

# Feeding Plate for Cleft Palate 3 Months old Infant: A Case Report

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## ABSTRACT

Clefts of lip and palate are the most common congenital deformities involving the orofacial region. Difficulty in feeding the infants is one of the concern to be addressed. In the present article a similar case is presented in which the fabrication of a feeding plate for bilateral cleft palate at the junction of hard and soft palate with approximately size of 2.5-3 mm openings in 3 months old infant.

**Key words: Cleft Palate, Feeding Plate**

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## INTRODUCTION

Clefts of lip and palate are the most common congenital deformities of new born involving the orofacial region with the incidence of 0.28-3.74 per 1,000 live births.<sup>1,2</sup>

The challenges and problems associated with individuals with a cleft lip or palate including physiological activities performed by the oral and nasal cavities i.e. swallowing, speech etc.<sup>3,4</sup> The oro-nasal communication diminishes the ability to create negative pressure which is necessary for suckling.<sup>5-8</sup> The feeding process is also complicated by nasal regurgitation of food.<sup>5,7,10</sup> Excessive air intake that requires frequent burping and choking.<sup>7</sup> Feeding time is usually significantly longer and fatigues both baby as well as mother.<sup>5,7,9,10</sup> Until surgical intervention, maintenance of adequate nutrition is essential to allow normal growth of the newborn and to prepare the infant for the corrective surgery.

Various approaches to feed babies with cleft palate include orogastric and nasogastric tubes but should be used only for limited times, use of specially designed nipples with enlarged openings to allow the flow of formula with less effort, but this option may not be a good choice for some patients.<sup>12,13</sup>

However, a feeding plate is a prosthetic aid designed to obturate and to help infant in generating negative pressure within the oral cavity, which is necessary for sucking. Also, it corrects the tongue posture and helps it not only perform its functional role in the development of the jaws but also facilitates swallowing.<sup>14</sup> In addition, it has been shown that a feeding plate stimulates the spontaneous growth of the maxillary segments toward each other by preventing the tongue from entering the defect.<sup>12,15,16</sup> Reducing the incidence of otitis media and nasopharyngeal infections by minimizing the passage of food into the nasopharynx are the other advantages of a feeding plate.<sup>15,16</sup> Feeding plate restores the basic functions of mastication, deglutition and speech production until the cleft lip and/or palate can be surgically corrected.

This article presents a case report of an infant with cleft palate with 2.5 to 3mm bilateral defect for whom feeding appliance was fabricated.

## CASE REPORT

A 3 months old male infant patient was referred from Department of Pediatrics to the Department of Prosthodontics & crown & bridge , for the fabrication of feeding plate. On examination, it was found that child was born with bilateral cleft palate at the junction of hard and soft palate with approximately size of 2.5-3mm communication openings (Fig 1) After complete examination of the patient it was decided to fabricate feeding plate for the patient, so that it reduce feeding problem..



**Fig 1.**

Preliminary Impression of the maxillary arch was made with polyvinyl siloxane putty material washed with light body addition silicone. (Fig 2).



**Fig 2.**

The infant was held upright by mother to prevent aspiration of material. The putty addition silicone was adapted until the impression material adequately covered the anatomy of the upper gum pads. Once the impression material was set, the putty tray was removed, wash impression with light body addition silicone was made and the mouth was examined for residual impression material. The impression was then poured with Type IV dental stone to obtain an accurate cast. All the undercuts and the cleft space were blocked with wax. The feeding plate was made up of adapted vacuum formed biostar sheet (fig 3).



**Fig 3.**

Floss was attached to the feeding appliance because it prevents swallowing and easy retrieval of appliance. Finally, appliance was placed in child's oral cavity and child was fed (fig 4).



**Fig 4**

Instructions were given to the parents to keep the plate in place during feeding, and take out for cleaning at least once in a day. Initially it may take longer to feed the child with plate and even it is uncomfortable for the child, gradually it should be adjusted.

### **DISCUSSION**

Adequate nutrition is of utmost importance for the growth and development of the infant because gaining weight is important for the preparation of the baby for the corrective surgery. However, a cleft palate creates an opening in the roof of the mouth and the infants have difficulties sucking because the necessary negative pressure cannot be produced in the oral cavity.<sup>12,13,15,17</sup>

Additionally, the nasal regurgitation is also a concern. Various feeding devices have been used to feed these babies including the traditional feeding bottle, which may be rigid or squeezable with two types of nipples (a regular nuk or a cleft nuk), a squeezable cleft palate nurser, a traditional feeding bottle with a crosscut nipple, the Hotz plate, the Haberman feeder, a prosthetic obturator appliance, a nasogastric tube, cup and spoon feeding, and syringe feeding.<sup>18</sup> In the presented case, a modified feeding plate was constructed using soft vacuum formed biostar materials that permitted effective feeding and normal weight gain.

Feeding appliance restores palatal contour & cleft thereby help in creating sufficient negative pressure which allows adequate sucking of milk. It helps child to compress the nipple easily because it provides a contact point and helps the infant to express milk. It facilitates feeding, reduces nasal regurgitation.<sup>10,13</sup>

Although multidisciplinary team approach and a comprehensive management of children born with cleft lip and palate is the best that can be done for these patients, however, prompt intervention by fabrication of feeding plate can eliminate the immediate problems i.e. proper nourishment and prevention of infections for the already debilitated infant. Inadequate nourishment due to difficulty in feeding affects the health and acts as a stumbling block in the milestone of normal development.<sup>19</sup>

### **CONCLUSION**

The vacuum formed biostar feeding plate effectively obstructed the cleft defect. Other materials that can be used for feeding appliance can be autopolymerizing or heat cure acrylic resin that can be modified according to the defect and requirement. Although the soft biostar feeding plate eliminated the risk of irritation, and the baby accepted the appliance easily.

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