

# Feeding Intervention in Cleft Lip and Palate Patients: A Review

Farhin Katge<sup>1</sup>, Shagufta Dalvi<sup>2</sup>, Ashveeta Shetty<sup>3</sup>,  
Shilpa Shetty<sup>4</sup>

1- Professor and Head of Department, Department of Paedodontics and Preventive Dentistry, Terna Dental College, Nerul, Navi Mumbai, India.

2,3- Postgraduate Student, Department of Paedodontics and Preventive Dentistry, Terna Dental College, Nerul, Navi Mumbai, India.

4- Lecturer, Department of Paedodontics and Preventive Dentistry, Terna Dental College, Nerul, Navi Mumbai, India.

Correspondence to:

Dr. Shagufta Dalvi

4, Sangam Apts., Behind Old Dosti Bldg., Nadkarni Marg,  
Wadala East, Mumbai- 400037, India.

Contact Us : editor@ijdmr.com

Submit Manuscript : submissions@ijdmr.com

www.ijdmr.com

## ABSTRACT

Cleft lip and palate is a commonly observed congenital maxillofacial defect. One of the most important problems with clefts is the interference with feeding. When a baby is born with a cleft palate, he faces major feeding difficulties, whether fed by breast, bottle, or both. An affected infant cannot produce negative pressure in the oral cavity and therefore cannot move the bolus backward to the pharynx. The degree of difficulty depends upon the severity and location of the cleft, as well as other factors. Inability of the baby to be fed and receive nutrition causes malnourishment and delayed growth. This article reviews the different feeding interventions such as breast feeding, modified bottles and/or teats, obturating plates and maternal counselling and support.

**KEYWORDS:** Breast Feeding, Cleft Palate, Feeding, Modified Bottles, Obturator

## INTRODUCTION

A cleft of the lip and/or palate is one of the most common craniofacial birth defects with an average prevalence of 1.27 per 1000 live births.<sup>1</sup> The etiology is multifactorial which includes both genetic factors and environmental factors. During the development of the foetus, separate areas of the face develop individually and then join together. Any disturbance in this fusion can result in cleft formation. The type and severity depends upon the fusion defect. These clefts can range from a slight notch in the lip, to complete separation. It can also involve the different regions of the oro-facial complex, either independently or in combination.<sup>2</sup> Early surgical treatment may need to be postponed until certain age and weight gain of the infant.<sup>3</sup> Feeding difficulties associated with cleft lip and palate [CLP] are related to reduced sucking

efficiency, nasal regurgitation and excessive air intake.<sup>4,5</sup> The goal in feeding an infant with orofacial cleft is to provide nutrition, which is one of the prime concerns as he may not gain weight at the rate of a normal child.<sup>6</sup> A feeding technique which improves the suckling reflex is important for these children. Suckling maximizes oral stimulation, which facilitates oral motor development.<sup>4,7</sup> This article reviews the different feeding interventions which have been reported and recommended for infants with cleft conditions.

According to Reid *et al.*, there was a significant decrease in failure to thrive rates for infants with cleft palate after an early intervention feeding program was implemented.<sup>8</sup> Five broad intervention themes were identified. These included feeding

*How to cite this article:*

Katge F, Dalvi S, Shetty A, Shetty S. Feeding Intervention in Cleft Lip and Palate Patients: A Review. *Int J Dent Med Res* 2014;1(4):143-147.

prostheses, breast feeding, feeding equipment, feeding technique, nutrition/lactation advice or combinations of all the aforementioned.<sup>5</sup>

## FEEDING PROSTHESES

The feeding plate obturates the cleft and restores the separation between the oral and nasal cavity. It creates a rigid surface towards which the baby can press the nipple and extract the milk.<sup>9</sup> It assists in feeding, reduces incidence of choking and nasal regurgitation. The obturator also prevents the tongue from entering the defect.<sup>10,11</sup> Feeding appliances have been mentioned by a number of authors (Lifton, 1956; Williams *et al.*, 1968; Razek, 1980; Jones *et al.*, 1982; Fleming *et al.*, 1985; Balluf and Udin, 1986; Goldberg *et al.*, 1988; Saunders *et al.*, 1989; Kogo *et al.*, 1997). An affected infant cannot produce negative pressure in the oral cavity and therefore cannot move the bolus backward to the pharynx.<sup>11</sup> Palatal obturator improves the seal by generation of negative pressure.<sup>4</sup> Feeding plates have been modified using different materials like Bioplast clear soft palate (Ethylene vinyl acetate) and Tulle.<sup>11,12</sup> The main drawback of feeding plate is the requirement of fabrication of new ones because of growth. Also, good oral hygiene and the cleanliness of prostheses should be maintained failing which fungal growth on the palate can be seen (Figure 1).<sup>4</sup>



Figure 1: Feeding

## BREAST FEEDING

Breast feeding is the most superior method for feeding children. Every mother should be encouraged to breast feed her baby not only from the nutritional standpoint, but also because it strengthens the emotional bond between the mother and child.<sup>4,13</sup> Maintaining suction while breast

feeding is a challenge for babies with cleft defects. Depending on the location and extent of baby's cleft, one breastfeeding position may be more effective than another.<sup>13</sup> Breast feeding may sometimes require more upright positioning so that mother's breast fills the gap in the lip or gum.<sup>8</sup> Other positions like modified football hold position or straddle position can also be tried. Breast feeding is advised for 10 minutes, eight to ten times a day. Breast feeding should be done at least every two to three hours with one longer four-to-five hours sleep period.<sup>13</sup> A system called as Lact-Aide has been mentioned that allows the mother to control the volume of milk entering the infant's mouth.<sup>7,14</sup> Also, nipple shields made up of thin, pliable silicone can be used which aid in greater skin to skin contact (Figure 2).<sup>2</sup>



Figure 2: Breast Feeding

## FEEDING EQUIPMENTS

These include bottles, nipples, cups, spoons and other methods like dropper, glass and straw.

### Bottle Feeding

Many studies related to bottle feeding in cleft palate support the use of compressible bottles though the use of rigid bottles in feeding has also been documented.<sup>5</sup> A soft plastic bottle which gives the person feeding an excellent control over the amount of milk delivered into the infant's mouth is very useful in this situation.<sup>2</sup> Also, a lot of bottles are specially designed to aid in feeding infants with cleft lip and palate. At the same time it is essential to remember that if a speciality bottle is not available, there are other solutions to achieve effective feeding. A plastic bottle with the bottom cut off can be used along with a bottle liner. The liner can be squeezed to regulate the flow of liquid into the baby's mouth (Figure 3).<sup>7</sup>

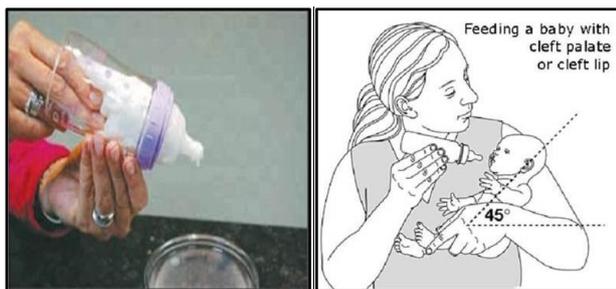


Figure 3: Bottle liner and bottle feeding

Some specially designed bottles which can be used are mentioned below:

**Mead Johnson Cleft Palate Nurser**

It is a soft bottle which can be squeezed easily, in rhythm with the baby's suck and swallow pattern. Hence little or no opening is required on the baby's part. The flow of the milk can be complemented with an enlarged nipple opening (Figure 4).<sup>15,16</sup>

**Haberman Special Needs Bottle**

It is an assisted feeding bottle. It consists of five parts – valve, disk, nipple, collar and bottle. The nipple is unusual looking and has markings that indicate the flow of milk. Three rates of milk flow, each is represented by a line on the barrel of nipple where the shortest means no or short flow and the longest line means regular or high flow. The desired flow line should be upwards under the infant's nose (Figure 5).<sup>15,16</sup>



Figure: 4



Figure:5

Figure 4- Mead Johnson Cleft Palate Nurser, Figure 5- Haberman Special Needs Bottle

**Pigeon Bottle Feeder**

It is a self-assisted feeding bottle, which means the infant has to suck the milk without any assistance. It has four parts – plastic one way flow valve, non-latex nipple with a Y cut and air vent, collar or ring

and bottle. The nipple and collar fit standard size bottles as well (Figure 6).<sup>15,16</sup>

**Playtex Feeder**

Introduced by Paradise JL. The Playtex feeder contains a rigid, plastic, slotted shell into which disposable plastic bag containing milk is placed. To this conventional nipple carrying cap is screwed. The slots of the shell are wide enough to permitting easy insertion of fingers, so that gentle pressure can be applied to the milk containing bag throughout the feeding process.<sup>2</sup>

**Nipples**

As documented cross cut nipples used with either rigid or compressible bottles are said to be useful in CLP. Artificial nipples with enlarged orifice and fast flow rate have also been documented. Though some authors caution against the use of these nipples because it may imperil the infant's ability to synchronize sucking, swallowing and breathing.<sup>5</sup> Correctly shaped regular nipple with a broader base and long shaft usually resolved the problem. Various companies like Binky, Nuk, Gerber and Playtex provide wide bases that may conform to the isolated cleft lip and prevent air leakage while sucking. Most commonly amongst these are the NUK nipple NO. 2 and the Pigeon nipple.<sup>7</sup> But the simplest method that remains is to alter a standard nipple with a cross cut. This can be done by turning the nipple inside out and using a sharp thin blade to make a small X cut in the tip of the nipple (Figure7).<sup>15</sup>



Figure: 6



Figure: 7

Figure 6- Pigeon Bottle Feeder, Figure 7- Nipple and nipple modification

**Cups, Spoons and Other Feeding Methods**

Cup and Spoon feeding is found as a common

feeding practise amongst parents of children with CLP.<sup>4</sup> It is an artificial method generally used to complement breast feeding. It is commonly used in preterm and low birth weight infants with cleft palate who are attempting to establish breast feeding. Also modified cup feeding devices like Baby Cup Feeder and Cup feeder are also available. Other feeding methods like Acepto feeder, feeding with a dropper glass and using a straw have also been mentioned with little evidence to support its beneficial outcome.<sup>4,7</sup> Some infants with clefts also require the use of a naso-gastric tube to assist in feeding during the days following birth or later when there are concerns about the infant's weight.<sup>5</sup>

## FEEDING TECHNIQUE AND NUTRITION ADVICE

Correct feeding technique is very important to meet the nutritional needs of a child with cleft palate. Feeding techniques have been reported by a number of researchers. The most notable studies were undertaken by Richard (1991, 1994) who devised the ESSR Technique. The ESSR Technique or the Enlargement, Stimulate, Swallow and Rest technique implements enlarging the nipple hole, stimulating sucking, waiting for a swallow, monitoring patient cues during feeding and resting.<sup>5</sup> The other recommendation is that the bottle should be tilted so that the nipple is always filled with milk and pointed down, away from the cleft. It is also essential to make the child burp often as they tend to swallow a lot of air while feeding.<sup>15,17</sup> In addition, it has been stated that feeding should be limited because regular lengthy periods of feeding may cause excessive caloric expenditure and also fail to establish well-defined periods of satiety and hunger.<sup>13</sup> Also a 10 minute feed duration with no more than 30 minutes as the upper limit was suggested.<sup>5,13</sup> As the baby feeds, some milk may escape through the nose which is common following which the child may sneeze or cough to clear the nose. Failing this, a bulb syringe can also be used to suck milk out of the nose. Another important aspect was nutrition and lactation advice being included in the suite of intervention options. Domiciliary visits, breast feeding support, feeding education and monitoring of growth were used to support infants

and their families from birth. Failure to thrive rates dropped significantly after the implementation of these facilities.<sup>5</sup> Importance of oral hygiene was also emphasized as a greater incidence of caries is found in children with cleft.<sup>18</sup>

## CONCLUSION

Infants with cleft lip and palate are a significant part of the population. They are at likely risk of many health difficulties including malnutrition, which can lead to morbidity and failure to thrive. However evidence based practice shows that with intervention techniques, oral feeding can be successful and infants can survive. Ideally, feeding interventions should reduce the stress experienced by the family and infant, promote growth and development in the infant and facilitate a normal feeding pattern. Early education combined with nutritional intervention protocol can improve outcomes including weight gain, feed velocity and fluid intake.<sup>8,19</sup>

## REFERENCES

1. Tandon S. Cleft lip and palate. In: Tandon S, editor. Textbook of Pedodontics, 2nd ed. New Delhi: Paras Medical Publisher; 2009;674-91.
2. Devi ES, Sai Sankar AJ, Manoj Kumar MG, Sujatha B. Maiden morsel - feeding in cleft lip and palate infants. *J Int Soc Prev Community Dent.* 2012 Jul; 2(2):31-7.
3. Masih S, Chacko RA, Thomas AM, Singh N, Thomas R, Abraham D. Simplified feeding appliance for an infant with cleft palate. *J Indian Soc Pedod Prev Dent.* 2014 Oct-Dec;32(4):338-41.
4. Goyal A, Jena AK, Kaur M. Nature of feeding practices among children with cleft lip and palate. *J Indian Soc Pedod Prev Dent.* 2012 Jan-Mar;30(1):47-50.
5. Reid JA. A review of feeding interventions for infants with cleft palate. *Cleft Palate Craniofac J.* 2004 May;41(3):268-78.
6. Ganatra MA. Cleft lip and cleft palate. *Medicine Today.* 2010 Jan-Mar;8(1):14-7.
7. Clarren SK, Anderson B, Wolf LS. Feeding infants with cleft lip, cleft palate, or cleft lip and palate. *Cleft Palate J.* 1987 Jul;24(3):244-9.
8. Ashby MJ. Feeding therapy and techniques for children with cleft lip/palate [Research paper]. Carbondale, Illinois: Southern Illinois University Carbondale; 2009 [cited 2011 May]. Available

- from:[http://opensiuc.lib.siu.edu/cgi/viewcontent.cgi?article=1107&context=gs\\_rp](http://opensiuc.lib.siu.edu/cgi/viewcontent.cgi?article=1107&context=gs_rp)
9. Gupta R, Singhal P, Mahajan K, Singhal A. Fabricating feeding plate in CLP infants with two different material: A series of case report. *J Indian Soc Pedod Prev Dent*. 2012 Oct-Dec;30(4):352-5.
  10. Malik P, Agarwal A, Ahuja R. Feeding appliance for an infant with cleft lip and palate. *Pakistan Oral & Dental Journal*. 2012 Aug;32(2):264-6.
  11. Karayazgan B, Gunay Y, Gurbuzer B, Erkan M, Atay A. A preoperative appliance for a newborn with cleft palate. *Cleft Palate Craniofac J*. 2009 Jan;46(1):53-7.
  12. Erkan M, Karaçay S, Atay A, Günay Y. A modified feeding plate for a newborn with cleft palate. *Cleft Palate Craniofac J*. 2013 Jan;50(1):109-12.
  13. La Leche League International. Breastfeeding a Baby with a Cleft Lip or Cleft Palate [brochure]. Illinois: La Leche League International; 2004.
  14. Kogo M, Okada G, Ishii S, Shikata M, Iida S, Matsuya T. Breast feeding for cleft lip and palate patients, using the Hotz-type plate. *Cleft Palate Craniofac J*. 1997 Jul;34(4):351-3.
  15. Cleft Palate Foundation. Feeding Your Baby [brochure]. North Carolina: Cleft Palate Foundation; Fourth Edition 2009.
  16. Luis Cuadros. Feeding an infant with a cleft [Internet]. Available from: [http://www.cuadrosmd.com/forms/feeding\\_info.pdf](http://www.cuadrosmd.com/forms/feeding_info.pdf)
  17. Masarei AG, Sell D, Habel A, Mars M, Sommerlad BC, Wade A. The nature of feeding in infants with unrepaired cleft lip and/or palate compared with healthy noncleft infants. *Cleft Palate Craniofac J*. 2007 May;44(3):321-8.
  18. Britton KF, Welbury RR. Dental caries prevalence in children with cleft lip/palate aged between 6 months and 6 years in the West of Scotland. *Eur Arch Paediatr Dent*. 2010 Oct;11(5):236-41.
  19. Bessell A, Hooper L, Shaw WC, Reilly S, Reid J, Glenn AM. Feeding interventions for growth and development in infants with cleft lip, cleft palate or cleft lip and palate. *Cochrane Database Syst Rev*. 2011 Feb 16;(2):CD003315.

Source of Support: Nil

Conflict of Interest: Nil