

Management of cleft palate in middle schooler: A case report

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ABSTRACT

A cleft lip and/or palate is a congenitally persistent fissure in the upper lip, alveolus, hard palate, or soft palate that can contribute to hearing loss, speech impediment, feeding issues, dental malocclusion, and nasal deformity. The oronasal communication reduces the capacity to produce the essential negative pressure for sucking and causes nasal regurgitation of food and may even lead to choking. The feeding plate seals the fissure and restores the wall separating the nasal cavity from the oral cavity.

Key words: Cleft Lip, Cleft Palate, Feeding Plate, Malocclusion.

INTRODUCTION

The most prevalent congenital malformations affecting the orofacial region are clefts of the lip and palate (CLP). Globally, incidence ranges from 0.28 to 3.74 per 1,000 live births.¹ A CLP is a congenitally persistent fissure in the upper lip, alveolus, hard palate, or soft palate that can contribute to hearing loss, speech impediment, feeding issues, dental malocclusion, and nasal deformity.² The incidence of orofacial clefts, which ranges from 0.28 to 3.74 per 1,000 live births worldwide, is the most common craniofacial birth abnormality.¹ CLP together accounts for approximately 50% of all cases, whereas isolated CLP each occur in about 25% of cases. A child with CLP is born every 2 minutes, 660 children are diagnosed each day,

and 235 thousand new cases are reported each year. Geographical location, racial makeup, and socioeconomic status all affect the prevalence of CLP.³ A retrospective study in Eastern Nepal found that 1.64/1000 live births per year were affected by cleft lip and/or palate.⁴

The oronasal communication reduces the capacity to produce the essential negative pressure for sucking. Nasal regurgitation of food, excessive air intake that necessitates frequent burping, and choking further complicate the feeding process.⁵

The feeding plate seals the fissure and restores the wall separating the nasal cavity from the oral cavity.¹ The feeding procedure in a child with CLP is typically challenging, the feeding session lasts for a very long period, and both the baby and mother become challenging.⁶ A feeding plate is essential for healthy nutrition and it also aids in craniofacial development, lowers the risk of otitis media, and prevents nasopharyngeal infections.⁷ The case presented here is the middle schooler with cleft palate to whom feeding appliance was fabricated to facilitate feeding.

Conflict of Interest: None

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CLINICAL REPORT

A 11-year middle schooler was referred to the Department of prosthodontics and maxillofacial prosthesis with the chief complaint of difficulty in eating and nasal regurgitation. The medical history of the child showed that she went under cleft lip and palate at 3 months and 12 months respectively and have recurrent ear infection. The family history was non-contributory. On extraoral examination, there were bilateral scarring on either side of the philtrum of the nose crossing the vermilion border extending over the upper lips. Intraoral examination of the child revealed a cleft involving soft and hard palates (Veau classification, Class II)

A putty elastomer was used for preliminary impression of the maxillary arch. Since the arch

was constricted and mouth opening was small a wooded tongue blade was used as an impression tray. Custom tray was then fabricated by using auto polymerizing acrylic resin and secondary impression was made using putting elastomer and light body. Final stone model was produced, and all the undercuts were blocked with modelling wax.

The feeding plate was fabricated on the dental stone model with auto polymerizing acrylic resins. Two 0.81 mm stainless steel wire Adams clasp on the molars were incorporated in the appliance for holding it in position during eating. Finally, the appliance was placed in the oral cavity and the child was asked to drink water. It was ensured that the wire components do not cause interference with mastication.



Figure 1: Preoperative photograph



Figure 2: primary impression made with putty

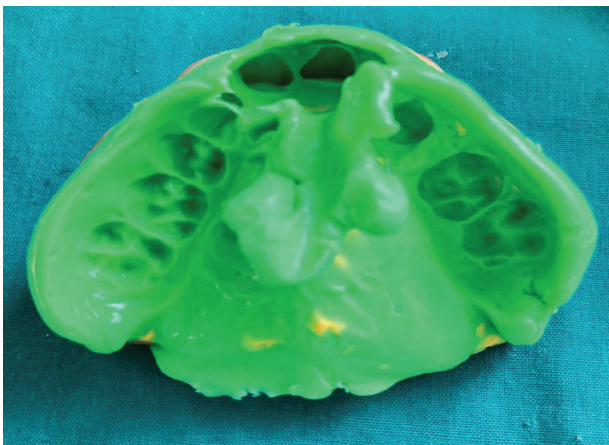


Figure 3: secondary impression made with putty and light body elastomer

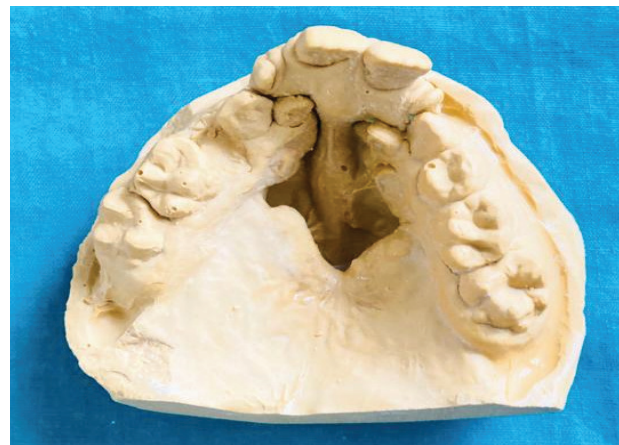


Figure 4: Cast retrieved



Figure 5: *palate with prosthesis*

DISCUSSION

Every developing child has certain nutritional needs that must be satisfied. CLP patient need more attention for the nutrition needs. The treatment of a patient with CLP requires a multidisciplinary approach, and the ideal cleft team would include craniofacial surgeons, otolaryngologists, geneticists, anesthesiologists, speech-language pathologists, nutritionists, orthodontists, prosthodontists, and psychologists, as well as neurosurgeons and ophthalmologists to treat even rare facial clefts expertly.⁸ The fabrication of the feeding plate, however, will solve the current issues with feeding and reoccurring infections. Typically, clinician should keep an eye on these patients throughout the course of a lengthy follow-up. The feeding plate obturator facilitates feeding by increasing the baby's suckling effort, lessens nasal regurgitation and the risk of choking, and prevents the tongue from entering the defect so that the natural growth of palatal shelves towards the midline occurs unhindered.⁹

Numerous feeding techniques have been suggested as a solution to the feeding issue, and some people have argued for the adoption of a particular feeder in some or all cleft scenarios. The study by Goyal et al. revealed that spoon feeding was the most popular form of feeding for infants younger than 6 months, followed by

breast feeding.¹⁰ However, there have been very little to no history of feeding techniques in older children.

Usually the feeding device is meant for the infants. However, CLP can also exist in later stages of life. The main priority in this case was to provide the child with an appliance that will make her eating and drinking process easier without the risk of nasal regurgitation. Since, alveolar bone graft surgery was planned for this child, the feeding plate was fabricated as a provisional prosthesis. The main drawback of these appliances is that they need to be modify repeatedly as they lack strength and durability. Besides, the child is in growing phase, so the prosthesis may require frequent readjustments or a new one needs to be fabricated. This patient should have undergone repair of CLP along with orthodontic treatment. Unfortunately, surgical repair has not yet done in this patient.

CONCLUSION

The feeding plate makes easier. It also reduced chances of regurgitation of food, and choking. Regular follow ups and refitting and remaking of the feeding plate will be required in growing children.

REFERENCES

1. Dean JA, Avery DR, McDonald RE. Dentistry for the Child and Adolescent. Boston: Mosby. 2011;563.
2. Peterson LJ, Ellis E, Hupp JR, Tucker MR. Contemporary Oral and Maxillofacial Surgery. 5th Ed. St. Louis (USA): Mosby 2008: 583-603
3. Kot M, Kruk-Jeromini J. Analysis of family incidence of cleft lip and/or palate. Medical Science Monitor. 2007 May 4;13(5):CR231-4.
4. Singh VP, Sagtani R, Sagtani A. Prevalence of cleft lip and cleft palate in a tertiary hospital in Eastern Nepal. Mymensingh Medical Journal: MMJ. 2012;21(1):151-4.
5. Shprintzen RJ. The implications of the diagnosis of Robin sequence. Cleft palate-craniofacial Journal. 1992 May;29(3):205-9.

6. Moness A, Kamel A. A single-visit feeding plate for a 3-month-old infant with cleft palate: A case report. *JODDD* 2017;11(4):255
7. Ize-Iyamu IN, Saheeb BD. Feeding intervention in cleft lip and palate babies: a practical approach to feeding efficiency and weight gain. *Int J Oral Maxfac Surgery*. 2011 ;40(9):916-9.
8. American Cleft Palate-Craniofacial Association. Parameters for evaluation and treatment of patients with cleft lip/palate or other craniofacial anomalies.2000
9. Pathak B, Joshi KR, Bhattarai S, Joshi H. Knowledge and practice of feeding plate obturators among medical doctors in Kanti children's hospital. *J Nep Prosthodont Soc* 2021;4(1):20-8.
10. Goyal A, Jena AK, Kaur M. Nature of feeding practices among children with cleft lip and palate. *J Ind Soc Pedodont Prevent Dent*. 2012;30(1):47-50.