

Feeding Appliance to Resolve Recurrent Ear Infections in an Infant with Isolated Cleft Palate

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Abstract

Feeding appliance has traditionally been given to facilitate feeding in an infant with cleft lip and palate. Another important indication of this appliance can be in cases where feeding is not much affected but there is recurrent ear infection. The incidence of ear diseases is high in case of cleft palate patients especially in first few years of life. This is because of abnormal attachments of muscles of soft palate as well as eustachian tube dysfunction. Also, the communication between the oral and nasal cavities further increases the chances of middle ear infection due to milk entering the eustachian tube through nasopharynx. The current report discusses the resolution of recurrent ear infection in an infant with cleft of palate with a simple feeding appliance.

Keywords: Cleft palate, Recurrent ear infections, Feeding appliance

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Introduction

In infants with cleft palate there is lack of anchorage of tensor veli palatini muscle and soft palate, which also have abnormal relationship to the eustachian tube^[1]. Thus, the eustachian tube often cannot open completely with every swallow to allow air into the space in back of the eardrum to equalize pressure on both sides of the eardrum and it also fails to drain the mucus produced by the lining of the middle ear^[2,3,4]. Also due to communication with the nasopharynx, the eustachian tubes if patient may get filled with milk or other secretions during swallowing leading to increased incidence of ear infections (figure.1). Owing to the perforation of the tympanic membrane, milk may pass from the nasopharynx to the middle ear and through the perforation, to the external canal^[5].

Most often, the fluid in the middle ear resolves spontaneously following the infection, but in some patients the fluid remains causing hearing loss, and if unaddressed can also cause chronic changes to the eardrum, middle ear hearing bones, and permanent hearing loss^[6]. Because the ear drum's function is to help make sound louder by vibrating the small middle ear bones, a perforated eardrum is often accompanied by decreased hearing. Hence it is very important to keep the ear dry and prevent reflux of fluids from nasopharynx into the ear till palatal repair

is done.

The current report describes the case of a 21/2 month old infant with palatal cleft with repeated ear infection due to milk refluxing into the nasopharynx.

Case report

A 2 months 20 days old patient with cleft was referred to the Department of Orthodontics for management of cleft palate as the patient was repeatedly getting ear infection.

On examination the patient had a palatal cleft with normal lip and nose morphology (figure. 1). The patient's mother complained of milk oozing out of the nose and ear on feeding (figure.2). This lead to repeated ear infection for which patient had undergone various courses of antibiotics. The otoscopic examination revealed presence of exudate in both the external ear cavities and a perforation of tympanic membrane. As the palatal repair is generally done when the infant approaches 1 year of age^[7], it was decided to give an appliance to prevent milk escape from oral cavity to reduce chances of ear infection till the child could be taken up for palatal repair.





Figure-2: Pre treatment photographs showing milk exuding from ear and nasal cavities.



Figure-1: Pre treatment extra oral and intra oral photographs showing cleft palate only.

An impression was made with putty in the paediatric ICU ward as a precaution to manage any airway emergency (figure. 3). The patient was held in the mother’s lap with face at a lower level. The model was poured and the defect was blocked out with modeling wax. An acrylic appliance was prepared with two retention hooks for attachment of elastics which were secured on the cheeks bilaterally with help of surgical tapes for retaining the appliance (figure. 4). The patient’s mother was instructed to use the appliance initially, 1 hour after feeding to make the infant familiar to the new device for 2 - 3 days after which it was advised to be used for feeding. It was important to keep the ear canal dry so a big cotton plug was to be used while bathing the infant. Mother was also advised to feed the infant in an upright posture to prevent milk from going into nasal or ear cavities. The patient was recalled after 1 week and then after 1 month for review. The infant could successfully use the appliance and there was no complaint of milk leaking into any of the ear or nasal cavities. Also the appliance was prefabricated after every 2 months to match the growing palate. The surgical repair of cleft palate was done at the age of 1 year after which there was no further requirement of the appliance and no complaint of ear infection (figure. 5)^[8].





Figure-3: Impression making for fabrication of feeding plate.



Figure-4: The feeding appliance.



Figure-5: Post surgical photographs.

Discussion

Feeding appliance has been popular because of its advantages of sealing palatal cleft and helping in creating sufficient negative pressure for adequate sucking of milk. Another important aspect of using feeding appliance is to prevent milk from entering the nasopharynx from where it can negatively affect the middle ear functioning. In the current case, the recurrent ear infection in an infant with cleft palate was resolved by giving a simple feeding appliance, saving the infant from repeated courses of antibiotics which can be harmful for him. The literature till now has not emphasized such important use of the feeding appliance.

Conclusion

The current case reports asserts the use of feeding appliance not only to facilitate feeding in an infant with cleft palate but also for preventing repeated ear infections by preventing leakage of milk into the nasopharynx.

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