



## Natal & Neonatal teeth - Treatment a dilemma?

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### ABSTRACT

The presence of teeth in newborn is uncommon. Sometimes it occurs, appearing in about one in every 2,000 to 3,000 live births. Natal teeth are teeth already present at time of birth, neonatal teeth erupt during the first 30 days after birth. The normal eruption of the first teeth is quite exciting but their occurrence at birth or few days after birth is quite disturbing because of societal unpleasant reaction towards it in some communities and calls for concern. The majority of natal and neonatal teeth represent the early eruption of normal primary teeth. Although the majority of natal teeth are isolated incidents, their presence may be associated with some syndromes. Complications include discomfort during suckling causing irritation and trauma to infants tongue, sublingual ulceration, laceration of the mother's breasts and aspiration of the teeth. The objective of the present review is on the current information on this topic and give treatment options if necessary.

### INTRODUCTION

Dental professionals have always provided direction to parents about infant care during the first year of life, as a way of maintaining oral health. For this it is necessary to know the needs of child at particular stage of life. Because of its rare occurrence, in the past this anomaly of eruption was associated with superstition and folklore, being related to good or bad omens. This explains the many reports about this topic since 59 B.C., as observed in cuneiform inscriptions detected in the 19th century [1]. Today, these teeth also simulate the interest of both parents and health professionals because of their clinical characteristics, among them their great mobility, which raises concern about the possibility of their being swallowed or aspirated by the infant during nursing. In view of the considerations, the objective of the present study was to present a review of the literature and clinical management techniques for natal and neonatal teeth.

Tooth eruption at about six months of age is a milestone both in terms of functional and psychological change in the Child's life and in emotional term for parents. When teeth are observed at birth or during the first thirty days of life being denoted Natal and Neonatal respectively [2]. Spouge and Feasby [3] believe that the term Natal teeth and Neonatal teeth constitute a relatively artificial distinction and should be classified according to their degree of maturity. Term Mature and Immature was suggested by him. Several other terms were also used, namely Congenital

teeth, Fetal teeth, Predeciduous teeth, Premature teeth, Precociously erupted teeth and Dentitia praecox [4]

### HISTORY

Tooth eruption follows a chronology corresponding to the date when the tooth erupts into the oral cavity. This date has been established in the literature and is subject to small variations depending on hereditary, Endocrine and Environmental features. At times, however, the chronology of tooth eruption suffers a more significant alteration in terms of onset, with the possibility that the first teeth will be present at birth or arise during the first month of life.

This condition has been the subject of curiosity and study since the beginning of time, being surrounded by beliefs and assumptions. Titus Livius, in 59 B.C., considered natal teeth to be a prediction of disastrous events. Caius Plinius Secundus (the Elder), in 23 B.C., believed that a splendid future awaited male infants with natal teeth, whereas the same phenomenon was a bad omen for girls. In Poland, India, and Africa, superstition prevailed for a long time, and in many African tribes children born with teeth were murdered soon after birth because they were believed to bring misfortune to all they would contact. [5]

The presence of teeth at birth was considered a bad omen by the family of Chinese children, who believed that when these natal teeth would start to bite one of the parents would die. [5] In England, the belief was that babies born with teeth would grow to

be famous soldiers, whereas in France and Italy the belief was that this condition would guarantee the conquest of the world. Historical figures such as Zoroaster, Hannibal, Luis XIV, Mazarin, Richelieu, and Mirabeau, Richard III, and Napoleon may also have been favored by the presence of natal teeth. [5,6,7]

## PREVALENCE

In the case of the high prevalence in children with cleft lip palate reported by Almeida and Gomide (1996) [8], the authors attributed this dental disorder to alveolar fissures and to the superficial position of the teeth in this region.

## GENDER

There was no difference in prevalence between males and female, however, a predilection for females was cited by some authors, and also muslim children exhibited more Natal/Neonatal teeth as compared to Hindu children[9]. Kates et al (1984)[10] reporting a 66% proportion for females against a 31% proportion for males.[10]

## ETIOLOGY

Several factors have been proposed as to the etiology of Natal and Neonatal teeth such as superficial position of the tooth germ [11,12], infection or malnutrition [1], febrile states [13], eruption accelerated by febrile incidents or hormonal stimulation [14], hereditary transmission of dominant autosomal [15,16,17], osteoblastic activity within area of tooth germ [18], endocrine disturbances [14] and hypo vitaminosis [19]. Fauconnier and Gerardy (1953) [20] presented an excellent discussion of the difference between "early eruption" and "premature eruption" in which they also proposed an etiology of natal and neonatal teeth. They considered "early eruption" to be that occurring because of changes in the endocrine system, whereas "premature eruption" would be a clearly pathological phenomenon with the formation of an incomplete rootless tooth that would exfoliate within a short period of time. This structure designated "expulsive Capdepont follicle." May result from trauma to be alveolar margin during delivery, with the resulting ulcer acting as a route of infection up to the dental follicle through the gubernacular canal, causing premature loss of the tooth.

According to Costa (1952), [21] early eruptions in infants of a few days of age has been confused with a special pathological process described by Capdepont under the name of expulsive folliculitis. According to this author, infection of the follicle affects the gubernaculum dentis persistente, causing phlegmasia and turgidity of follicular tissues. This infection may be caused by an exogenous factor brought about by traumatic injury, such as the introduction of a finger into the baby's mouth by the obstetrician during the Moriceau maneuver (a process of dislodgment of the fetus's head retained in the pulvian excavation or in the soft pelvis).

- In expulsive folliculitis, rapid tooth eruption (2 to 3 mm in one day) was noted, together with extreme mobility, and turgidity and inflammation of the gingiva in the eruption zone;
- In true early eruption, solidity and normal eruptive path of the tooth were observed, with integrity of the gingival mucosa. [21]

## CLINICAL CHARACTERISTICS

The terms natal and neonatal tooth proposed by Massler and Savara (1950)[2] were limited only to the time of eruption and not to the anatomical, morphological and structural characteristics.

Morphologically, natal or neonatal teeth may be conical or may be of normal size and shape and opaque yellow brownish in color. They may reveal an immature appearance with enamel hypoplasia and small root formation. They are attached to a pad of soft tissue above the alveolar ridge, occasionally covered by mucosa and as a result have an exaggerated mobility with the result of swallowing in most of the cases. [22,23] Bigeard et al revealed that the dimensions of the crown of these teeth are smaller than those of primary teeth under normal conditions.[22,23]

## ASSOCIATED SYNDROMES

Natal and Neonatal teeth are associated with Chondroectodermal dysplasia (Ellis- Van Creveld Syndrome) [24], Oculuso Mandibular Dyscephaly with hypotrichosis (Hallerman-Streiff Syndrome) [25], Craniofacial dysostosis Syndrome [26], Multiple Steacystoma [25,26], Congenital pachyonychia [25], Sotos Syndrome [14], Pierre Robin Syndrome [14], Adrenogenital Syndrome [25,26].

## CLINICAL FEATURES

Morphologically Natal and Neonatal teeth may be small and conical or of normal size and shape. The overlying Enamel and Dentine is yellowish brown and hypoplastic in nature. According to Bigeard [14], the dimension of the crown of these teeth are smaller than normal teeth. The clinical classification of Natal and Neonatal teeth by Spouge and Feasby [3] into Mature and Immature teeth suggest that mature teeth are more comparable in Morphology and Development to primary teeth, while Immature teeth have in complete structure and Development.

The appearance of each natal tooth into the oral cavity can be classified into four categories as the teeth emerge into the oral cavity.[4,27,28]

1. Shell-shaped crown poorly fixed to the 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.
3. Eruption of the incisal margin of the crown through Gingival tissues.
4. Edema of Gingival tissue with an unerupted but palpable tooth.

If the degree of mobility is more than 2mm the natal teeth of category (1) and (2) usually need extraction.

## DIAGNOSIS

Diagnosis is important for maintenance of Natal and Neonatal teeth of normal Dentition. Since the premature loss of primary tooth may cause a loss of space and collapse of the developing mandibular arch [27] with consequent malocclusion in permanent dentition. Many investigators used clinical and radiographic findings to rule out the normal dentition or supernumerary, so that no indiscriminate extraction would be performed. Zhu and King reported that about 85% of Natal or Neonatal teeth are mandibular primary incisor and only small percentage are supernumerary [6]

Natal and Neonatal molar are rare. According to Bodenhoff, 85% of Natal teeth are mandibular incisors, 11% are maxillary incisor, 3% mandibular cuspid and molars and only 1% are maxillary cuspids and molars [29].

A radiograph should be made to determine the amount of root Development and the relationship of premature erupted tooth to the adjacent teeth. Brandt pointed that most Natal and Neonatal teeth are primary teeth of normal dentition and not supernumerary teeth .Other oral manifestation that may be confused with dental condition in question are cyst of dental lamina and Bohn nodules,[30] both differentiated from Natal and Neonatal teeth by radiographic examination .According to above citation diagnosis is important for treatment of Natal teeth.

### **HISTOLOGICAL CHARACTERISTICS**

The first observation on microscopic features between Natal and Neonatal was done by Howkins (1932) [31] . Histologically abnormalities of enamel and dentine have been reported in Natal and Neonatal teeth by Brandt .The enamel has been described as hypoplastic or hypomineralized . Dentine information is irregular with large inter globular spaces with structure resembling osteodentin, as well as an atypical arrangement of dentinal tubule, [32] and a gradual decrease in the number of dentinal tubules from the crown to cervical region [33] .Failure of root and cementum formation has also been observed, other finding include absence of Hertwig's root Sheath and dilated blood vessels in the pulpal tissue. [5]

Other findings include absence of Weil's basal layer and the cell-rich Zone in the pulp and an increase in the no of dilated blood Vessels in the pulpal tissue.

Histologic studies in natal primary molar reveals presence of primary dental pulp surrounded by regular dentin, peripherally. Adjacent to this lies a layer of irregular tertiary dentin with osteodentin [28]

### **COMPLICATION&TREATMENT**

In treatment Planning of Natal & Neonatal teeth, some factor should be considered such as implantation, degree of mobility, problems during suckling, interference with breast feeding, possibility of traumatic injury to ventral surface of tongue. This condition known as Riga-Fede disease. [34,35]

Natal and Neonatal teeth are part of normal dentition or supernumerary. [2,13,14] If erupted natal and neonatal teeth is diagnosed as teeth of normal dentition. The maintenance of these teeth in the mouth is the first treatment option, unless this would cause injury to the baby or mother. [33] When well implanted, these teeth should be left in the arch and their removal should be indicated only when they interfere, with feeding or when they are highly mobile with risk of aspiration. [2,3,26]

The risk of dislocation and consequent aspiration in addition to traumatic injury, to baby tongue and or to maternal breast have been described as reason for removal. [1,2,7,36] . Kates et al recommended that natal and neonatal teeth are treated and removed only if they are extremely mobile, such as their reattachment is unlikely.

Grinding or Smoothing the incisal edge of teeth was advocated by Allwright to prevent the injury to the maternal breast, feeding Splint was option reported by Bjuggren G [35]. Goh[1996] [37] reported his treatment of natal teeth by covering the incisal portion of the tooth with composite resin. Tomisawa et al [38] reported 2 cases of treatment of Riga- Fede disease by covering the incisal margin with photopolymerizable resin, which aided rapid healing of the ulcers. Bodenhoff [39] suggests "Breast Pump" and "Storing devices" if mother wishes to breast feed only. Kates et al [10] suggested extraction as a treatment as

they thought despite initial space loss; the space was regained and crowding of permanent mandibular incisors was not apparent.

Natal and Neonatal primary incisors present few problems if extracted. Where as loss of natal and neonatal primary molar will result in space loss. Such molar, if deemed immature, should be treated in same manner as incisors .However mature natal and neonatal molars should be retained if possible to allow complete development and avoid space loss. Orthodontic observation and follow up care should be included in the treatment plan for patients who present with natal and neonatal teeth.28

### **TREATMENT CONSIDERATION**

If the treatment option is extraction, this procedure should not pose any difficulties, since these teeth can be removed with forceps or even with fingers. [5] However precaution should be taken when extracting natal or neonatal: avoiding extraction upto 10th day of life, considering the general health condition of the baby, avoiding unnecessary injury to the gingival, and being alert to the risk of aspiration during removal. Although many investigators have mentioned the possibility of aspiration of these teeth, this risk, in reality, is an unlikely possibility since there are no reports in the literature of the actual occurrence of aspiration. However, cases of spontaneous tooth exfoliation have been reported. [31] On the basis of the report by the parents of a 28-day old baby of the sudden disappearance of a natal tooth, Bigeard et al (1996) suspected that this tooth was swallowed, a fact that indicates the possibility of aspiration.

Hals (1957), [16] Zhu and King (1995) [6] and Walter et al (1996), [29] reported that there was no relationship between wounding of the mother's nipple and the presence of natal teeth since the tongue is interposed between these teeth and the nipple during breast feeding. Thus, traumatic injury would occur only to the baby's tongue. This condition was first described by Caldarelli in 1857 in association with general organ failure in a child, followed by death. Riga and Fede histologically the lesion, which then started to be called Riga-Fede disease. According to other investigators [38,40,41] detection of this lesion is an indication for tooth extraction.

Among the clinical reports that consider natal and neonatal teeth to be cause of sublingual ulceration caused by sucking, Kinirons (1985) [42] described a highly peculiar situation (i.e. The birth of a baby with a natal tooth and the presence of a sublingual ulcer observed immediately after birth which, according to the author, had probably been caused by suction during intrauterine life). The treatment option in this case was extraction.

According to Rusmah (1991), [22] tooth extraction is contraindicated in newborns because of the risk of hemorrhage. However, administration of vitamin K before the procedure permits safe extraction. Berendsen and Wakkerman (1998) [43] also mentioned the risk of hemorrhage in extractions performed before 10 days of life when vitamin K was not administered.

Allwright (1958) [7] reported the extraction of 25 natal and neonatal teeth of 15 babies with no episode of hemorrhage even though no therapeutic precaution had been taken. However, all the extractions reported by the author were performed in babies older than 20 days.

As postulated since 1912, the coronary "bulb" would disappear a few days later after extraction of a dental tooth. [40] Decades later, Ryba and Kramer (1962) [44] and Southam (1968)



[45] reported the possibility of continuous dentin formation by the remaining dental papilla, with the permanence of part of the radicular epithelial sheath of Hertwig retained on the sides of the papilla soon after crown extraction, representing the necessary epithelial stimulus. Ooshima et al (1986) [46] also reported a case of formation of dentin and a root after ex-foliation of a natal tooth.

Berendsen and Wakkerman (1988) [43] reported a case of eruption of tooth-like structures after extraction of two neonatal teeth in the region of the lower incisors, which persisted in the oral cavity up to five years of age, when they naturally exfoliated. The decision to keep these teeth or not is based on the basic necessity of survival of living beings (i.e., the possibility of feeding).

Concerns such as premature loss of a primary tooth as a function of the possible loss of space for the permanent tooth have been voiced by Leung (1986). Other concerns expressed include the need for prevention of dental caries [29,47] by controlling bacterial plaque and via periodical fluoride application, since in these teeth which erupt prematurely, mineralization is not complete. The waiting period before performing tooth extraction is to allow for the commensal flora of intestine to become established and to produce vitamin K, which is essential for the production of prothrombin in the liver. [7] If it is not possible to wait, then it is advisable to evaluate the need for administration of vitamin K with help of pediatrician, if the newborn was not medicated with vitamin K immediately after birth. Vitamin K (0.5-1.0mg) is administered intramuscularly to the baby as part of immediate medical care to prevent hemorrhagic disease of the newborn.

## CONCLUSION

1. The decision to keep or to extract a natal or neonatal tooth should be evaluated in each case, keeping in mind scientific knowledge, clinical common sense, and parental opinion after the parents are properly informed about all aspects involved in this situation.

2. Radiographic examination is an essential auxiliary tool for the differential diagnosis between supernumerary primary teeth and teeth of the normal dentition. When the teeth are supernumerary, they should be extracted. In this procedure, the clinician should first consider the well being of the patient and assess the risk of hemorrhage due to the hypoprothrombinemia commonly present in newborns. Teeth of the normal dentition, when considered mature, should be preserved and maintained in the healthy conditions in the baby's mouth using all possible clinical resources.

3. Periodic follow up by oral health Professional is of fundamental importance, as also are recommendations to the parents with respect to home dental hygiene and the use of fluoride.

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