

A Novel Feeding Appliance of Ethylene Vinyl Acetate for Infant with Cleft Palate

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ABSTRACT

Feeding difficulties may be experienced in a child born with CLCP (cleft lip and palate). There will be an incomplete fusion of facial and palatal structures; a good seal for the oral cavity is a very important requirement for the nutrition of new baby. This incomplete palate defect may result into nasal regurgitation and choking which is a major risk for the infants. The fatal incidences can be avoided by introducing the feeding appliance as an obturator for an infant. The infant can have better nutrition by the feeding plate. This case presents of a 25-day-old neonate born with a cleft defect in soft and hard palate in which a feeding appliance has given to assist feeding. The appliance was made with ethylene vinyl acetate material, using pressure molding technique. The neonate showed the better feeding acceptance with the feeding plate where she improved her weight gain.

KEYWORDS: Class II cleft palate, feeding appliance, obturator

INTRODUCTION

CLCP are one of the most common birth defects. Its leads the complication in conjunction with facial growth, dental arches with missing teeth and speech which have impact on social and psychological problems in the child and parent.¹ Cleft lip and palate is oronasal defect which leads to the disability to create negative pressure that helps for sucking in neonates,^{2, 3} so to squeeze out the liquid becomes difficult by compressing the nipple between the tongue and hard palate for neonates. A feeding appliance creates an artificial barrier between the oral and nasal cavities which helps to express milk.

Cleft lip and palate affects the middle third of the face, may be associated with the malformation or agenesis of the teeth close to the cleft. Incidence rate of cleft lip and palate varies from 1:500 to 1:2500 livebirths.⁴ Etiological factors are either hereditary or environmental. These defects are genetically male sex-linked recessive. Environmental factors like viral infections influence of drugs like excessive use of, steroids, antibiotics insulin, antiepileptic drug and exposure to radiations in the first three months of pregnancy that is the first trimester.⁵ McNeil gave the concept of early treatment of cleft palate patients with feeding obturator. It covers the cleft palate and provides a platform so that baby can press the nipple. Thus it helps to extract milk from the bottle.^{4,6}

This article depicts case report of the neonate with soft and hard cleft palate using feeding appliance which given as obturator.

CASE REPORT

A 25-day-old neonate reported to the Department of

Paedodontics and Preventive dentistry, K.M.Shah Dental College and Hospital, Vadodara, with a chief complained of feeding and nasal regurgitation. The neonate was 2.550 kg weighed when came to the department at the first visit. [Figure 1] On examination, it was noticed that baby was with class II cleft palate according to Veau classification.



Figure 1: The neonate of 25 days with the 2.550 kg/weight

[Figure 2]. Child's parents were informed about the situations and the treatment plan. The child's mother had difficulty in feeding by breasts and infant also nasal regurgitation. A feeding appliance was advised and planned for better feeding to the neonate. A preliminary

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impression was made with a Rubber base putty material (3M ESPE). A cast was poured with the dental stone on the preliminary impression. Then a custom tray was made with acrylic. A secondary impression was taken by custom tray using rubber base impression material [Figure 3]. Final cast was obtained, and all the undercuts



Figure 2: Preoperative view of class II palatal cleft



Figure 3: Final Impression with rubber based material



Figure 4: Master cast

were blocked using plaster of Paris. [Figure 4]. Ethylene vinyl acetate sheet (DuPont™ Elvax®) was used for fabrication of the appliance. An appliance was made on the final cast by using pressure molding technique by

Biostar machine (3A MEDES). Dental Floss (Patterson® Floss) was attached by making a hole in the feeding appliance [Figure 5] which helps it to prevent swallowing and easy retrieval of it. Then, the appliance was placed in the oral cavity of the newborn [Figure 6], the feeding instructions as well as how to use of the appliance, were given to the mother with proper oral health maintenance. The Infant was easily fed with the appliance [Figure 7].



Figure 5: Fabricated feeding appliance with dental floss



Figure 6: Feeding appliance placement in neonate



Figure 7: 9 months infant with 5.991 kg/weight

DISCUSSION

Cleft lip and palate most common congenital anomalies and treatment of this deformity present a challenging task for better oral health delivery systems worldwide. The sucking ability by neonates is one of the most routine difficulties related to feeding in cleft lip and palate conditions.⁷ The Co-ordination of intra-oral muscles leads successful sucking, which is difficult for an infant with

cleft lip and palate. Breast feeding with cleft palate is challenging task for the mother as an infant has nasal regurgitation. The open palate with cleft makes it impossible for the baby to create negative pressure for suction. Thus, the baby has difficulty to press the breast against the palate and to express milk.

In order achieving good breast feeding, the mother needs to implement some modifications. Modified football hold (Infant is held at an angle of 45° in mother's protected hands) position can be use during the feeding of the baby to the child, which minimizes nasal regurgitation.⁸ There is a variety of treatment modality by which we can successfully enhance the feeding in the infant with a CLCP. These are available in the form of a plastic squeeze bottle, soft nipple, a specially designed nipple with the enlarged opening and wide based nipple which are useful in sealing off the cleft lip.

Feeding device is delivered over the infant's hard palate defect. It helps to compress the nipple easier which provides a contact point and helps the infant to express milk. It facilitates feeding by reducing the time period and reduces nasal regurgitation.^{9,10} Appliance acceptability is better than the acrylic plate as obturator used in the past. A Feeding appliance made with ethylene vinyl acetate has many advantages over acrylic feeding appliance, which are easy and less time consumption for fabrication, smoother surface, soft in nature and no adaptation of wire for retention.

A feeding appliance should be periodically changed as the child grows so it can be fit accordingly his or her mouth. Oral hygiene should be maintained with feeding appliance because it is a plastic appliance, which can cause irritation to the palate.

So, this case depicts the importance of feeding plate in such cases where sucking is difficult to new born baby. It also helps in the betterment of feeds to the baby, therefore, significant increase in weight of baby which has been noticed in this case. Furthermore, its help to plan the surgery that is palatoplasty in the cleft baby which is usually performed at the age of 12 months to 2 years of age.

CONCLUSION

The patterns of the cleft lip and/or palate are diverse and

require different effective method of breast and/or bottle feeding has developed separately for every baby to best suit his/her requirements. It is up to the primary care provider or the pediatrician to monitor for any significant evidence of poor weight gain having cleft lip and palate in the infant. Here in the cleft Palate case the significant weight gain is achieved in an infant at different interval using ethylene vinyl acetate feeding plate. Mothers should be encouraged to try their own method of preference of feeding patterns, and through different exposure they may find a better technique that works well for their infants. The baby has to be given sufficient time for the comfortable usage with one method of feeding appliance before trying other alternatives.

REFERENCES

1. Reid J. A review of feeding interventions for infants with cleft palate. *Cleft Palate Craniofac J.* 2004;41: 268–78.
2. Osuji OO. Preparation of feeding Obturator for infants with cleft lip and palate. *J Clin Pediatric Dent.*1995;19: 211–4.
3. Choi BH, Kleinbeririz J, Joos U, Komposch G. Sucking efficiency of early orthopedic plate and teats in infants with cleft lip and palate. *Int J Oral Maxillofac Surg.* 1991; 20:167–9.
4. Reddy SP, Prasad RB. Feeding obturator -A presurgical prosthetic aid for infants with cleft lip and palate - clinical report. *Ann Essence Dent,* 2013; 5(2):1-6.
5. Shahapur S, Talikoti A, Basutkar N. Prosthetic Management of Nasoalveolar Clefts in Newborns: A series of case report. *J Indian Prosthodont Soc.,*2011;11(4):250-3.
6. Bargale S, Sikligar S, Shah S, Mulchandani V, Rachappa MM, Dave B. A ray of hope in cleft lip and palate patients: case reports. *EJDTR,* 2014;3 (2):217-220
7. Arvedson JC, Brodsky L. *Pediatric Swallowing and Feeding.* San Diego, California: Singular Publishing Group, Inc; 1993.
8. Kummer AW. *Cleft Palate and Craniofacial Anomalies.* 2nd ed. Clifton Park, NY: Thomson Delmar Learning; 2008.
9. Jones JE, Henderson L, Avery DR. Use of a feeding Obturator for infants with severe cleft lip and palate. *Spec Care Dentist.* 1982; 2:116–20.
10. Saunders ID, Geary I, Flemming P, Gregg TA. A simplified feeding appliance for infant with cleft lip and Palate. *Quintessence Int.* 1989; 20:907–10.

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