Natal Tooth In A 31 Weeks Premature Infant- A Rare Case Report

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Abstract
The term natal tooth describes the tooth present at the time of birth. This is a rare case report of 31 weeks old premature infant with natal tooth. There is very little literature reporting about the natal or neonatal teeth in premature infants and its management. Through this article we wish to bring awareness about the presence of natal tooth and its complications in premature infants and why it needs immediate attention and prompt treatment.

Keywords: Natal Teeth; Premature Infant; Low Birth Weight

Introduction
World Health Organization (WHO) defines preterm birth as birth occurring before 37 weeks of gestation or if the birth weight is below 2500g [1]. Preterm births which occur prior to 37 weeks gestation constitute to approximately 6 per cent of all live births in developed Western nations [2,3]. The survival rates of these preterm children vary from >95 per cent for those with birth weight of 2000-2500 g to around 50 per cent for those with birth weights of 700-800 g [2]. Several cross-sectional studies [4,5] and prospective, longitudinal studies [6,7] have repeatedly reiterated the fact of delayed eruption associated with premature infants. The cause for delayed eruption was often co-related to gestational age, [4,5,7] and or low birth weight [6]. Delayed eruption of primary and permanent teeth have been justifiied with preterm babies children in almost all the studies [8,9].

The presence of natal and neonatal teeth is an anomaly of biological chronology whose etiology is still not clearly established [10]. This condition has often been linked with several factors, such as superficial position of the tooth germ, [11,12] infection or malnutrition[2], febrile state,[13] eruption accelerated by febrile incidents or hormonal stimulation,8 hereditary transmission of a dominant autosomal gene, [12,14,15] osteoblastic activity inside the germ area related to the remodeling phenomenon,[16] and hypo vitamin sis [17]. However there is still no concrete evidence to correlate early tooth eruption with systemic condition or syndrome. It has been suggested by a few investigators that natal teeth could be connected with some syndromes such as Hallerman-Streiff, [18,19] Ellis-Van Creveld,18 craniofacial dysostosis, multiple steacystoma, [20] congenital pachyonychia, [12] and Sotos Syndrome [10]. Conversely none of the case reports have described a natal or neonatal tooth as early as 31 weeks of gestation as in our case report and hence it is of great interest to the field of Pediatric Dentistry.

Case Report
A male neonate born by emergency caesarean section at 31 weeks of gestation, the Appar scores were 7 and 8 at 1 and 5 minutes respectively. The baby was shifted to the NICU for further management after initial steps of resuscitation. On admission in NICU the baby was pink, euthermic, HR-140/min, RR-70/min, RS-clear breath sounds, CVS- Normal heart sounds, PA- soft, no organomegaly, CNS-Cry, tone fair for gestation. No external malformations were noted.

a. Weight: 1.15kg 10th percentile
b. Length: 37cm< 3rd percentile
c. Head circumference: 10th percentile.
d. Presence of doubtful natal tooth and was referred for pediatric dentist consultation.
e. Antenatal history: Primi, risk factors included IUGR with Ologohydramnios.
f. Post natal
g. Parenteral history: Mother was Gestational diabetic mellitus and was on insulin. No familial history of natal or neonatal teeth.

**Oral Examination**

The intraoral examination revealed, edema of gingival tissue with an unerupted but palpable tooth, Type 4 of Hebling classification [21] was noticed in the mandibular anterior region. Dental radiograph could not be obtained to confirm the presence of the tooth, as the baby was in the NICU. We decided to wait and allow the tooth to erupt through the tissue. Within a week’s time the oral examination revealed the natal tooth, barely attached to the gingival tissue and exhibited grade III mobility according to Millers classification of mobility. No ulceration was noted on the ventral surface of the tongue (Figure 1). There was a discomfort to the baby while oral feeds and also the nurses reported bleeding during feeding. Keeping all these factors in mind we decided to extract the tooth under local anesthesia.

Since the neonate had already taken his vitamin K shot at birth, no vitamin K was administered on the day of extraction. Approximately 0.3ml of 2% lidocaine Hcl with 1:100,000epinephrine was infiltrated labially around the tooth. The gingival is retracted by pushing Moon’s probe into the gingival crevice on the buccal and lingual surface and eventually extracted using lower deciduous anterior extraction forceps. Gentle curettage was performed to the extraction socket using a soft tissue curette to prevent the development of dental papilla cells that may lead to the odontogenic remnants. The neonate tolerated the procedure well and homeostasis was achieved shortly The patient was reevaluated after 2 days, and the recovery was found to be uneventful. Infant was closely monitored for any symptoms or discomfort. The clinical examination of extracted tooth revealed a shell like crown with few pitted hypoplastic areas, without any dentin deposition and was devoid of root.

Upon histological evaluation, the ground section of the tooth revealed enamel rods, dead tracts and pulp canal (Figure 2). The clinical and histological features was representative of tooth.

**Discussion**

There has been significant progress in the survival rate of low birth weight infants (< 2500 g) over the last decades, much focus is diverted towards the prognosis of morbidity in survivors [22-24]. In a series of studies conducted by Seow et al. [4] to compare the dental eruption status of very low birth-weight (VLBW, < 1500 g) children they have found that significant retardation of dental eruption compared with low birth-weight (LBW, 1500- 2500g) and NBW normal birth-weight (NBW, 2500g) children, mainly before 24 months of age. The findings of his study also similar with that of previous investigators which found that the eruption of the first tooth was delayed in prematurely born children [6,7].

Several complications are associated with the eruption of the natal and neonatal teeth, which includes pain especially when pressure is applied during suckling, which in turn could lead to the infant refusing the nipple. In addition to this the natal teeth may lacerate the breasts during feeding which leads to mastitis and abscess. There is also constant risk of the teeth becoming detached and either swallowed or aspirated if the teeth are mobile, especially during nursing. Natal teeth may also cause sublingual ulcerations [25-28] or the loss of attachment with subsequent development of dent alveolar abscess [29].

Some investigators advocate that the detection of Riga-Fede disease is a sign for natal/neonatal tooth removal; however, others do not recommend removal but instead relieve the acute incisal margin by smoothing [30]. Tomizawa et al. [31]. suggested that layering the incisal edge with photo polymerizable would help heal the ulcers in Riga Fede disease. Since most of these teeth are hypomineralyzed there is limited surface area of enamel present for resin bonding. To add to these factors moisture control poses as significant deterrent to resin retention. And the dislodged composite resin will be ingested by the infant [30]. If these teeth are maintained, it is advised to periodically apply topical fluoride on them as they are at greater risk for caries development as is the case with any hypoplastic tooth.

If the conservative treatment fails to treat the condition, or if the tooth is excessively mobile (2 mm or more), the tooth should...
be extracted [30,32]. If extraction is to be carried out, gentle curettage of the extraction site as performed in the present case is recommended to prevent root development, which can occur if the underlying dental papilla and Hertwig’s sheath are left behind [30]. Remnants of the sheath may become infected, give rise to cysts and future root-like developments. Berendsen & Waldkerman [33] reported a case of tooth-like structures erupting after the extraction of 2 neonatal teeth, which lasted until the age of 5 years then naturally exfoliated.

According to Rushman [34], teeth should not be extracted in infants less than 10 days because of increased risk of bleeding from extracted socket as vitamin K is synthesized by the gut bacteria nearly 10 days after the birth that is essential for the production of prothrombin from the liver. If the natal teeth are symptomatic and are definite indicators for extraction before 10 days of age, as the one presented in this case report, then vitamin K supplements are given and under careful monitoring of vitamin K levels the teeth are extracted. Since parenteral vitamin K prevents a life threatening hemorrhagic disease of the newborn, the American Academy of Pediatrics recommends that all newborns be given a single intramuscular dose of 0.5 to 1mg of vitamin K [35]. Hence to avoid any complication, early diagnosis and adequate treatment should be of prime concern in the management of natal teeth [36]. When extraction of a natal tooth is indicated, it should be performed by a Pediatric dentist to avoid unnecessary trauma to the area [37].

The American Academy of Pediatrics (AAP) policy statement on dental care recommends that all infants should receive an oral health assessment from the primary care provider by the time they are 6 months of age. The AAP and American Academy of Pediatric Dentistry (supported by the American Dental Association and the Academy of General Dentistry) recommend that infant born premature should be referred to a dental provider on the basis of risk assessment as early as 6months of age, 6months after the first tooth erupts and no later than 12 months of age [38].

On the contrary to all the studies relating to premature birth, very low birth weight and delayed tooth eruption. We report a case on natal teeth in a 31 week premature infant. We successfully managed natal tooth by extracting the tooth taking extreme precautions and considering various risk factors. To the best of our knowledge no other such cases have ever been discussed in the literature.

In the present case, no underlying cause for the natal tooth was evident; but it could be because of the superior placement of the tooth germ. There was no hereditary influence, and the patient is under periodic follow-up. As Pediatric dentists we should make every effort to educate parents and the medical community on the preferred treatment for natal teeth and the need for continued periodic follow for adequate preventive oral health care measures. Extraction of the natal tooth should be followed by the curettage of the socket to prevent continued development of the cells of the dental papilla.

Conclusion

We conclude that infants with prematurely erupted teeth must be immediately referred to the Pediatric Dentist for detailed examination in order to establish the appropriate diagnosis and for further treatment planning and management of the case. Parent counseling to bring about awareness about the sequel of events following preterm infants and oral health is very essential. Longitudinal and more varied studies are also necessary to confirm the etiology and nature of natal and neonatal teeth and to determine their due course in the infant’s oral health.

References


