

RESEARCH ARTICLE

LABIO-ALVEOLAR MOULDING FOR ESTHETIC AND FUNCTIONAL REHABILITATION OF OROPHARYNGEAL TERATOMA INDUCED SKELTAL AND SOFT TISSUE DEFORMITY IN NEWBORN - A CASE REPORT

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Manuscript Info	Abstract
<i>Manuscript History</i> Received: 05 July 2023 Final Accepted: 09 August 2023 Published: September 2023	Teratomaare true neoplasms composed of tissue derived from all the three germinal layers. Teratomas arising in the palate pharynx or tongue and protrude from the mouth can result in life-threatening airway obstruction and feeding difficulties. Surgical excision improves the chance of survival of the newborn but it results in deformation of oral and masticatory apparatus. This article discusses about the role of pediatric dentist in reestablishing the form and function of the facial apparatus following surgical excision of intraoral teratoma.

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Introduction:-

Teratoma also called as epignathus are true neoplasms composed of tissue derived from all the three germinal layers. They may be seen in midline or para-axial location, from the brain to the sacral area, with a particular tendency to locate in the sacrococcygeal and pre-sacral regions.¹Teratomas can affect the face, pharynx, nose, eye socket, hard palate and neck.²

Epignathi that arise from the palate pharynx or tongue and protrude from the mouth can result in life-threatening airway obstruction and feeding difficulties, may also cause pressure over the pharynx and esophagus, which prevented intrauterine swallowing.^{2,5}

Surgical excision improves the chance of survival of the newborn but it causes deformation of alveolar bones, mandible, maxilla, palate and even TMJ may result in functional and esthetic challenges for the child. A Pediatric Dentist has significant roles to play in reestablishing the form and function of the facial apparatus.

Case Report

A 2-week-old female child was referred to Department of Pediatric and Preventive Dentistry, Government Dental College, Thiruvananthapuram with complaints of difficulties in closing mouth and feeding. The child was admitted in Neonatal ICU, SAT Hospital, Government Medical College, Thiruvananthapuram.

Surgical resection for the teratoma in the left palatal region was done on the 3rd day after birth. The child was unable to bring her lips to approximation due to obligatory deformation of alveolus, palate, maxilla and mandible. The child had her mouth in a wide opened position which made feeding impossible. Feeding was achieved through orogastric feeding tube. Mouth was stretched wide open with inability to close mouth to obtain oral seal.

Intraoral examination revealed healing post-surgical wound and associated skeletal defect which produced an anterior open bite with inability to approximate the lip. gumpads on left maxillary and mandibular anterior and posterior region were deformed.

Management

After obtaining consent from Pediatric Surgeon and Neonatologist, naso-labio-alveolar moulding by forced approximation of mandible to maxilla and stabilization with topoplast as adhesive tape and NICU cap that the child was using as anchor unit. NICU caps were stretchable and had attached straps on either side which was brought to approximation through the inferior aspect of mandible with gauze padding for comfort and to reduce irritation to skin.

Bilabial approximation was also brought about by cautious use of Topoplast relieving lips and nose and adequate space for feeding. Topoplast is a medical grade stretchable and elastic adhesive tape which has pores that allow adequate air circulation.

Taping was repeated every 2nd day for 2 weeks with incremental reduction in gap between the maxilla and mandible.

Parents and staff nurses were instructed regarding naso-labio-alveolar molding exercises.

Bilabial approximation was achieved on the 4th week.

Discussion:-

Teratoma of the oropharyngeal region synonymously called as epignathus, is composed of cells from the ectodermal, mesodermal and endodermal layers, is found in approximately 1:35 000–1:200 000 live births² with an incidence of approximately 2% of the total number of teratomas; and 2.4% of all childhood oral jaw facial tumours.5

The tumor has the histological features of a mature, benign teratoma, and is attached to an intraoral surface, most often palatal or pharyngeal. Occasional cases have been described with associated intracerebral teratoma, but this association is exceptional³

Epignathi in the pediatric age group are mostly benign with extremely rare chances of being malignant. Despite being benign in histopathology, they are potentially lethal as they may cause airway obstruction and respiratory compromise.⁴

So, the principles of management in such patients comprise of the immediate establishment of a secure airway, by the oral or nasalintubation before the termination of fetomaternal circulation complete surgical resection of the mass. Because airway obstruction can cause severe complications, cesarean section is the preferred method of delivery for infants with an obstructing mass of the head or neck^{4,5}

The purpose of surgical resection is to completely remove the tumour tissue and to correct any feeding difficulties and airway obstruction.²

Surgical excision improves the chance of survival of the newborn but may still have to deal with difficulty of mouth closure and swallowing due to the obligatory facio-alveolar changes that has occurred due to the compliance of facioalveolar skeletal structures to accommodate the large mass in oral cavity. Deformation of alveolar bones, mandible, maxilla, palate and even TMJ may result in functional and esthetic challenges for the child. A through diagnosis and treatment protocol for involving non-invasive techniques like labioalveolarmoulding has proven to be effective in management of functional and esthetic co-morbidities resulting from surgical management of intraoral teratoma.

Conclusion:-

The cellular regeneration potential in neonates has proven to be a boon in bringing out structural changes in the tissues. Labioalveolarmoulding in infants has proven to be non-invasive, convenient and predictable treatment modality in restoring functional and esthetic correction.



Figure 1:- Pre-surgical extraoral view.



Figure 2:- Immediate post-surgical intraoral view.



Figure 3- 1:- Weekpost-surgical extraoral view.



Figure 4:- Maxillo-mandibular approximation using NICU Cap and Topoplast.



Figure 5:- Incremental reduction in gap between the maxilla and mandible (5th day).



Figure 6:- Discontinued use of NICU cap and Topoplast, Bilabial approximation achieved using Micropore. (3rd week).

MRI Scan



Figure 7:- 4th week post-op.

References:-

1. Peter Altman R, Randolph JG, Lilly JR. Sacrococcygeal teratoma: American Academy of Pediatrics Surgical Section survey—1973. Journal of Pediatric Surgery. 1974 Jun 1;9(3):389–98.

2. Zhu P, Li XY. Management of oropharyngeal teratoma: Two case reports and a literature review. J Int Med Res. 2021 Feb 1;49(2):0300060521996873.

3. Oral teratoma (epignathus) with intracranial extension: A report of two cases - Smith - 1993 - Prenatal Diagnosis - Wiley Online Library [Internet]. [cited 2023 Sep 15]. Available from: https://obgyn.onlinelibrary.wiley.com/doi/abs/10.1002/pd.1970131008

4. Kolekar SS, Chincholi T, Nangare N, Patankar R. Oral teratoma. Int J Appl Basic Med Res. 2016;6(1):54–
6.

5. Çelik M, Akkaya H, Arda İS, Hiçsönmez A. Congenital teratoma of the tongue: a case report and review of the literature. Journal of Pediatric Surgery. 2006 Nov 1;41(11):e25–8.