

# A Feeding Appliance for a 2 day old Neonate with Cleft Lip and Palate: A Case Report

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## ABSTRACT

Congenital cleft lip and palate is the most commonly found craniofacial defect. The most common problem in an infant with cleft lip and palate, is the difficulty in feeding due to communication between oral and nasal cavity. Feeding obturator restores this gap and assists in feeding as well as helps in reduction of airway problems, regurgitations, and frequent infections. This clinical report describes a technique for fabricating feeding plate in a 2-day old neonate with a cleft lip and palate.

**KEYWORDS:** Cleft lip, Cleft Palate, Obturator

## INTRODUCTION

Learning to live with a change in one's appearance as a result of injury or disease is difficult. It is all the more difficult for children born with developmental defects and their parents to adjust. The treatment of orofacial clefts requires an exhaustive treatment schedule which puts enormous mental, physical, and financial stresses not only for the parents but for the entire family.

Clefts of the lip and palate are the most common congenital deformities with an overall incidence of 1:700 in live human births.<sup>1</sup> Among unilateral clefts, clefts of left side are more common (70% of cases).<sup>2</sup>

Clefts have a complex etiology where both genetics and environment play a major role. Risk factors such as folic acid deficiency, maternal age, and maternal smoking have been associated with it. Various genes – namely the T-box transcription factor-22 (TBX22) gene, poliovirus receptor like-1 (PVRL1) gene, and interferon regulatory factor-6 (IRF6) gene are associated with X-linked cleft palate (Syndromic Cleft), cleft lip/palate-ectodermal dysplasia syndrome, and Van der Woude's (VWS) and popliteal pterygium syndromes, respectively. These are also found to be associated with nonsyndromic cleft lip and palate.<sup>3</sup>

These affect several systems that include feeding, facial growth, dentition, mastication, deglutition, speech as well as social and psychological problems.<sup>4</sup>

Feeding in an infant with cleft lip and palate infant is a major challenge due to an abnormal oronasal communication in these patients. These infants have difficulty in making a seal around the nipple of the mother or the bottle.

In addition, these infants have an excessive air intake,

nasal regurgitation, and choking. A feeding appliance is a favorable option in such cases as it obturates the cleft area and creates a stable platform toward which the baby can press the nipple and extract milk.<sup>5</sup>

Various types of feeding plate like passive plates, molding plates, and lathams obturator are available to assist in feeding.<sup>6</sup>

In the fabrication of feeding plate, impression taking is one of the most crucial steps. Patient positioning should be carefully done and if possible vitals should be monitored in neonates. Different methods like use of ice cream stick, spoon, and customized trays can be used for taking impressions. Materials with limited flowability like elastomeric impression materials should be used to avoid airway obstruction. A high volume suction should be used in case of regurgitation of stomach contents.<sup>6</sup>

In the present case report, a feeding obturator was given to a 2-day old neonate with cleft lip and palate.

## CASE REPORT

A 2 days old healthy male neonate reported to our department with a cleft lip and palate with feeding difficulty. The patient had a patent gastric tube for feeding. [Figure 1] Medical history of the child and parents was non-contributory. Pregnancy and delivery were uneventful with no relevant maternal medical or dental history.

Intraoral examination of the child revealed a unilateral cleft lip and palate (Veau Class III). [Figure 2] A preliminary impression was made in a NICU setup.

The infant was placed in a supine position and vitals were monitored. Polyvinyl siloxane putty material was used for

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Figure 1: Patient With Patent Gastric Tube



Figure 4: Primary Cast With Spacer

In the next appointment, final impressions were taken using elastomeric putty material and the final casts were poured in dental stone. [Figure 5] 19 gauge wire was then bent into an omega shape and was embedded in the acrylic plate. The tray was smoothed and polished to avoid any irritation to tissues during impression. [Figure 6].



Figure 2: Cleft Lip And Palate



Figure 5: Custom Impression Tray

the preliminary impression. The sectional impression was taken using fingers and was later joined. [Figure 3] A primary cast was poured in dental stone. A spacer was then adapted on the cast, and a custom tray was then prepared using self-cure acrylic. [Figure 4]



Figure 3: Primary Impression

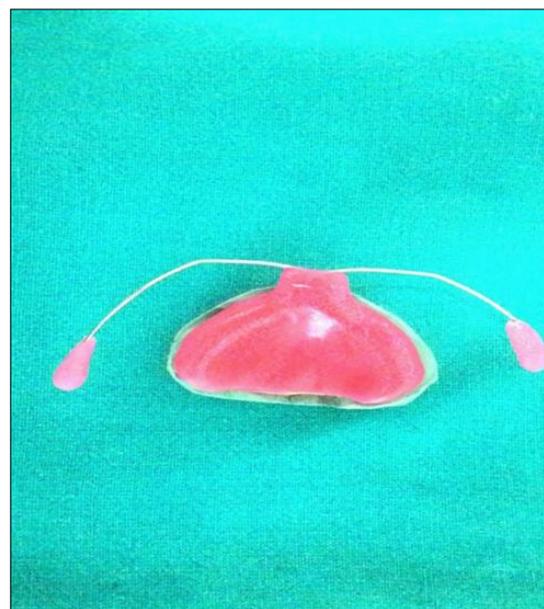


Figure 6: Feeding Plate

At the delivery appointment, the oral plate was carefully fitted in the infant's oral cavity. Initial attention was given to the retention of the obturator. Care was also taken to prevent the obturator extensions from impinging on any muscle attachment or extending to the vestibular depth. [Figure 7]



Figure 7: Feeding Plate in Place

Parents were instructed on placement and removal of the appliance and its regular maintenance. Parents were also instructed to use the plate as much as possible.

The infant was recalled for any adjustments a week after initial delivery of the appliance. Mother was enquired regarding the use of feeding plate. A steady weight gain was also seen. The oral cavity was examined for any possible soreness or ulcerations. Oral hygiene and feeding instructions were reinforced.

## DISCUSSION

Most parents are traumatized when a child is born with an orofacial cleft as there is an increased financial, social, and personal impact prior to primary treatment completion. The problems in coping are more in families with children having cleft lip and palate when compared to families with isolated cleft palate.<sup>7</sup>

The present line of management involves a reparative surgery within the first 12 months of life. At this point of time the body weight varies between 5 and 10 kg and the whole blood volume between 400 and 700 ml. According to Fillies et al there was a direct relationship between decreased body weight and complications in surgery.<sup>8</sup>

Neonates with a cleft palate have difficulty in eating, which may lead to failure to thrive. The oronasal communication results in a diminished ability to create negative pressure that is necessary for suckling. To compensate, the baby presses the nipple between the tongue and the hard palate, but this mechanism is also ineffective if cleft is wide. Nasal regurgitation of food, excessive air intake and choking are other frequent complications.<sup>9</sup>

The use of feeding tube which is started early can cause soft tissue perforation due to hardening of the tube. It also produces rare complications such as urinary bladder perforation, pericardial sac perforation, and Enterobacteriaceae colonization.<sup>4</sup>

An evaluation of the feeding practices showed unsuccessful direct breast feeding and the use of acrylic plate was considered helpful by a majority. Early management is a necessity as nonsyndromic clefts do affect the quality of life in school-age children that also affects their social role. Thus an early intervention by conservative means should be carried out to decrease complications by increasing body weight and thereby decreasing risk of complications during surgery.<sup>10</sup>

Neonatal feeding obturator appliance is traditionally fabricated of acrylic resin that serves the following purposes:

- Creates a rigid and stable platform for feeding
- Reduces nasal regurge
- Reduces the time required for feeding and increases the amount of feed intake per feed
- Helps position the tongue away from the cleft area to allow spontaneous growth of palatal shelves.
- Reduces parents' frustration as a result of feeding problems.<sup>10</sup>

## CONCLUSION

Early non-surgical intervention is of prime importance in a cleft lip and palate infant. It not only helps in feeding the infant but also modifies the growth and prevents future complications. It prepares the baby for an early surgical intervention by facilitating the growth of the infant.

Ideally, if clefts are diagnosed antenatally, parents should be guided and educated about the need and use of obturators even before the baby is born. Inadequate nourishment due to difficulty in feeding in such cases lead to a lag in growth and act as a stumbling block in achieving developmental milestones. An obturator bridges the gap between a healthy and a weak cleft lip and palate patient.

## REFERENCES

1. McDonald R, Avery D, Dean J. Dentistry for the Child and the Adolescent. 8th Ed St. Louis, Missouri: Mosby; 2004.
2. Booth PW, Schendel SA, Hausamen JE. 2nd ed, Vol. 2. Churchill Livingstone. Philadelphia: Elsevier; 2007. p. 1000-48
3. B. N. Rangeeth, Shafath Ahmed. Role of the pediatric dentist and prosthodontist in early cleft management: Presentation of two case reports: SRM Journal of Research in Dental Sciences;4(4):October-December 2013
4. Ravichandra KS, Vijayaprasad KE, Vasa AAK, Suzan S. A new technique of impression making for an obturator in cleft lip and palate patient: Journal Of Indian Society Of Pedodontics And Preventive Dentistry; Oct - Dec 2010, Issue 4, Vol 28.

5. Sikligar S, Shah S, Mulchandani V, Rachappa MM, Dave B. A ray of hope in cleft lip and palate patients: case reports: *European Journal of Dental Therapy and Research* 2014;3 (2):217-220
6. V. P. Sabarinath, P. V. Hazarey. Caring for cleft lip and palate infants: Impression procedures and appliances in use: *The Journal of Indian Prosthodontic Society*, April 2009, Vol 9, Issue 2
7. Kramer FJ, Baethge C, Sinikovic B, Schliephake H. An analysis of quality of life in 130 families having small children with cleft lip/palate using the impact on family scale. *Int J Oral Maxillofac Surg* 2007;36:1146-52.
8. Fillies T, Homann C, Meyer U, Reich A, Joos U, Werkmeister R. Perioperative complications in infant cleft repair. *Head Face Med* 2007;3:9.
9. Narendra R, Sashi Purna CR, Reddy SD, Simhachalam Reddy N, Sessa Reddy P, Rajendra Prasad B. Feeding obturator – a presurgical prosthetic aid for infants with cleft lip and palate - clinical report: *Ann Essences Dent* 2013;5(2):1-5.]
10. Chandna P, Adlakha VK, Singh N. Feeding obturator appliance for an infant with cleft lip and palate: *Journal Of Indian Society Of Pedodontics And Preventive Dentistry*, Jan - Mar 2011; Issue 1, Vol 29

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