Reconstruction of Nasal Columellar Defect

Caused by Neonatal CPAP Prongs

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• Premature infants with low birth weight
  – Respiratory distress syndrome
  – Premature apnoea
  – Meconium aspiration syndrome

• Ventilation in NICU
  – Invasive ventilation endotracheal tube
    • Subglottic stenosis
  – Noninvasive ventilation Nasal CPAP
    • Nasal injury

CPAP delivered via binasal prongs for initial ventilatory support in infants with respiratory distress.
Nasal continuous positive airway pressure (NCPAP) support:
- Preterm infants recently extubated,
- Apnoea of premature
- Preterm respiratory distress syndrome after birth
- Meconium Aspiration Syndrome

Non-invasive respiratory support so becomes an alternative to intubation and ventilation
Reduce the morbidity of subglottic stenosis from neonatal intubation

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Neonatal CPAP Prongs inside the nasal vestibules
Nasal trauma caused by nCPAP reported as 20%


989 neonates, Nasal trauma was reported in 420 (42.5%)


Nasal complications caused by nasal CPAP use in the NICU. was 13.2%. found as early as 10 days after administration.

Josy Davidson Rua Dr. Diogo de Faria, 764 - Vila Clementino São Paulo (SP) 2010 Nov;95(6); Brazil

Nasal Columella :-

- Fundamental part of the external
- Connecting the nasal tip to the superior lip
- Covering the inferior portion of nasal septum.
Blood Supply of the Columella

Arterial Network of the Nose
1. Facial artery
2. Superior labial artery
3. Angular artery
4. Artery of the nasal alae
5. Columellar artery
6. Dorsal nasal artery
7. Lateral nasal artery

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Traumatic Columella defects cause neonatal CPAP Prongs in ICU

(C)ontinuous Positive Air Pressure CPAP
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Columellar and Septal Nasal Injuries NCPAP Prongs

Nasal trauma of mild: erythema around the nostrils with intact skin.

Columella scar and nasal deformity secondary to columella necrosis by CPAP prongs
• Mechanism of development of columellar necrosis
  – Pressure necrosis from the nasal CPAP prongs
  – Air trauma itself,
  – Bacterial contamination with stasis
  – This initial trauma may lead to ulceration and induce a second phase of reactive granulation tissue formation.
  – Finally, the granulation tissue can form a mature scar

Anterior nasal endoscopy
Reconstruction of Nasal Columellar Defect Caused by Neonatal CPAP Prongs

• Challenging problem in plastic surgery
• Numerous techniques have been described.

Cases of traumatic columella defects caused by neonatal CPAP prongs in NICU
Treatment

- **Prevention**
  - Nursing care
  - Nasal prongs must:
    - Anatomically curved for comfortable fit
    - Design prevent septum injury
    - Soft, silicone, pliable and gentle on nares
    - Used through the holes of hydrocolloid dressing
    - Close observation for potential complications

Several methods for reconstructing columellar defects.

- Forehead flap
- Nasolabial flap
- Subnasal flap
- Composite grafts from the postauricular area
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Nasolabial flap is a good method for reconstructing columellar skin defects.

Reconstruction of columellar defect by nasolabial flap
Reconstruction of columellar defect by nasolabial flap

Pre op.  Post op.

Conclusions

• Prevention

• Surgical reconstruction of nasal columellar defect
Conclusions

**Prevention**

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Conclusions

- **Prevention**

- **Surgical reconstruction of nasal columellar defect**
  - Nasolabial flap for reconstruction of the defect
    - Relatively long enough to cover the entire columellar defect area
    - Rarely leave scars.
    - Not as bulky as a forehead flap
    - The skin color is similar to that of the columella
    - No hair growth
Thank You