Infant Orthopedics

Preparing babies with cleft Lip and Palate for Surgery

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You can’t treat what you can’t see!
The life-changing committed TEAM

Cyprus Center for Clefts & Facial Deformities

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Problems become opportunities when the right people join together.
The role of the orthodontist in the TEAM

1. Presurgical Orthopedics (NAM)
2. Preparation for Bone graft
3. Preparation for Distraction
4. Comprehensive Orthodontics
5. Preparation for Orthognathic Surgery
Presurgical Orthopedics (NAM)

1. Introduction
2. Technique
3. Case Presentations
Unilateral Cleft Lip and Palate
- Displaced nasal tip
- Depressed alar dome
- Skewed columella
- Displaced labial frenum
- Orbicularis oris runs up into nose

Unilateral Cleft Lip and Palate
Presurgical Nasoalveolar Molding

Objectives

- Active molding and repositioning of the deformed nasal cartilage and alveolus
- Lengthening of the deficient columella
The Latham (pin retained appliance)
Neonatal Cartilage

High levels of oestrogen and hyaluronic acid... 
...result in high plasticity at birth.

Matsuo K, Hirose T, Otagiri T, Norose N.
Repair of cleft lip with nonsurgical correction of nasal deformity in the early neonatal period.
Plast Reconstr Surg 1989;83:25–31
Restore Normal Nose Anatomy
Presurgical Naso-Alveolar Molding
Align and approximate alveolar segments
Presurgical nasoalveolar molding in infants with cleft lip and palate.

Grayson BH, Santiago PE, Brecht LE, Cutting CB.


Use of the NAM technique has eliminated surgical columella reconstruction and the resultant scar tissue.
Long-term effects of nasoalveolar molding on three-dimensional nasal shape in unilateral clefts.

Maull DJ, Grayson BH, Cutting CB, Brecht LL, Bookstein FL, Khorrambadi D, Webb JA, Hurwitz DJ.


Presurgical nasoalveolar molding significantly increases the symmetry of the nose. The increase in symmetry is maintained long term into early childhood.
Utilization of the NAM technique has eliminated surgical scars associated with traditional columella reconstruction, has reduced the number and cost of revision surgical procedures.
Presurgical nasoalveolar molding treatment in cleft lip and palate patients

Barry H. Grayson and Pradip R. Shetye


Long term studies on NAM therapy indicate better lip and nasal form, reduced oronasal fistula and labial deformities, 60% reduction in the need for secondary alveolar bone grafting. No effect on growth of midface in sagittal and vertical plane has been recorded up to the age of 18 yrs.
IO had no observable effect on the occlusion in the deciduous dentition at 4 and 6 years of age. Considering the occlusion only, there is no need to perform IO in children with UCLP.
A longitudinal three-center study of dental arch relationship in patients with bilateral cleft lip and palate.


Cleft Palate Craniofac J. 2010 Mar;47(2):167-74

Delaying hard palate closure and employing infant orthopedics did not appear to be advantageous in the long run.
A 12-year anthropometric evaluation of the nose in bilateral cleft lip-cleft palate patients following nasoalveolar molding and cutting bilateral cleft lip and nose reconstruction.

Garfinkle JS, King TW, Grayson BH, Brecht LE, Cutting CB.


Patients with bilateral cleft lip-cleft palate treated with nasoalveolar molding and primary nasal reconstruction, performed at the time of their lip repair, attained nearly normal nasal morphology through 12.5 years of age.
Naso Avleolar Molding NAM

Impression

Dental Study Model

Construction of NAM appliance
Naso Avleolar Molding NAM

Nasal stent

Active parts
Soft acrylic

NAM appliance
Hard acrylic

Active parts
Soft acrylic
Case I
Bilateral Cleft Lip and Palate
- Minimal nasal projection
- Prolabium everted
- Short columella
- Premaxilla displaced

Bilateral Cleft Lip and Palate
Presurgical Orthopedics

Objectives

- Lengthen columella
- Reposition alar cartilage
- Align alveolar segments
- Retract anterior segment
Good judgment comes from experience…

experience comes from bad judgment!

Alexandros Stratoudakis
Presurgical Orthopedics

Advantages

- Dramatic changes in alveolar, lip and nasal defect
- Aids in feeding
- Possible elimination of surgical revisions and bone graft
Presurgical Orthopedics

Disadvantages

- High caregiver demands
- Expense
- Frequent visits for adjustments
Take Home Message
Presurgical Orthopedics

- Standard of care
- Trained orthodontist
- Teamwork
“What would you do if Gerasimos was your child?”
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Thank you for your attention!

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