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Feeding Plate for a 12 Day Old Infant with Cleft Palate- A Case Report

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Case Report

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ABSTRACT

Introduction: Cleft palate and cleft lip deformities are common causes of orofacial region issues. They can be surgically repaired but typically require a delay of few months to few years to avoid causing damage to the palate and not to restrict its growth. Since infants with CP have several problems with feeding, the use of a feeding plate has been described to help them maintain proper nutrition.
Methods: Primary Impression was taken during the first visit. The baby was recalled after 2 days for secondary impressions and later the master cast was made for fabricating the feeding plate, which was delivered the next day.
Conclusion: A feeding plate is a device used to mask a defect (Cleft Palate) in the infant's mouth that causes negative pressure to be exerted on the oral cavity, which is essential for the suckling reflex.

Keywords: Cleft Palate, Feeding Plate, Negative Pressure, Suckling Reflex.

Introduction

Among the various types of clefts, isolated cleft palates (CPOs) account for approximately 33% of all oral clefts, which occur in approximately 1to 25 in 10,000 live births worldwide.[1]

Children with CP experience difficulties sucking, nasal regurgitation when they feed, defects in facial development, dental problems, hearing, and psychological problems, as well as velopharyngeal inadequacy.[2] Thus, it is a challenging and controversial undertaking to treat cleft patients, requiring a multidisciplinary approach that incorporates experts from various specialties. Feeding plates are not only essential for proper

nutrition but also play an important role in craniofacial development, reduces otitis media and nasopharyngitis incidence.[3] Cleft lip surgery should be done first, followed by cleft palate surgery. Due to the scar tissue that results from early palate repair, the growth and development of the maxilla may be hampered.[4]

Feeding Plate closes the cleft and reconnects the oral and nasal chambers, resulting in negative intraoral pressure during feeding. The feeding plate helps to prevent choking, nasal regurgitation, and the formation of palatal shelves by preventing the tongue from entering the defect.[5] It also aids in the proper positioning of the tongue for its functional role in the development of the jaw.[6]

Before employing the obturator, nine out of eleven parents agreed or strongly agreed that their infants had difficulty feeding. Only one parent noted any additional feeding difficulties after using the obturator.[7]

This article describes a case study in which a 12-day-old neonate with a cleft palate was given a feeding plate to help him feed and gain weight until palatal surgery.

Case Report

A 12-day-old male infant was reported to the Department of Orthodontics, parents complaining of difficulty in feeding and absence of suckling reflex. Clinical examination of the infant was performed, no evidence of other congenital abnormalities affecting this child was noticed. He had a small cleft palate. [Figure 1B] It was decided to provide a feeding plate which will prevent nasal regurgitation and help in the suckling reflex by maintaining the negative pressure in the mouth. Parents were explained about the procedure of construction of feeding plate and possible complications of using an acrylic plate, such as ulceration in the mouth and small areas of erythema's.

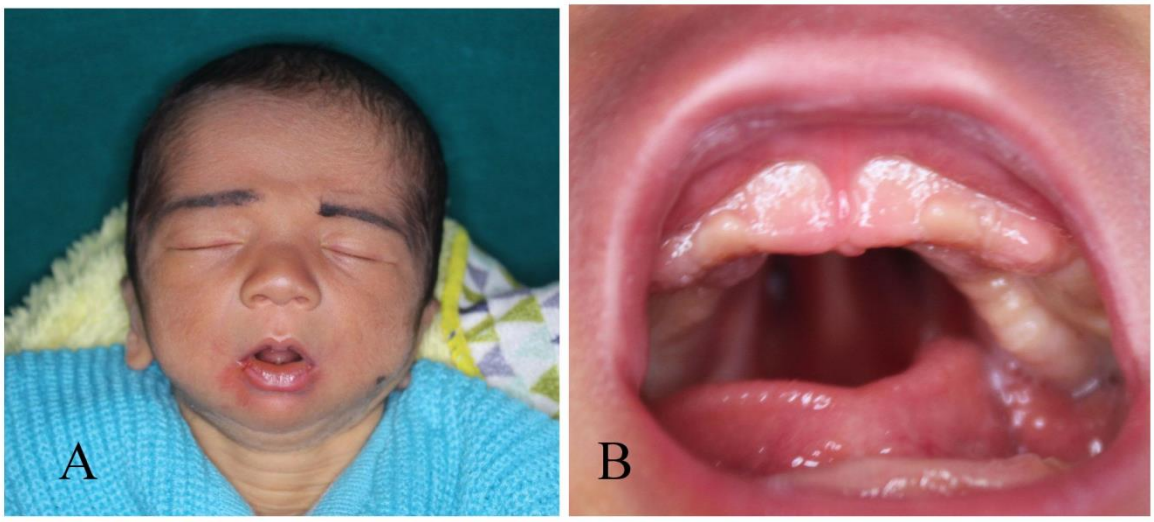

Figure1: A-Extroral, B-Intraoral

Procedure for fabrication of feeding plate

The baby was seated on the lap of the mother and with the help of modelling wax, the primary impression of the maxilla was taken. On the same day, the primary cast was made, and a special tray was fabricated using acrylic resin [**Figure 2**]. After 2 days the patient was recalled, and the special tray was used to draw out the

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secondary impression with Polyvinyl silicone putty material [**Figure 3A**]. All precautionary measures were observed during this procedure. The baby was sitting in his mother's lap facing down; his mother cradled his chest and body, securing it securely.

Figure 2: Special Tray

Secondary impression was poured with orthokal and the master cast was made [**Figure 3B**], later the cleft defect and undercuts were filled with the help of wax spacer and the feeding plate was fabricated using an auto polymerizing clear acrylic resin (DPI-RR Cold Cure, India). The feeding plate was 2mm thick and without rough edges, we had an eyelet made with the aid of carbide bur, and thread measuring approximately 15cm was threaded through it, in addition, to make the plate easier to insert and remove and as a safety measure to prevent swallowing [**Figure 4A**].

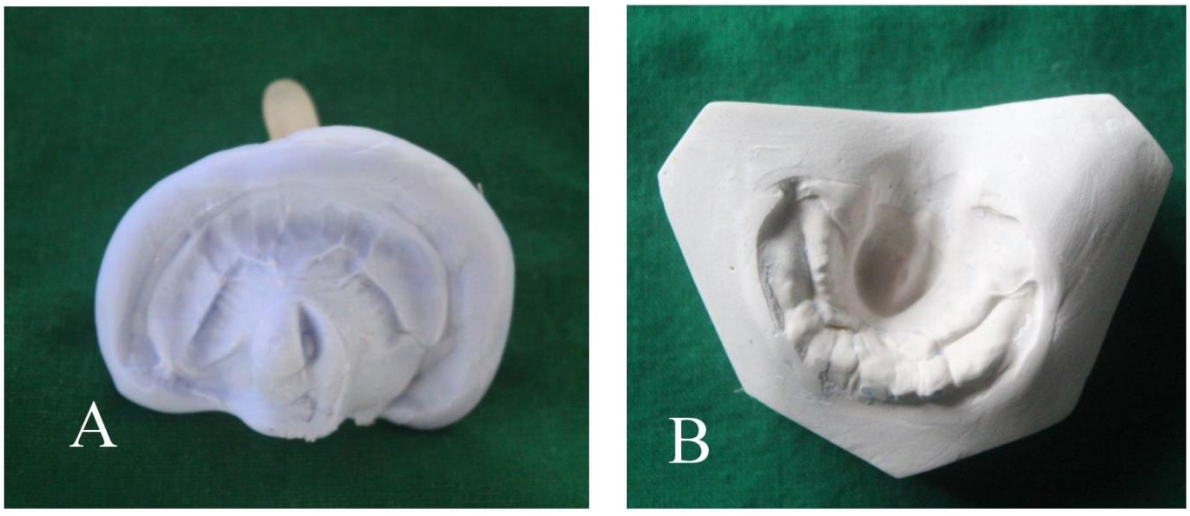

Figure 3: PVS Impression, Master Cast

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On the following visit, the feeding plate was cleaned and polished, then placed into the baby's mouth. [**Figure4B**]. An examination of the feeding plate was conducted in the department by asking the mother to feed the baby and check for the suckling reflex, proper fit of the plate [**Figure 5**].

The mother was informed that she would be required to undergo monthly follow-ups and the feeding plate could be replaced to accommodate craniofacial growth before surgical intervention. And at last, the mother of the patient was instructed in how to use, clean, operate, and maintain the feeding appliance.

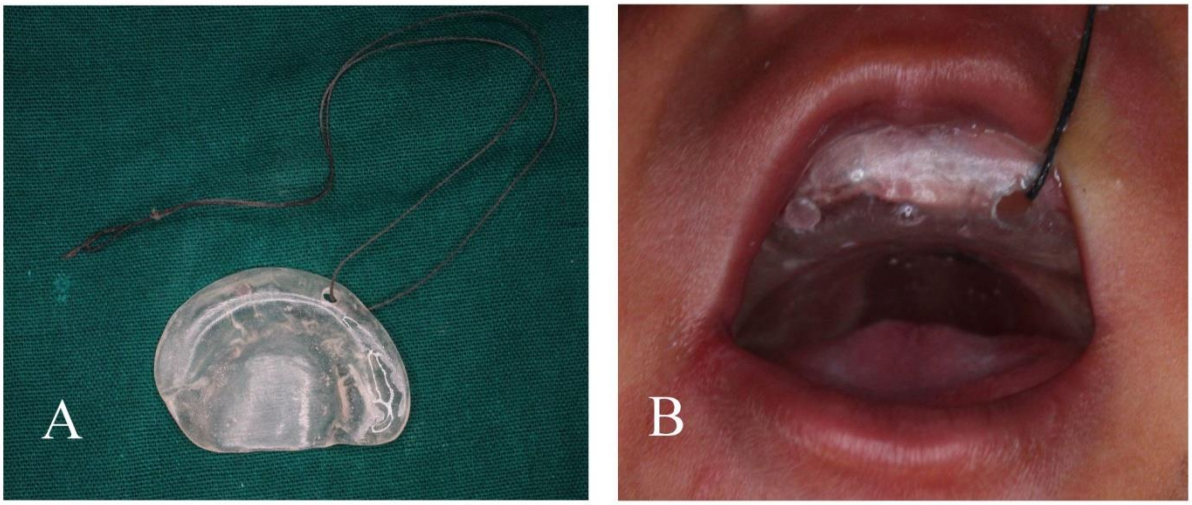

Figure 4: A- Feeding Plate, B- Intra Orally

Figure 5: Feeding with the Appliance

Discussion

The Indian subcontinent has a population of 1.1 billion, making it the most populous area in the world. Approximately 24.5 million babies are born each year, with 27,000 to 33,000 clefts occurring per year.[8]

Palatal obturation reduced feeding time and boosted feed intake from 36.5 ml/34.4 min to 67 ml/15.1 min in favour of direct breast feeding with the obturator in situ, according to a study of eight new-born cleft babies who were breast-fed directly or with a bottle.[9]

The main goal during the first few months of a cleft palate newborn's existence is to ensure adequate weight gain, which is achieved through regular feeding, and to prepare the infant for future surgical correction.[10] The feeding plate plugs the gap, and the food is delivered directly to the stomach, avoiding nasal regurgitation.

Due to the patient's lack of cooperation, making an impression is the first difficult clinical step in CP newborn. The oral cavity is too tiny for commercially available imprint trays, posing a risk of impression material being swallowed, aspirated, or trapped in the defect's undercuts.[11,12] In order to ensure airway patency during impression making, it is critical to pay attention to the infant's placement, the tray used, and the impression substance. Infant crying was sufficient for guaranteeing airway patency and removing any potential for aspiration of impression material.

Various authors describe the many advantages of a feeding plate. The appliance is accepted as part of the oral cavity by the tongue's growing neuromotor system. Food is kept out of the anterior nasal cavity and nasopharynx, preventing otitis media, and protecting the orifices of the eustachian tubes. While these are some of the benefits, there is an additional benefit that is less obvious: the mother's emotional stress is reduced.[13]

The stiff bulb of the feeding plate, which cannot move with the soft palate during swallowing, is a drawback. Determining the optimum distance between the bulb and the posterior pharyngeal wall to prevent regurgitation can also be difficult.[14]

This case study presents a basic acrylic appliance that functions as a feeding plate, enhances nutrient support, and aids in the weight gain of a new-born.

Conclusion

There was no evidence of other congenital abnormalities affecting this child. He had a small cleft palate. The other possible reasons for his poor development were not apparent. In most cases, children with this type of birth defect do well if they have a supportive home environment. It is believed that the feeding plate can be used to mask a defect (Cleft Palate) in the infant's mouth that causes negative pressure to be exerted on the oral cavity, which is essential for suckling reflex and the nutrition was improved.

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