

COMPLEX CRANIOFACIAL RHINOPLASTY

Prof. Dr. Dr. Srinivas Gosla Reddy MBBS, MDS, FRCS (Edin.), FDSRCS (Edin),
FDSRCS (Eng), FDSPCPS (Glasg) PhD

Dr. Rajgopal R. Reddy MBBS, BDS, FDSRCPS (Glasg) PhD

Dr Ashish Fanan, MDS

Dr Avni Pandey, MDS

Dr Madhav Thumati, MDS



GSR Institute of Facial Plastic Surgery



- Non-profit hospital established in 1996
- Dedicated Cleft & Craniofacial Centre of Excellence
- Presently 1,600 cleft and craniofacial surgeries are done every year
- 3 surgeons and 4 fellows with full support team
- More than 30,000 documented cleft & craniofacial surgeries have been performed since 1996
- 600 primary new born cleft children are registered every year

Need for Rhinoplasty..



Pathology of the nose

Cause of Deformity

(Surgeon's Assessment)

- Congenital (Cleft or craniofacial defect)
- Anatomic (Hemiplasia, Aplasia, Duplication)
- Esthetic (Hump on the nose)
- Functional (Deviated Nasal Septum)
- Pathologic (Obstruction due to growth in the nose)
- Traumatic (Traumatic injury of the nose)



Congenital Nasal Defect



Cleft Nasal Defect



Craniofacial Nasal Defect



Anatomic Nasal Defects



Nasal Aplasia



Hemi Nasal Aplasia



Nasal Duplication



Pathologic Nasal Deformities



Rhinopyoma



Noma



Hemangioma



Traumatic Nasal Deformities



Functional Nasal Deformities



Deviated nasal septum



Esthetic Nasal Deformities



Broad Nose



Beaked Nose



Short Nose



Long Nose

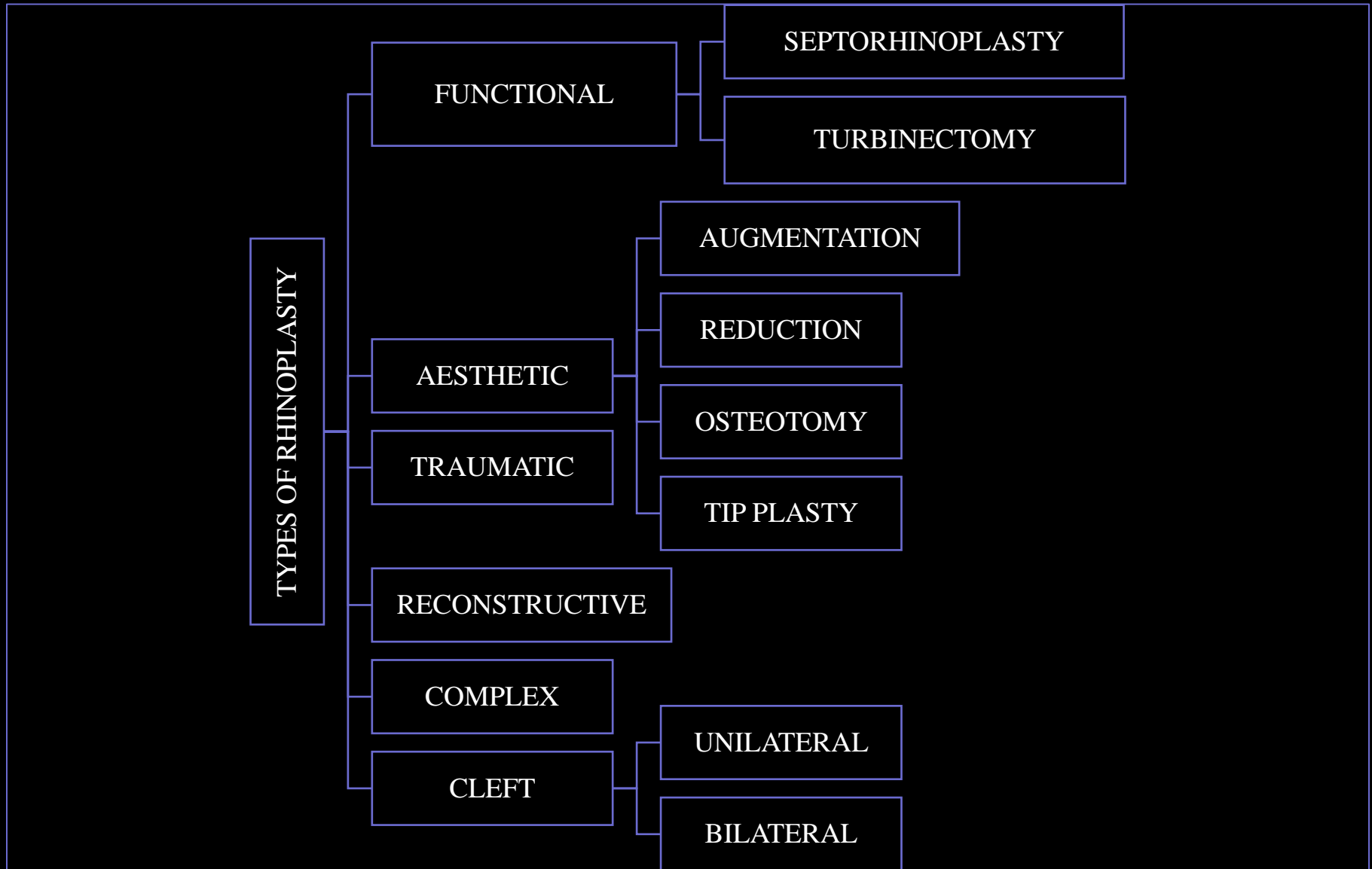


QUALITY OF SKIN

<u>Thick Skin</u>	<u>Thin Skin</u>
Does not show small irregularities	Small irregularities become visible
Failure to contract-excess soft tissue scar	Early healing- Less oedema
Masks refinement and definition	Ensures that bony/cartilaginous grafts or implants are precisely positioned and smoothly contoured



TYPES OF RHINOPLASTY



Morpho-Functional Septorhinoplasty in Adult Patients With Unilateral Cleft Lip Nasal Deformity: A Comprehensive Approach



Ashish Fanan, BDS, MDS, *Niels van Heerbeek, MD, PhD, †Tong Xi, MD, DDS, PhD, ‡Stefaan Bergé, MD, DDS, PhD, § and Srinivas Gosla Reddy, MBBS, MDS, FDSRCS Edin, FDSRCS Eng, PhD||

Purpose: The aim of this study was to introduce a morpho-functional technique of rhinoplasty for correction of defective nasal morphology of the secondary unilateral cleft lip and improvement of air passage through the nose.

Materials and Methods: The described comprehensive approach follows the rule of 5 R's: relieve, resect, reposition, restructure, and restrengthen. The extended septal graft serves as a columellar strut on the one hand and as a spreader graft on the other hand.

Results: The described morpho-functional septorhinoplasty technique is effective for correction of the unilateral cleft lip nasal deformity because it improves the symmetry of the nose, improves the morphology of the alar cartilage, and increases the nasal tip projection. An improvement in breathing occurs as a result of restored symmetry of the ala and nasal vestibule.

Conclusions: Morpho-functional septorhinoplasty is a practical tool to handle adult patients with secondary cleft nasal deformities.

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Primary and secondary nasal deformities are commonly associated with congenital cleft lips, and their correction requires a focused treatment targeting both morphology and function. It is an evident fact that a repaired cleft is revealed more by the associated nasal deformities than by the repair line of the lip.^{1,2} Nasal septal deviation, nasal tip asymmetry, and shortening of the columellar length are some of the common problems

faced by surgeons dealing with the correction of unilateral cleft nasal deformities.

Unilateral secondary nasal deformities can show the following features on the cleft side³ (Fig 1):

1. Retro-displaced and less well-projected dome
2. Lateral slumping of the medial crus
3. Foreshortened columella
4. Caudal hooding of the lower lateral cartilage and alar rim

Conclusion: The morpho-functional septorhinoplasty is a practical tool to handle adult patients with secondary cleft nasal deformities

*Consultant, GSR Institute of Craniofacial Surgery, Hyderabad, India.

†Consultant, Department of Ear, Nose and Throat, Radboud University Medical Center, Nijmegen, The Netherlands.

‡Consultant, Department of Oral and Maxillofacial Surgery, Radboud University Medical Center, Nijmegen, The Netherlands.

§Professor and Head of Department, Oral and Maxillofacial Surgery, Radboud University Medical Center, Nijmegen, The Netherlands.

||Professor and Director, GSR Institute of Craniofacial Surgery, Hyderabad, India.

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Address correspondence and reprint requests to Dr Fanan: No. 17-14-1, Vinaynagar Colony, IS Sadan, Saidabad, Hyderabad, Telangana, India; e-mail: ashishfanan@gmail.com

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Quantitative analysis of aesthetic outcomes of morphofunctional septorhinoplasty for secondary cleft lip nasal deformity

Ashish Fanan^{a,*}, Niels van Heerbeek^b, Himaja Sai^c, Tong Xi^d, Stefaan Bergé^d, Srinivas Gosla Reddy^e

^a GSR Hospital, Hyderabad, Telangana, India

^b Department of Otorhinolaryngology, Head & Neck Surgery, Radboud University Medical Centre, Nijmegen, The Netherlands

^c Sri Sai College of Dental Surgery, Department of Oral and Maxillofacial Surgery, Vikarabad, Telangana, India

^d Department of Oral and Maxillofacial Surgery, Radboud University Medical Centre, Nijmegen, The Netherlands

^e Dept. Of Cranio-maxillofacial Surgery, AIIMS, Rishikesh, Uttarakhand, India

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Abstract

The main aim of this study was to assess nasal symmetry after morphofunctional septorhinoplasty, more specifically, symmetry of the alar base and nostrils, and nasal projection, in patients with unilateral and bilateral cleft nasal deformities. Secondary cleft rhinoplasty was performed using morphofunctional septorhinoplasty techniques in 150 patients with unilateral and bilateral cleft lip and nose deformities. Nasal changes were analysed by measuring nasal tip projection, nostril height, nostril width, alar base width, and nasal gap area preoperatively and postoperatively on standard submentovertex view 2-dimensional photographs. In the unilateral cleft group there were statistically significant improvements ($p < 0.001$) in ratios of nasal height and width ($p = 0.024$) and nasal gap area, and in nasal tip projection and alar base width. In the bilateral cleft group there were statistically significant improvements in nasal gap area ratio ($p = 0.009$), nasal tip projection, and alar base width. The morphofunctional septorhinoplasty technique improved aesthetic outcomes.

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Keywords: Morphofunctional septorhinoplasty; Cleft lip nasal deformity; Secondary cleft rhinoplasty; Nasal symmetry

Introduction

The nose is the most conspicuous feature on the face so the minutest change in form (loss, deformity, or exaggeration) tends to draw undesired attention and sometimes disparaging remarks, which can be disquieting and make the subject self-conscious. The range of aesthetically acceptable variations of the nose regarding dimensions and form is huge compared with any other visible part of the body.¹

A deformed nose secondary to cleft lip and palate poses multiple morphological and functional issues such as septal deviation, shortening of the columella, disproportionate nostril size, reduced nasal patency leading to difficulty in breathing, and many more, all of which may affect the physical and psychological well-being of the individual. In patients with bilateral clefts the short columella, and undefined and under-projected tip with a wide alar base, are troublesome areas. Thus, cleft rhinoplasty aims to restore the structure of the nose and its surroundings to improve aesthetics and function.²

Despite the availability of various surgical approaches for correction and multiple treatment philosophies, the cleft lip nasal deformity remains an arduous challenge to manage due to longstanding disruption and distortion of the basic architecture, and hence to the nature of the tissues making

* Corresponding author at: GSR Institute of Craniofacial and Facial Plastic Surgery, No. 17-1-383/55, Vinay Nagar Colony, LS Sadan, Saidabad, Hyderabad, Telangana, India. Tel.: +91-7676436897. Fax: 040-24530000.

E-mail address: ashishfanan@gmail.com (A. Fanan).

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The main aim of this study was to assess nasal symmetry after morphofunctional septorhinoplasty, more specifically, symmetry of the alar base and nostrils, and nasal projection, in patients with unilateral and bilateral cleft nasal deformities.

Conclusion: The technique described here has achieved significant changes in the cleft lip nasal deformity from the aesthetic point of view .



The rule of 5 R's for Deviated Nasal Septum

-Relieve,

-Resect,

-Reposition,

-Restructure

-Restrengthen



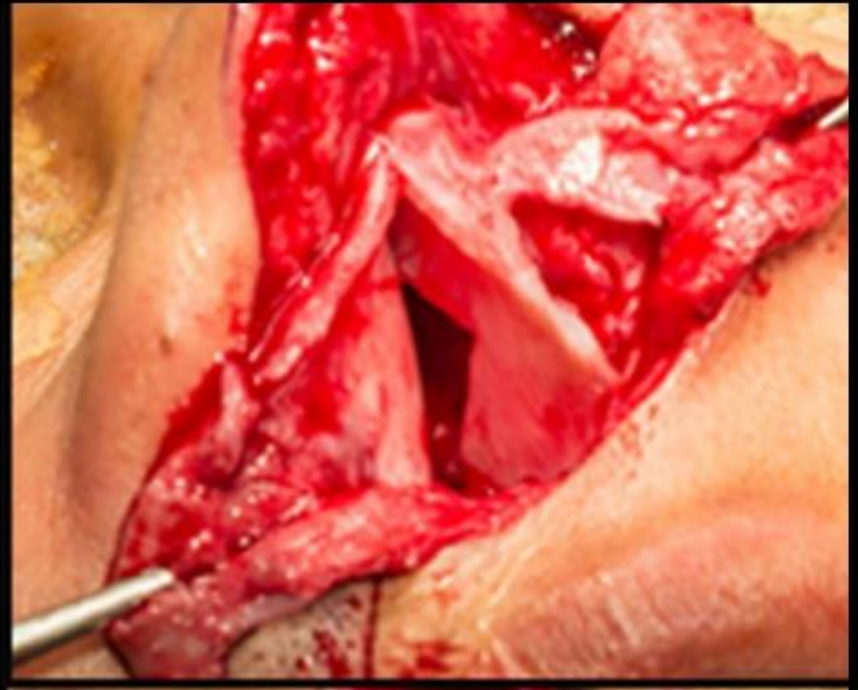
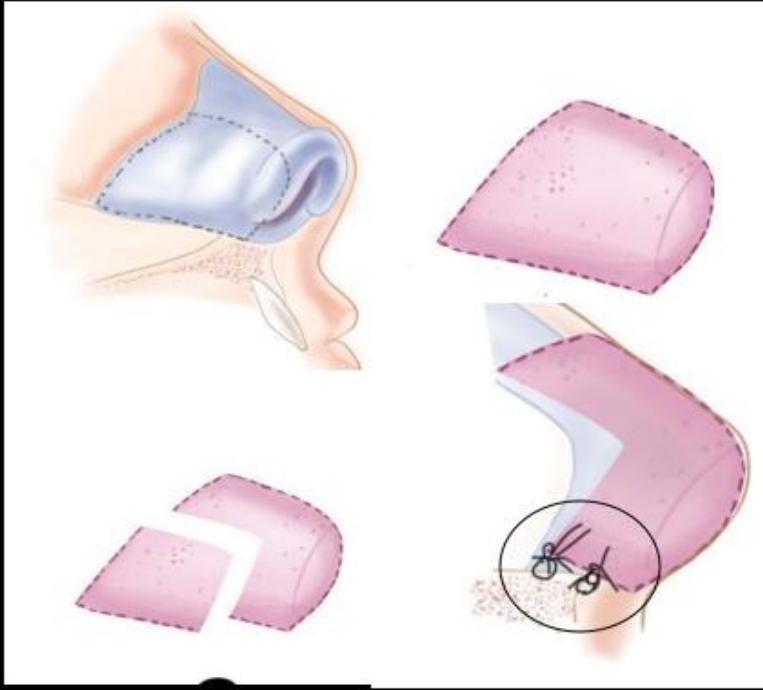
Cleft Rhinoplasty

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.





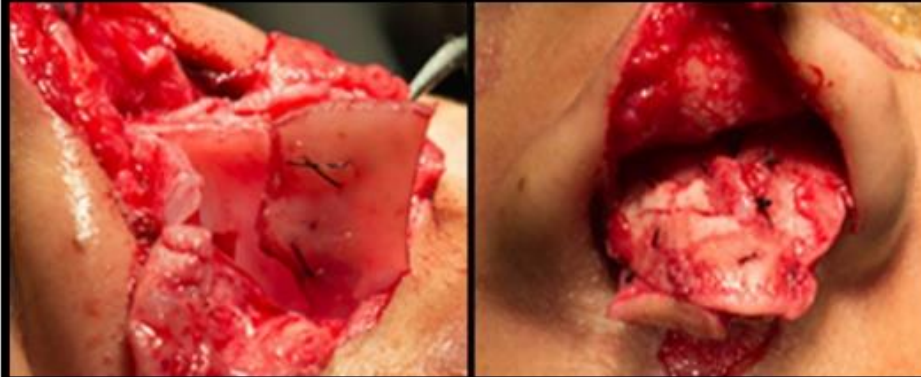
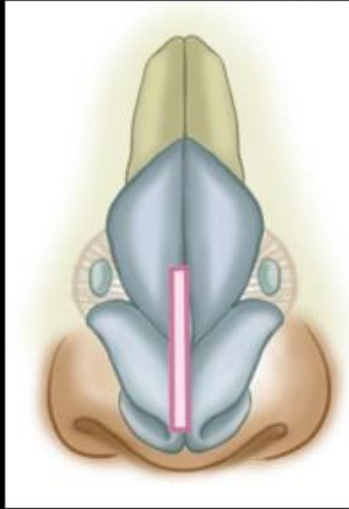
Resect

- 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.



MORPHOFUNCTIONAL CLEFT RHINOPLASTY



Surgical approach:

Unilateral Cleft with Septal and Auricular Grafting



Cleft Rhinoplasty

Unilateral Cleft with Septal and Auricular Grafting



- Closure



Cleft Rhinoplasty

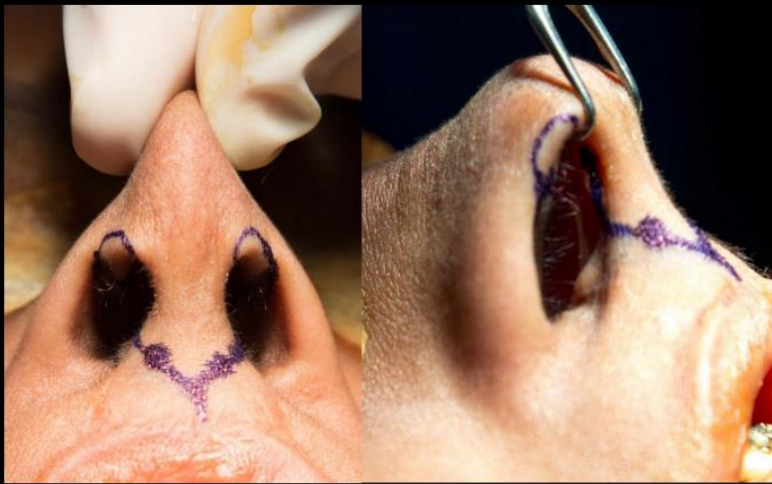
Unilateral Cleft with Septal and Auricular Grafting



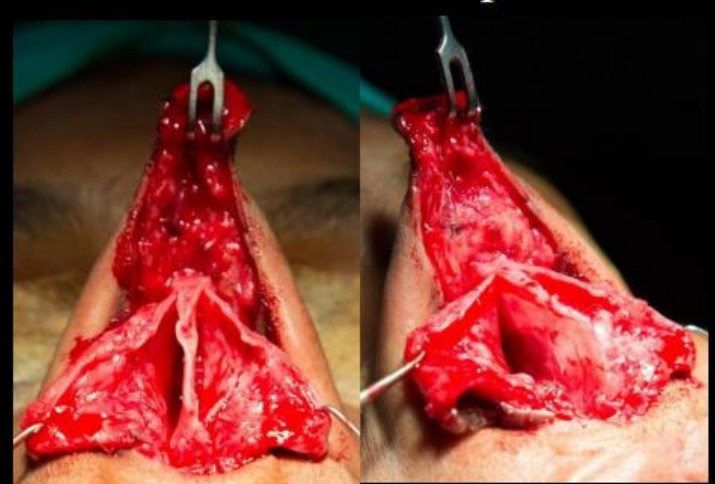
Cleft Rhinoplasty

Bilateral Cleft with Septal and Grafting





MARKING



EXPOSING THE SEPTUM



POSITIONING THE STRUT



Cleft Rhinoplasty

Bilateral Cleft with Septal and Auricular Grafting



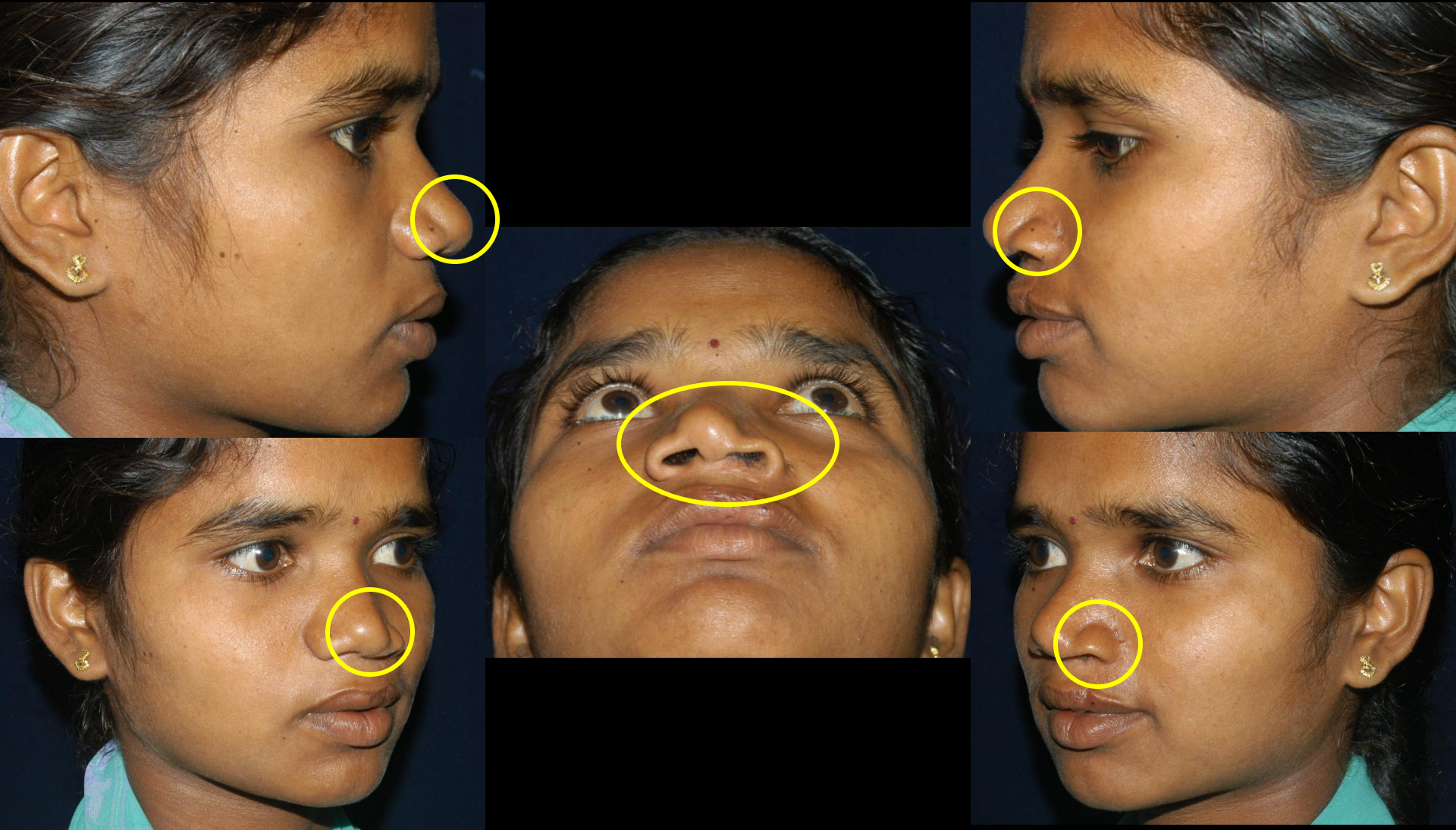
Cleft Rhinoplasty

Bilateral Cleft with Septal and Auricular Grafting



Cleft Rhinoplasty

Unilateral Cleft with Costo-Chondral Grafting





Cleft Rhinoplasty

Unilateral Cleft with Costo-Chondral Grafting



RECONSTRUCTIVE RHINOPLASTY



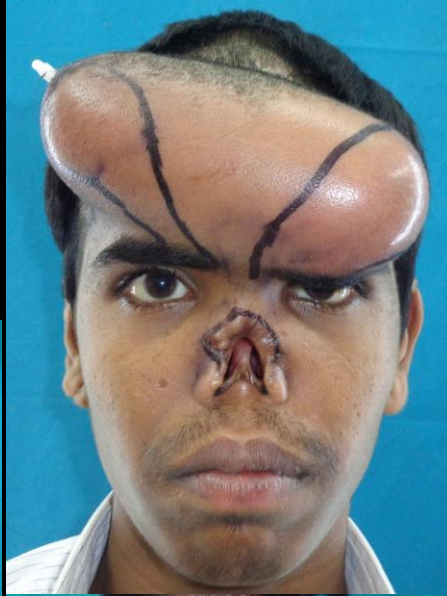
Reconstructive Rhinoplasty



Reconstructive Rhinoplasty



Reconstructive Rhinoplasty



COMPLEX RHINOPLASTY



Pathology of the nose



Pathology of the Nose



Vascular Malformation of the nose



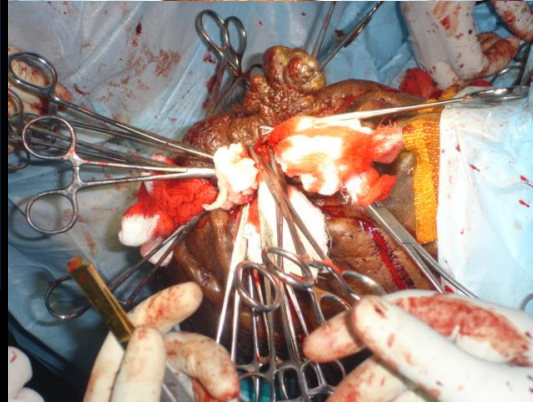
Pathology of the Nose



Rhinopyoma



Pathology of the Nose



Hemangioma



Complex nasal deformities



Complex Nasal Deformities



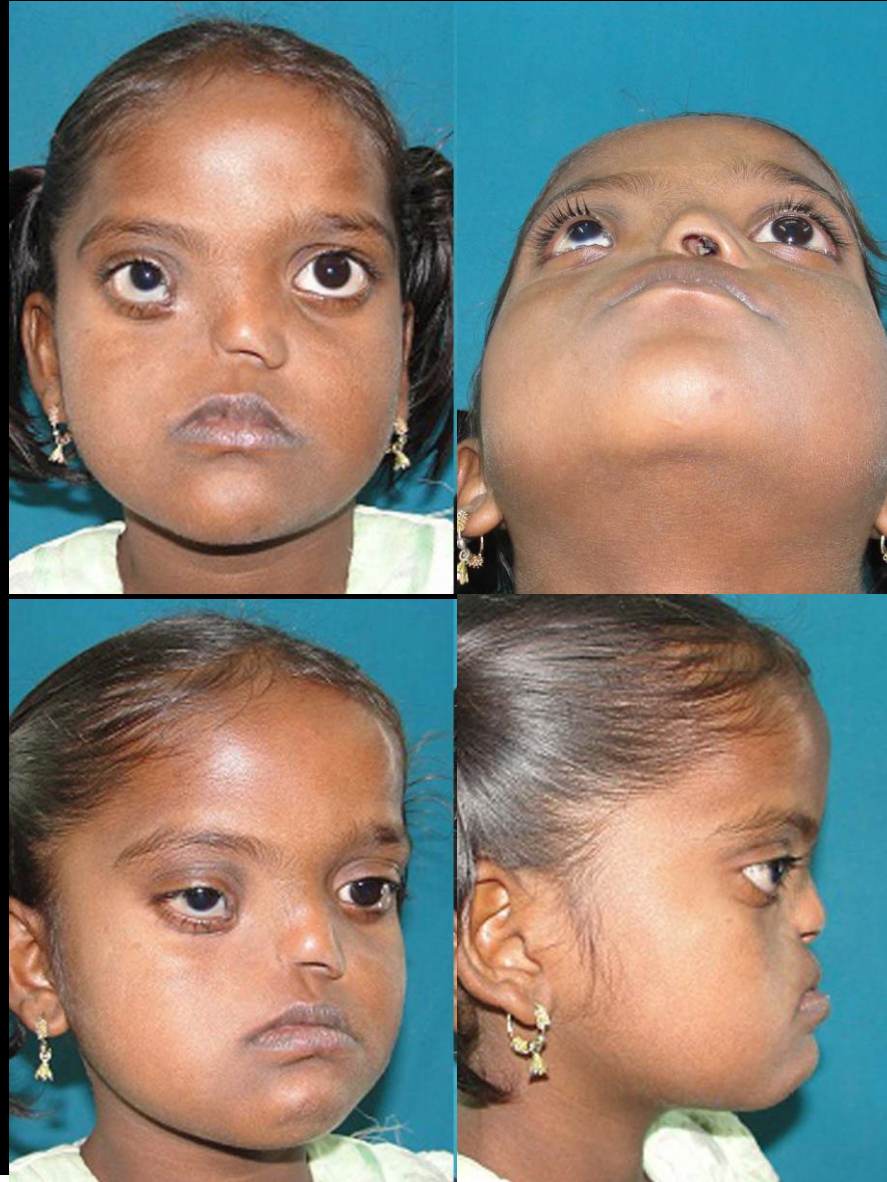
Nasal Duplication







Heminasal Aplasia



Heminasal Aplasia



Heminasal Aplasia



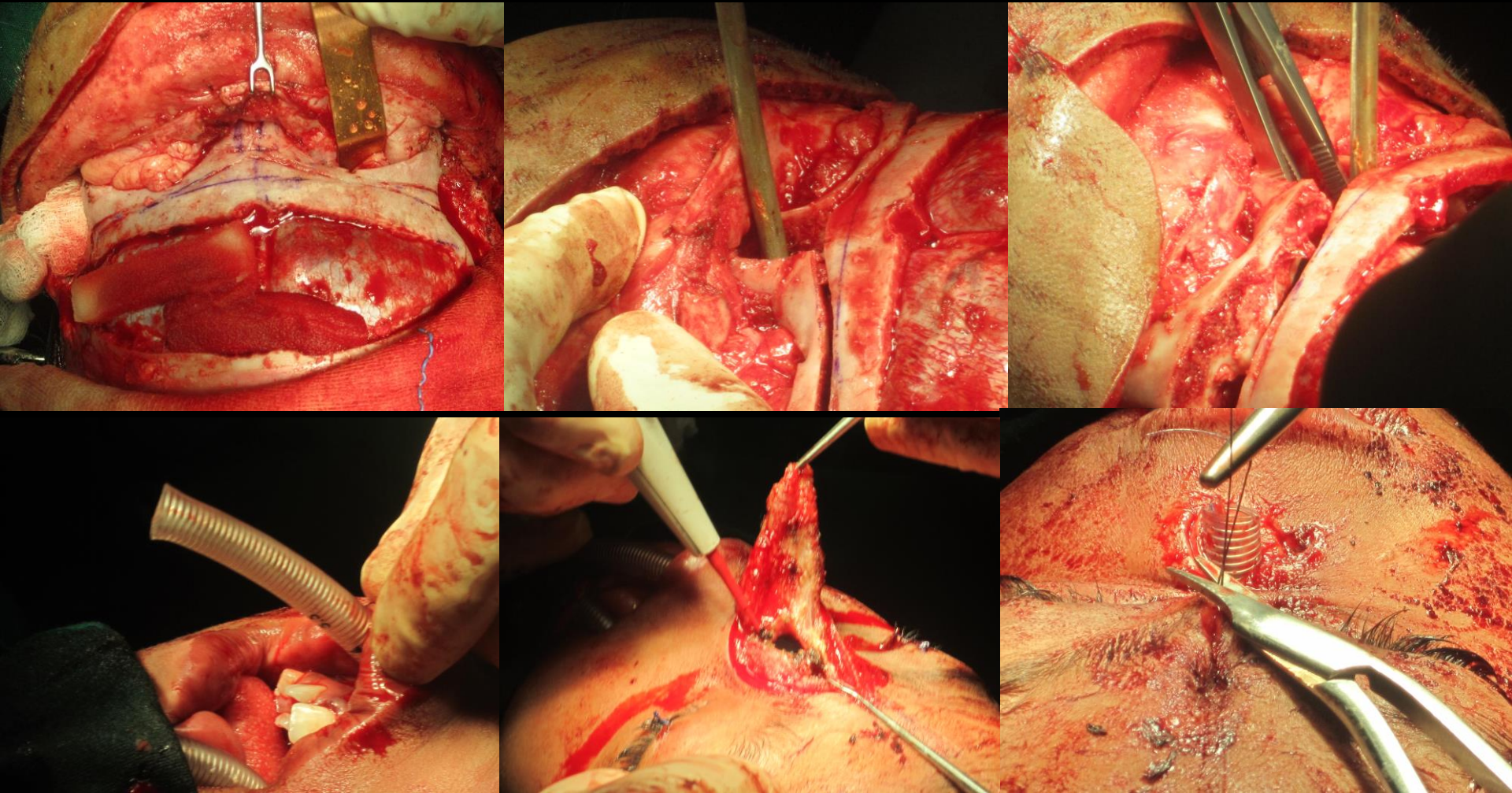
Complex Nasal Deformities



Nasal Aplasia



Complex Nasal Deformities



Complex Nasal Deformities



NASAL DEFORMITY RECONSTRUCTION WITH NASAL PROSTHESIS



Complex Nasal Deformities





Complex Nasal Deformities



Tessier #14 Facial Cleft



Complex Nasal Deformities

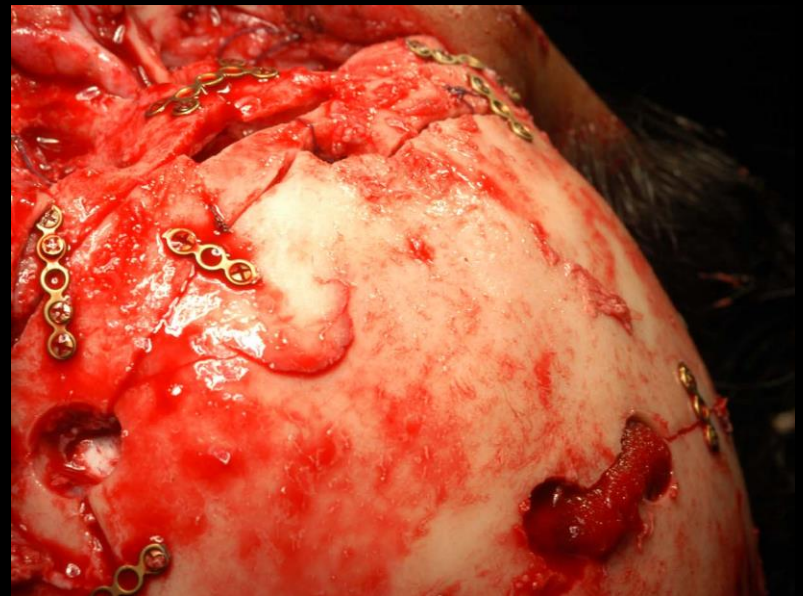
Lyophilised Cartilage Graft



Complex Nasal Deformities



Complex Nasal Deformities



Tessier #14 Facial Cleft with Hypertelorism



Complex Nasal Deformities



Tessier #2 Facial Cleft



Complex Facial Clefts



Tessier #2 Facial Cleft





Tessier #2 Facial Cleft





Tessier #2 Facial Cleft





Tessier #2 Facial Cleft



MORPHO FUNCTIONAL NASAL DEFORMITY CORRECTION

Craniofacial Cleft Repair

Tessier #3 Facial Cleft



MORPHO FUNCTIONAL NASAL DEFORMITY CORRECTION

Tessier #3 Facial Cleft



MORPHO FUNCTIONAL NASAL DEFORMITY CORRECTION

Tessier #3 Facial Cleft



Complex Facial Clefts



Tessier #3 Facial Cleft



Complex Facial Clefts



Tessier #3 Facial Cleft



COMPLICATIONS



EARLY COMPLICATIONS

- Haemorrhage
- Hematoma
- Infection
- Edema & Ecchymosis
- Skin Abnormality:
 - Minor Skin Reactions
 - Skin Necrosis
 - Poor Scar
- Septal Perforation

LATE COMPLICATIONS

- Loss of vital tip support
 - Overreduction
 - Underreduction
- Cartilagenous Vault abnormality
- Bony Vault abnormality





Bring the Smile Back



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