

Fabrication Of Feeding Appliance For A Four - day Old Infant - A Case Report And Discussion

Abstract

Cleft Lip and palate is a common congenital deformity that requires a multidisciplinary approach for its management. The immediate concern for a baby born with Cleft lip na dpalate is to enable the baby to feed comfortably. A Feeding appliance helps the child in feeding ang obtaining necessary nutrition for its growth and development. This article explains an easy procedure for fabrication of feeding appliance And also discusses the various aspects of its fabrication and use.

Key Words

Cleft Lip and Palate, Obturator, Feeding appliance

Introduction:

Clefts of lip and palate are the most common congenital deformities involving the oro-facial region[1] with an estimated incidence of 0.28-3.74 per live births.[2] It is a complex trait caused due to multiple genetic and environmental factors.[3]

The individuals with cleft lip or palate have to deal with numerous problems associated with functions related to the oral and nasal cavities[4] and higher risk of ear infections[5].The oro-nasal communication diminishes the ability to create negative pressure which is necessary for suckling.[6],[7],[8] The feeding process is also complicated by nasal regurgitation of food, excessive air intake that requires frequent burping and choking. Feeding time is significantly longer and fatigues both baby as well as mother.[6],[7]

Most individuals with cleft lip, cleft palate, or both require the coordinated care of providers in many fields of medicine and dentistry (like paediatrician, paediatric surgeon, maxillofacial surgeon, Paediatric dentist, Orthodontist, Prosthodontist), as well as those in speech pathology, otolaryngology, audiology, genetics, nursing, mental health, and social medicine.

The immediate concern for a newborn with Cleft lip/palate is feeding. In infants with mild defects, feeding may be possible with some modification in mother and child position so as to obdurate the defect with mothers breast. But with most infants with Cleft palate, breast feeding may not be possible because of inability to create negative pressure necessary for suction. These

infants require some form of obturator for defect to be able to feed properly. A feeding plate is an appliance which obturates the cleft and restores the separation between oral and nasal cavities. It creates a rigid platform towards which the baby can press the nipple and extract the milk[9]. It facilitates feeding[4],[7], reduces nasal regurgitation,[6],[7] reduces the incidence of choking and shortens the length of time required for feeding. It also helps to position the tongue in correct position to perform its functional role in the development of jaws, and contributes to speech development. Feeding plate restores the basic functions of mastication, deglutition and speech production until the cleft lip and/or palate can be surgically corrected.

Case Report

A four day old infant was brought to us as the infant was having difficulty in feeding due to the presence of bilateral cleft lip and palate. A thorough examination was done for the infant to evaluate the extent of the defect. (Fig.1) The History and examination revealed that the patient had Veau's Class IV Bilateral cleft lip and palate[10]. No other extra oral or intraoral deformity was detected during the examination. As the immediate concern at this time was feeding and nutrition of the infant, it was decided to fabricate a feeding appliance for the infant, to enable him to be fed until further course of treatment was decided by the team. The parents were explained about the procedure and the benefits of the same.

An Impression of the oral cavity was made with polyvinylsiloxane impression

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Fig. 1 - Preoperative View Showing Bilateral Cleft Lip And Palate



Fig. 2 - Impression Made With Polyvinylsiloxane Impression Material

material putty consistency (Aquasil soft Putty, Dentsply DeTrey, GmbH) (Fig. 2). The child's face was kept towards the ground during the impression procedure so as to prevent any aspiration of the impression material. The child was continuously crying during the procedure



Fig. 3 - Cast Poured With Dental Stone

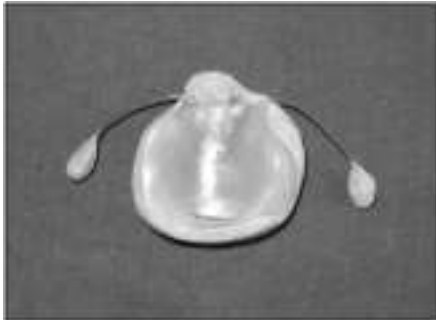


Fig. 4 - Obturator Appliance With Wire Extensions



Fig. 5 - Obturator Fitting Well In The Infants Mouth.

which has an added advantage of ensuring a patent airway during the procedure.

The impression was poured with Dental Stone (type III) to obtain a cast of the oral cavity. The feeding Obturator was fabricated using autopolymerising acrylic resin. Two 18G Orthodontic wires were attached to the plate which extended out of the mouth. At the ends of the orthodontic wires, some acrylic resin was applied to prevent any injury to the child or parents due to the sharp ends of the wires. These wires are attached to prevent accidental ingestion or aspiration of the appliance.

The appliance was finished and polished and tried in the child's mouth. The appliance was delivered and the parents were explained about the use and the care of the appliance. The parents were advised to follow regular check-up visits every three months so that the growth can be monitored. The parents were very happy with the appliance and the child was able to feed well with the obturator in place.

As the child grows, the appliance no longer fits properly, so at that time it may need to be remade.

After 9 Months, it was found that the appliance has become ill-fitting due to the growth of the child, thus a new Obturator was fabricated at that time. Similar procedure was followed at this time also, and the appliance delivered with care instructions to the parents.

Discussion

The child born with required special attention. The treatment of Cleft Lip and palate required comprehensive planning by a team of specialists to ensure normal physical, mental and psychological growth and well being of the patient. During the early period of the child's life, the health of the child can be severely affected due to the cleft because of inadequate Nutrition to the child. The child usually takes about one-third to three fourth of the amount required for proper nutrition. This is due to the increased effort needed to suck which causes early fatigue in these infants, and the greatly increased and prolonged muscular action needed to widen the palatal deformity. The fatigue produced by the prolonged feeding and the necessary extra muscular activity, coupled with insufficient caloric intake can lead to severe malnutrition in these infants.[11] The fabrication of a feeding appliance for the new born baby with cleft palate can be highly beneficial in ensuring proper nutrition and prevention of infection.[12],[13],[14]. It helps in creating a rigid platform against which the infant can press the nipple and suck effectively, reduces nasal regurgitation, reduces the time and effort required for feeding, helps to keep the tongue away from the cleft to allow unhindered growth of the palatal shelves and provides much needed reassurance to the parents.

Conclusion

Management of new born babies with cleft lip and palate is usually challenging. A team approach is usually required for correct treatment planning. Until surgical correction of the defect is carried out, an accurately fabricated feeding appliance plays an important role for the child to be fed properly and ensure adequate nutrition and growth of the child.

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