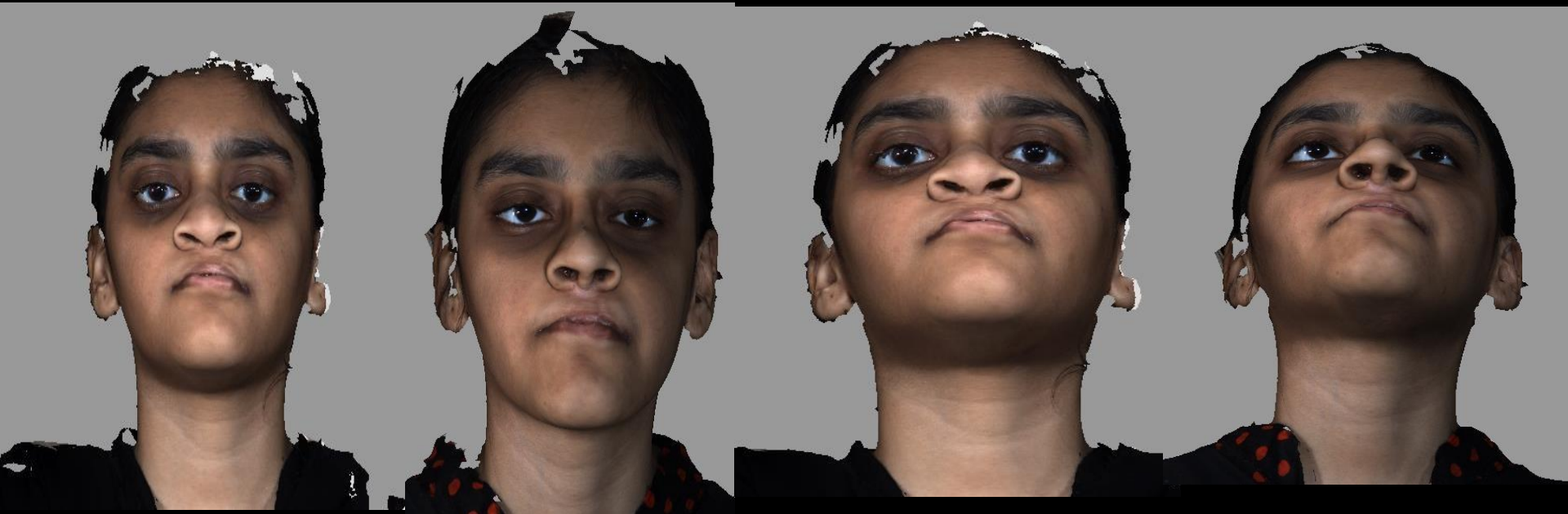
3 Dimensional Photographic
Equipment



3 Dimensional LASER
Equipment



3 Dimensional Photographic Analysis



3D Stereophotogrammetric analysis supported by **Radboud University, Nijmegen (Prof. Stefaan Berge)** and **University Medical Center, Basel (Prof. Hans Florian Zeilhofer)**



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Complex nasal deformities



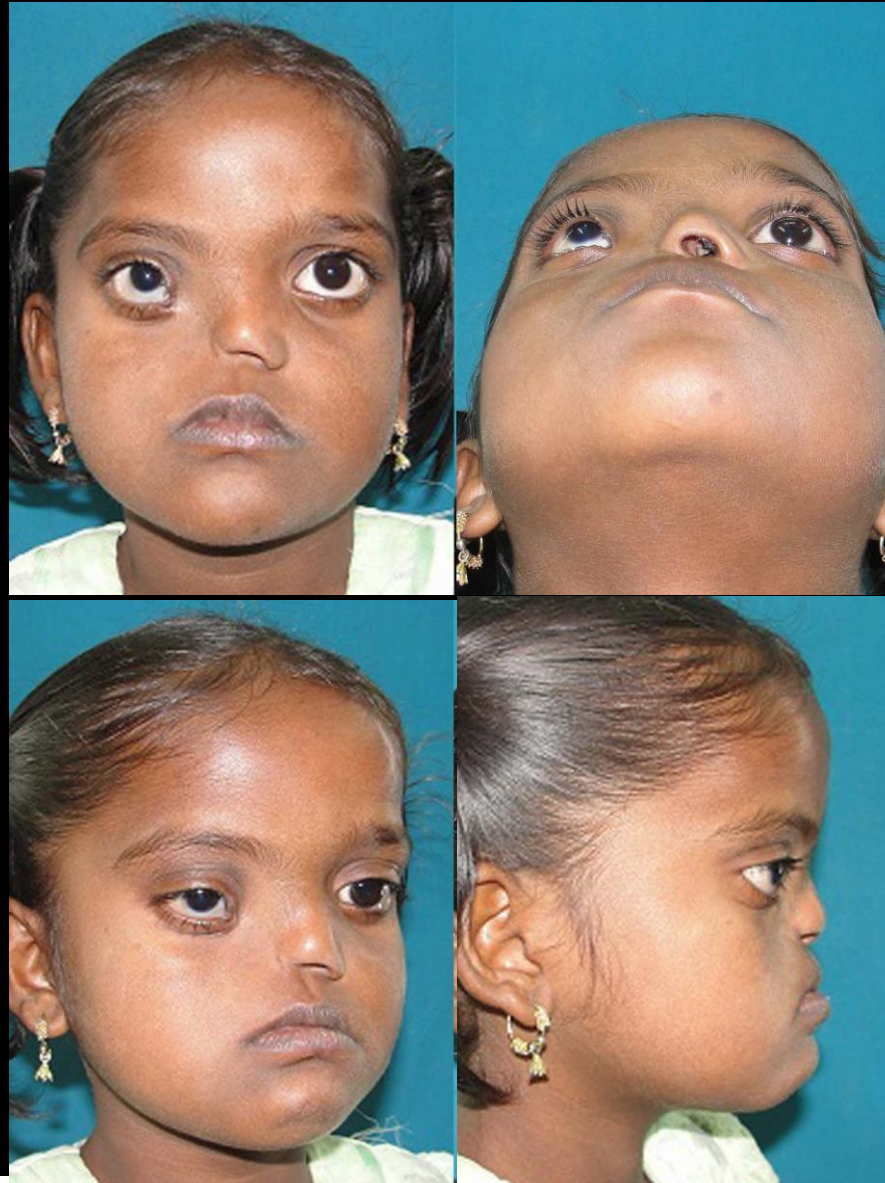
Complex Nasal Deformities



Nasal Duplication



Heminasal Aplasia



Heminasal Aplasia



Heminasal Aplasia



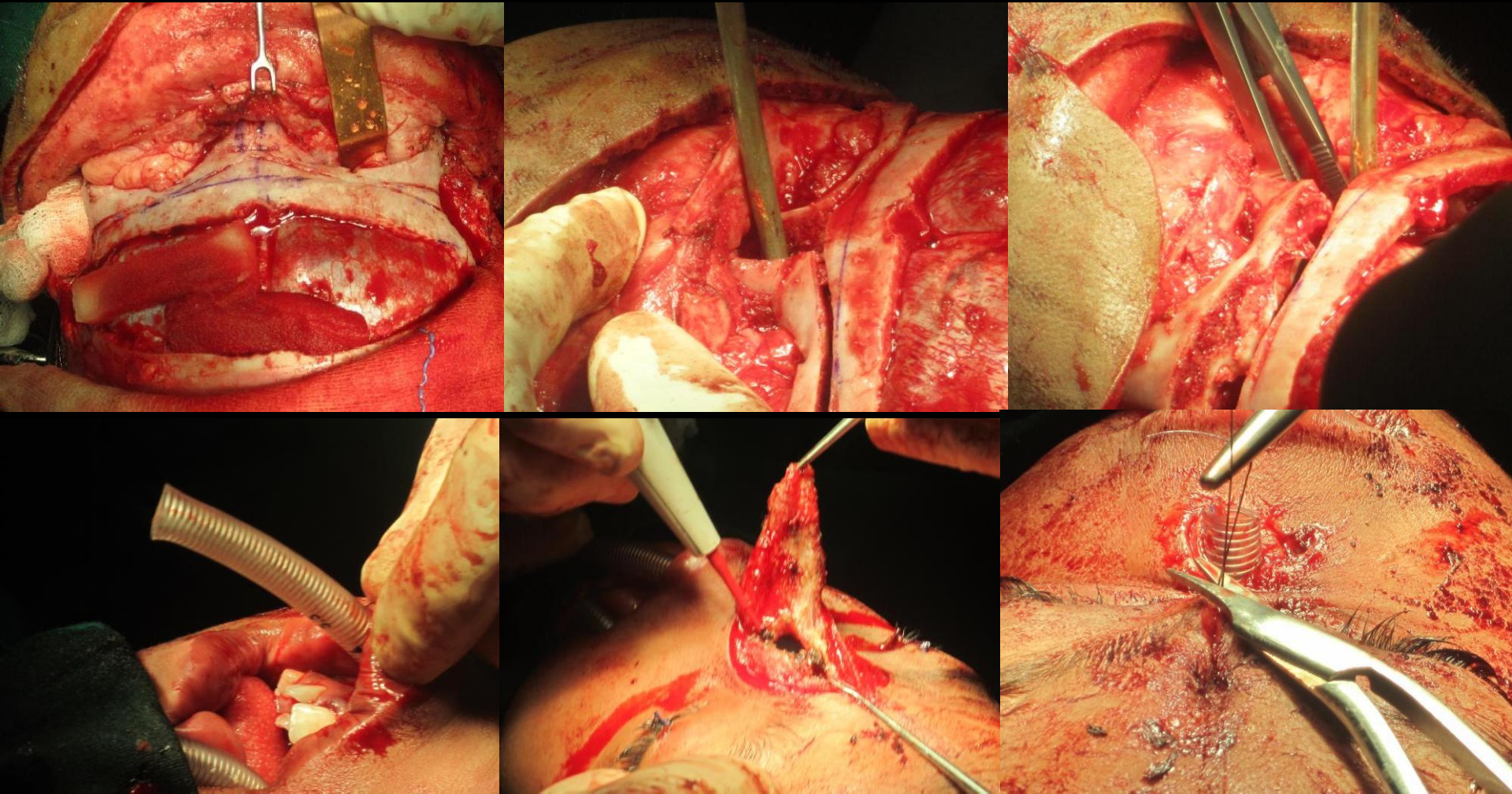
Complex Nasal Deformities



Nasal Aplasia



Complex Nasal Deformities



Complex Nasal Deformities



Complex Nasal Deformities

Tessier # 0 Facial Cleft



Complex Nasal Deformities

Tessier # 0-14 Facial Cleft



Complex Nasal Deformities

Tessier # 2 Facial Cleft



Complex Nasal Deformities

Tessier # 2 Facial Cleft



Complex Nasal Deformities

Tessier # 2 Facial Cleft



Complex Nasal Deformities

Tessier #3 Facial Cleft



Complex Nasal Deformities

Tessier #3 Facial Cleft



Complex Nasal Deformities

Tessier #3 Facial Cleft



Complex Nasal Deformities

Tessier #14 Facial Cleft



Complex Nasal Deformities

Lyophilised Cartilage Graft



Complex Nasal Deformities



Bring the Smile Back

