ORIGINAL RESEARCH PAPER

Volume-7 | Issue-12 | December-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

NASOALVEOLAR MOULDING – AN EXEMPLARY APPROACH FOR REFORMATION OF CLEFT LIP

Cosmetology

Dr Mahima Sehgal Senior Lecturer, Department of Pedodontics, I.P Dental College, New Delhi, India

Dr Avantika Tuli* Professor, Department of Pedodontics, Seema Dental College and Hospital, Rishikesh, Uttrakhand, India.*Corresponding Author

Dr Shivangi Chandra Senior Lecturer, Department of Pedodontics, Seema Dental College and Hospital, Rishikesh, Uttrakhand ,India.

Dr Preeti Dhawan Professor and HOD, Department of Pedodontics, Seema Dental College and Hospital, Rishikesh, Uttrakhand, India.

Dr Abhay Agarwal Professor and HOD, Kalka Dental College, Partapur By Pass, Near Partapur Flyover, Meerut .

Dr Monika Varshney PG student, Department of Pedodontics, Seema Dental College and Hospital, Rishikesh, Uttrakhand, India.

ABSTRACT

Cleft lip and palate (CLP) is the most common congenital defect of the oral cavity which possesses a serious socioeconomic trouble. A unilateral cleft lip and alveolar deformity is often associated with significant abnormality in nasal cartilage morphology and asymmetry of alar base and columella. The lower lateral alar cartilage is seen to be depressed and concave. There are two approaches to correct this deformity, one involving surgical repair alone and the other involving pre-surgical molding of the cleft segments followed by surgical repair. The present case discusses the non-surgical approach i.e. pre-surgical moulding of the cleft segments in a 4 month old patient to treat unilateral cleft lip through nasoalveolar moulding by modified fixed appliance which was considered to be better and preferable. The goal of pre-surgical nasoalveolar molding was to align and approximate the alveolar cleft segments while at the same time achieving correction of the nasal cartilage and soft tissue deformity. Nasal stent and the intra oral molding plate was adjusted weekly or biweekly to gradually correct the nasal and alveolar deformities.

KEYWORDS

INTRODUCTION:

Cleft lip and palate (CLP) is the most common congenital defect of the oral cavity which possesses a serious socioeconomic trouble.1India is the second most populated and developing country in the world with a population of 1.21 billion, it is estimated that out of 24.5 million births per year, the birth prevalence of clefts is between 27,000 and 33,000 clefts.[1]The unilateral cleft lip and alveolar deformity is associated with significant abnormality in nasal cartilage morphology and asymmetry of alar base and columella. The lower lateral alar cartilage is often depressed and concave.[2] There are two approaches to correct this deformity, one involving surgical repair alone and the other involving presurgical molding of the cleft segments followed by surgical repair.[3] Among these approaches, non-surgical approach i.e. presurgical moulding was considered to be better and preferable.It was introduced and first described by Grayson in the early 1990s.

Presurgical nasoalveolar molding (PNAM) is a non-surgical method of reshaping the gums, lips and nostrils previous to CLP surgery, thus lessening the severity of the cleft.[1]The goal of presurgical nasoalveolar molding is to align and approximate the alveolar cleft segments while at the same time achieving correction of the nasal cartilage and soft tissue deformity.[2]The principle of NAM is based on the breakdown of the intercellular matrix of nasal cartilage due to the abundance of hyaluronic acid during infant's first 6-8 weeks. During this period, there are high levels of maternal estrogen in fetal circulation, which triggers an increase in hyaluronic acid.4Grayson and Shetye developed the concept of NAM, which combined a nasal molding stent with a passive, presurgical molding appliance in treating CLP infants.[2]

Nasal stent and the intraoral smolding plate were adjusted weekly or biweekly to gradually correct the nasal and alveolar deformities. Benum RD and Figueroa AA used a different approach—adhesive paper tape and a nasal elevator to improve the morphology of the nose before the surgery.[5]

CASE REPORT:

A 4 month old female patient reported to the department of Pedodontics and Preventive Dentistry, Seema Dental College and Hospital, Rishikesh with the complaint of clefting of lips on left side since birth. Medical history was non-contributory (Fig 1).

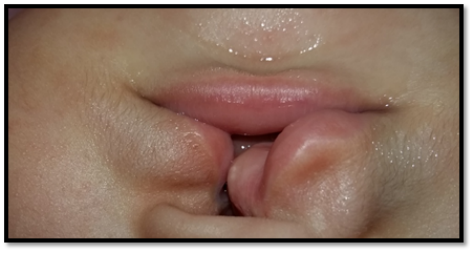


FIG 1: LEFT LIP

A modified appliance for NAM was then fabricated. (fig 2) which consisted of elastic attached to wire and surgical tape. The tape was replaced everyday by parents until the lip segments are in apposition to maintain the effect of a simulated nonsurgical lip adhesion before surgery.

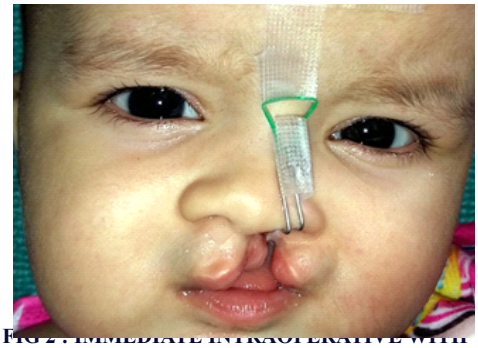
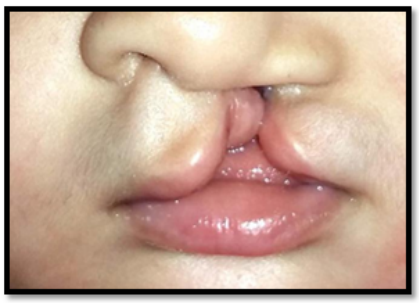


FIG 2 : IMMEDIATE INTRAORAL VIEW WITH APPLIANCE



Patient was recalled for follow up after 1 month which showed closer approximation of the two sides of the cleft therfore nasal molding was continued for over 10 weeks. Lip repair was done at 8 months of age. The appliance was then discontinued after surgery.

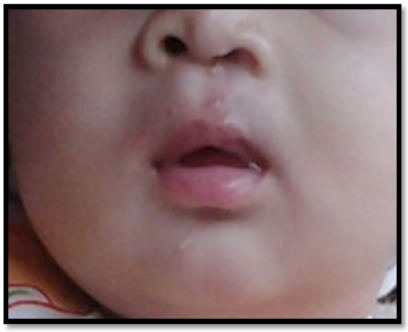


FIG 4: AND NAM

DISCUSSION:

Various modifications of appliance for naso alveolar moulding have been introduced over time. There was modified muscle-activated maxillary orthopaedic appliance used by Suri and Tompson[6] in NAM therapy; Retnakumari et al[7] then described alveolar molding appliance with expansion screw; followed by an extra-oral nasal molding appliance and self-retentive appliance with orthodontic wire used by in the field of presurgical infant orthopedics. Though appliances are plenty their comfort is the deciding factor for the patient compliance. Also till the completion of the surgery the approximation of the two parts of the cleft is increased to make the cleft surgery a success.

CONCLUSION:

NAM technique has been significantly shown to improve the surgical outcome of CLP patients compared with other techniques of presurgical orthopedics. NAM has proved to be an effective adjunctive therapy for reducing hard and soft tissue cleft deformity before surgery. However, it is crucial that members of the cleft team provide the parents and caregivers adequate training, education, active support, and encouragement during NAM treatment.

REFERENCES:

1. Laxmikanth SM, Karagi T, Shetty A et al. Nasoalveolar molding: A review. J Adv Clin Res Insights 2014; 1:108–113.
2. Grayson BH, Cutting CB. Presurgical Nasoalveolar Orthopedic Molding in Primary Correction of the Nose, Lip, and Alveolus of Infants Born With Unilateral and Bilateral Clefts .Cleft Palate–Craniofacial J: 2001;38(3):193-198.
3. Ezzat CF, Chavarria C, Teichgraeber JF et al. Presurgical Nasoalveolar Molding Therapy for the Treatment of Unilateral Cleft Lip and Palate: A Preliminary Study. Cleft Palate–Craniofacial J: 2007; 44(1):8-12.
4. Gandedkar NH, Kiat CC, Kanesan P et al. Presurgical nasoalveolar molding therapy in cleft lip and palate individuals: Case series and review. APOS Trends Orthod 2015;5 :208-14.
5. Bennun RD, Figueroa AA. Dynamic presurgical nasal remodeling in patients with unilateral and bilateral cleft lip and palate: Modification to the original technique. Cleft Palate Craniofac J : 2006; 43:639-48.
6. Suri S, Tompson BD. A modifi ed muscle-activated maxillary orthopedic appliance for presurgical nasoalveolar molding in infants with unilateral cleft lip and palate. Cleft Palate Craniofac J :2004; 41:225-9.
7. Retnakumari N, Vargheese M, Madhu S, Divya S. A new approach in presurgical infant orthopedics using an active alveolar molding appliance in the management of bilateral cleft lip and palate patient: A case report. IOSR J Dent Med Sci 2013; 12:11-5.