

Natal tooth : a case report

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Abstract

The presence of tooth at birth or within a month post-delivery is a rare condition. A newborn, a 16 days old female, with two mandibular incisor natal tooth was examined. The tooth was mobile and was extracted because of the fear of aspiration and refusal to feed. This article is a case report on natal tooth epidemiology and discuss their possible etiology and treatment.

INTRODUCTION

The presence of tooth in newborn baby is not common. It varies from 1:6000 to 1:800 cases.¹ One of the important events in a baby's first year of life is the eruption of the primary tooth. The eruption of the baby's first tooth is associated with lots of emotions for parents. If a tooth is found at the time of birth or too early, it leads to surplus reactions, which are clubbed with a lot of misinterpretations.

CASE REPORT

A 2-day old female infant was referred to Dhanya Mission Hospital, Chalakudy with complains of one tooth in the lower jaw since birth, continuous crying, and refusal to suck milk. The infant was underweight (1.8 kg). The body weight of the infant was seen to be deteriorating owing to an inability to suckle. The perinatal history was normal and the delivery was vaginal delivery.

Intraoral examination revealed one crown of the tooth in the mandibular anterior region (Figure 1), whitish opaque in color and exhibiting grade III mobility. Apparently crown size was normal. A diagnosis of natal tooth was made.

Since immediate extraction was the treatment of choice, a pediatrician was consulted. The tooth was extracted (Figure 2) under topical local anesthesia, which the patient tolerated well. Postextraction haemostasis was achieved. Recall was scheduled after 2 days, and the recovery was found to be uneventful. The extracted tooth had a crown & root.

REVIEW OF LITERATURE

Based on the time of eruption, Massler and Savara have divided these tooth into two groups. They termed all teeth that are present at birth as natal teeth and those that erupt during the neonatal period (first 30 days of life) as neonatal teeth.^{2,3}

The presence of natal and neonatal teeth may cause a confusion of the plan of treat-

ment. Some of the factors that should be considered for maintaining those natal teeth in the oral cavity are implantation and degree of mobility, inconveniences during suckling, interference with breast feeding, possibility of traumatic injury and whether the tooth is part of the normal dentition or is supernumerary.⁴

Presence of natal tooth is one of the variations observed in the newborn's oral cavity.⁵ The folklore and misconceptions surrounding natal and neonatal tooth vary; in some cultures like Malaysian communities, a natal tooth is believed to herald good fortune; in others, its occurrence is considered bad omen. In China, Poland, India, and Africa, the affected children are considered to be monsters and bearers of misfortune.

Zhu and King⁶ reported that there was no relationship between the presence of natal teeth and wounding of the mother's nipple since the tongue is interposed between these teeth and the nipple during breastfeeding. Thus, traumatic injury occurs only to the baby's tongue. Riga and Fede histologically described the lesion, and henceforth called Riga-Fede disease.⁷

Allwright⁸ reported the extraction of 25 natal teeth with no episode of haemorrhage even though no therapeutic precaution had been taken.

Thus, it is safer to await until a child is 10 days old before extracting the tooth. This waiting period before performing tooth extraction is due to the need to wait for the commensal flora of the intestine to become established and to produce vitamin K, which is essential for the production of prothrombin in the liver.^{9,10}

If it is not possible to wait, then it is advisable to evaluate the need for administration of vitamin K by a paediatrician, if the newborn was not medicated with vitamin K immediately after birth. Vitamin K (0.5-1.0 mg) is administered intramuscularly to the baby as part of immediate medical care to prevent haemorrhagic disease of the newborn.¹¹

SYNONYMS

Terms such as congenital tooth, fetal tooth, predeciduous tooth, and precocious dentition (Mayhall and Bodenhoff), as well as dentitia praecox and dens connatalis, have been used to describe these teeth. Recently, it has been found that these terms are too broad to accurately describe tooth that erupted at birth or shortly thereafter. At present the terminologies 'natal' and 'neonatal,' used by Massler and Savara, have been adopted.

CLASSIFICATION

Spoug and Feasby (1966) have suggested that clinically, natal and neonatal tooth be further classified according to their degree of maturity⁶.

A mature natal or neonatal tooth is one which is nearly or fully developed and has relatively good prognosis for maintenance.

The term immature natal or neonatal tooth implies a tooth with incomplete or imperfect structure; it also implies a poor prognosis.

The appearance of each natal tooth into the oral cavity can be classified into four categories as the tooth emerge into the oral cavity.^{6,12}

1. Shell-shaped crown poorly fixed to alveolus by gingival tissue and absence of a root.
2. Solid crown poorly fixed to the alveolus by gingival tissue and little or no root at all.
3. Eruption of the incisal margin of the crown through the gingival tissues.
4. Edema of gingival tissue with a palpable tooth but unerupted.

If the degree of mobility is more than 2 mm, the natal tooth of category (1) or (2) usually need extraction.¹²

PREVALENCE

The prevalence is 1:700 to 1:30,000 depending on the type of the study; the highest prevalence is found in the only study that relies on personal examination of patients.¹² Other reports reveal it to be around 1 in 2000-3500 live births (Massler and Savara, 1950; Bodenhoff and Gorlin, 1963; Spouge and Feasby, 1966).

INCIDENCE

The reported incidences vary greatly, from those of Mayhall at 1:11 and Gordon at 1:100 through those of Massler and Savara, Gardiner, Spouge, all at 1:2000; down to those of Ballantyne at 1 in 6000 births, and Howkins at 1:10,000.^{13,14,15}

CLINICAL FEATURES

Reports about significant differences between males and females are conflicting, with females, in general, being more affected; and also Muslim children exhibited more natal/neonatal tooth as compared to Hindu children. Natal tooth are more frequent, approximately three times more common than neonatal tooth,¹⁶ with the most common localization being the mandibular region of central incisors (85%), followed by maxillary incisors (11%), mandibular cuspids or molars (3%), and then maxillary cuspids or molars (1%).¹⁷ Natal or neonatal cuspids are extremely rare.¹

As has been noted, the natal and neonatal teeth are more frequently seen in the mandibular incisor regions and are more frequently bilateral.

Most commonly, these teeth are precociously erupted from the normal complement of primary tooth (90%-99%). Only 1% to 10% of natal and neonatal teeth are supernumerary.^{18,19}

ETIOLOGY

Etiology of natal and neonatal tooth is debatable. The various hypothetical factors reported by investigators include the following:

1. The rate at which baby's tooth come through will depend on his 'genetic blueprint',²⁰ i.e., hereditary transmission of a dominant autosomal gene appears to be an important factor.^{8,17} In other words, if one or both of his parents were very late or very early to others, there is a strong chance that he too will be a very late or very early to other respectively. Unlike his body growth, the appearance of baby's first tooth is not

influenced by how well he eats or how healthy he is. Tooth appear when they are ready! Bodenhoff and Gorlin have proved that 15% of children with natal and neonatal tooth had parents, siblings, or close relatives with a similar history of the same condition.²¹ Tlingit Indians in Alaska showed a prevalence of 9% of their newborns having natal or neonatal tooth; 62% of them had affected relatives.¹⁸ A hereditary factor has been traced in 10 out of 24 cases of natal tooth studied by Massler and Savara (1950), and in 7 out of 19 cases reported by Gardiner (1961). Halls (1957) reports a family of three brothers, one of whom had 2 incisors present at birth; and in another, a tooth had erupted 9 days after birth. Allwright (1958) describes a series of 26 cases of natal or neonatal tooth in Chinese babies in Hongkong, in only one of which was he able to trace any hereditary influence. In this series, 20 of the 26 cases were of female infants.⁸

2. Endocrine disturbances: It is thought to be because of excessive secretion of the pituitary, thyroid or gonads.
3. Jasmin and Clergeau-Guerithault reported that the eruption of natal and neonatal tooth could be based on osteoblastic activity within the area of the tooth germ.^{8,22}
4. Infection: For example, congenital syphilis appears to have varying effect; in some cases, it has erupted early, while in others it has been retarded.⁸
5. Nutritional deficiency, e.g., Hypo vitaminosis (which in turn is caused by poor maternal health, endocrine disturbances, febrile episodes, pyelitis during pregnancy, and congenital syphilis).^{8,17}
6. Febrile status: Fever, exanthemata during pregnancy tend to accelerate eruption as they do in various other processes.
7. Superficial position of the tooth germ.
8. Environmental factors: Polychlorinated biphenyls (PCB) and dibenzofurans¹⁷ seem to increase the incidence of natal tooth. These children usually show other associ-

ated symptoms, such as dystrophic finger nails, hyperpigmentation, etc.²³

The most acceptable theory is based upon the result of a superficial localization of the dental follicles, probably related to a hereditary factor.^{1,23,18}

Natal tooth and neonatal tooth are frequently found associated with developmental abnormalities and recognized syndromes. These syndromes comprises Ellis-van Creveld (chondroectodermal dysplasia), pachyonychia congenita (Jadassohn-Lewandowsky), Hallerman-Streiff (oculo-mandibulodyscephaly with hypotrichosis), Rubinstein-Taybi, steatocystoma multiplex, Pierre-Robin, cyclopia, cleft lip and palate, Pfeiffer, ectodermal dysplasia, craniofacial dysostosis, multiple steacystoma, Sotos, adrenogenital, epidermolysis bullosa simplex including van der Woude and Walker-Warburg Syndromes.^{16,23,24,25,19}

Infants are generally brought to the dental clinic due to one of the following reasons:

- a. Greater risk of the infant aspirating the tooth into the airway and lungs if the tooth becomes dislodged during nursing, due to its great mobility.
- b. Ulceration to ventral surface of tongue. Coldarllin first described this condition in 1857. Riga and Fede histologically described the lesion, known as Riga-Fede disease.^{6,26}
- c. Difficulty in feeding or refusal to feed due to pain.
- d. Ulceration to the nipple of the mother and interference with breast feeding. Hals, Zhu, and King; and Walter et al. reported that there is no relationship between injury to mother's nipple and the presence of the natal tooth since the tongue is interposed between these tooth and the nipple during breastfeeding.⁶
- e. Myth of bad omen or devil's incarnation.
- f. To know whether the tooth is part of the normal dentition or is supernumerary.⁶

CLINICAL ASPECTS

Clinically, the natal tooth; may be small, or of normally sized, shaped conical/or normal. They usually present with enamel hypoplasia and small roots. Natal tooth are brown-yellowish/whitish opaque in color. They usually present with exaggerated mobility due to attachment to a pad of soft tissue above the alveolar ridge, occasionally covered by mucosa which results in risk of tooth being swallowed or aspirated, in most of the cases.^{1,25} Bigeard et al. revealed that under normal conditions, the dimensions of the crown of these natal tooth are comparatively smaller than those of the primary tooth.

According to literature, natal tooth is associated with reactive fibrous hyperplasia,¹⁷ congenital hydrocephalus associated with congenital glaucoma Walker Warburg syndrome²⁶ bilateral mandibular hamartomas²⁶, pyogenic granuloma,²⁷ peripheral ossifying fibroma, eruption cyst,¹² gingival fibrous hamartoma.²⁸

The need for removal of natal tooth is risk of dislocation and consequent aspiration, in addition to traumatic injury to the baby's tongue and/or to the maternal breast.^{25, 19} the treatment option of Smoothing the incisal margin was reported by Martins.²⁹

RADIOGRAPHIC FEATURES

Generally the radiograph of tooth depicts of a hollow calcified cap of enamel and dentin without pulp tissue, rather like a celluloid crown in shape.

HISTOLOGIC FEATURES

Natal teeth studies by Hals³⁰ revealed the presence of normal pulp tissue, along with the presence of inflammatory areas in some regions. In addition, Weil's basal layer and the cell-rich zone were absent³¹. Histologically, the thin layer of enamel may be present or in extremely rare conditions the enamel layer might be absent³². The enamel hypoplasia could be ascribed due to the disturbance/variation in amelogenesis process which was due to premature exposure of the tooth to the oral cavity. This may cause metaplastic alteration of the epithelium of the

normally columnar enamel to a stratified squamous³⁰.

Dentino-enamel junction is not scalloped which similar to that found in deciduous teeth. Cervically dentin becomes atubular with spaces and enclosed cells³². Irregular dentinal tubules through the dentin along with calcospherites and predentin of various thicknesses could be present³³. Atypical dentin was also seen in the natal/neonatal teeth which can be due to the response to irritant stimulus from oral cavity.

Developing teeth often had no cementum, and in those cases where acellular cementum could be observed it was thinner than normal.

Pulp canal becomes larger in most of the cases. Vascularised pulps along with few inflammatory cells were also noted.

DIAGNOSIS

A detailed clinical, radiographic & histologic examination can reveal a relationship between a natal/neonatal tooth and adjacent structures. The presence or absence of a tooth germ in the primary dentition would determine whether or not latter belongs to normal dentition. According to the citations most of these tooth are primary tooth of normal dentition and not supernumerary tooth.

TREATMENT AND MANAGEMENT

If extraction is performed, it is important to ensure that the underlying dental papilla and Hertwigs epithelial root sheath are removed by gentle curettage as root development can continue if these structures are left in situ.

Removal of natal tooth is indicated when they are poorly developed, interfere with feeding, highly mobile, and associated with soft tissue growth. Prophylactic administration of vitamin K (0.5-1.0 mg, i.m.) is advocated because of the risk of hemorrhage as the commensal flora of the intestine might not have been established until the child is 10 days old, and since vitamin K is essential for the production of prothrombin in the liver.

The ulcerations caused by the natal tooth could be managed by smoothing of the

incisal.¹⁸ However, early treatment protocol consisted of excision of the lesion.

DISCUSSION

A few babies are born with one or two teeth (known as natal teeth) already visible in the gum. Tooth which have good bone support need not to be removed, since studies have shown that these factors will compound the deciduous dentition.

The lower central incisors, normally the first tooth to erupt shows a strong predilection for presenting as natal tooth. The degree of maturity of the tooth is of prime importance when timing of eruption is considered. An immature natal tooth has poor prognosis than a mature natal tooth.²

In most cases, specific pathogenetic factors for natal teeth cannot be identified though the reason usually given is superior placement of the tooth germ;³⁴ In the present case, no underlying cause for the natal tooth was apparent; hence it could be due to the superior placement of the tooth germ. There was no hereditary influence, and periodic follow-up

for one year disclosed no other defects.

The possibility of aspirating or ingesting mobile natal tooth is reported to be a reason for extraction and preferably done while the newborn infant is still at the hospital.

Natal tooth that are stable beyond four months have a good prognosis. Esthetically, they are not pleasing due to discoloration.²⁰ If extraction of a natal tooth is indicated, then it should be performed by a dentist to avoid unnecessary trauma to the area.³⁵ Periodic follow-up by a pediatric dentist is very essential. Hence, early diagnosis and adequate treatment should be of prime concern in the management of natal tooth as a concern to avoid any complication.¹²

The curettage of the socket is advised following extraction of the natal tooth to prevent continued development of the cells of the dental papilla as it might continue to grow resulting in eruption of tooth-like structures which can occur several months later, as reported by Ooshima et al.³⁶ and Tsubone et al.³³ Tsubone et al. termed it as 'Residual Natal Tooth'. However, in this case we did not observe any such alterations after a follow-up for one year.

The reports by Massler, Savara, and Spouge



Fig. 1



Fig. 2

about toething symptoms as those that are seen with the eruption of other primary tooth (infantile diarrhea, drooling of saliva, malaise, etc.), were not present in the current case report.²²

Infants with prematurely erupted tooth must be carefully examined for accurate diagnosis and proper treatment planning. Counselling of parents by the concerned dentist to bring about awareness in this regard is equally important. Further longitudinal and other divergent studies are necessary to confirm the etiology & nature of natal tooth and to determine whether they are deciduous or supernumerary tooth.

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