

NATAL AND NEONATAL TEETH

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Summary: 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. Any disturbance during the development of the teeth -systemic or local- can affect not only the morphology, structure of dental hard tissues or number of teeth but also the time of eruption. The presence of a tooth in the mouth at birth or during the first month of life has been studied and denominated as natal and neonatal teeth. The aim of this paper is to review current information on this topic and to give treatment alternatives if it is necessary.

Key words: *Natal and neonatal teeth; Supernumerary teeth; Riga-Fede disease*

Introduction

The success in the diagnosis, treatment and clinical procedures in dentistry involves good knowledge of dental structures morphology and the dynamics of growing and development of the dentition. Child development from conception through the first year of life is marked by many changes. Tooth eruption at about 6 months of age is a milestone both in terms of functional and psychological changes in the child's life and in emotional terms for the parents.

The expectations about the eruption of the first teeth are great and even greater when the teeth appear early in the oral cavity. When teeth are observed at birth or during the first month of life, being denoted natal and neonatal teeth, respectively, the interest, curiosity and concern of clinicians are similar to that of the parents.

Because of its rare occurrence, in the past this anomaly of eruption was associated with folklore, superstition, 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.

Today, these teeth also stimulate 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. The objective of the study was to present a review of the literature and clinical management techniques for natal and neonatal teeth.

Definition

Several terms have been used in the literature to designate teeth erupting before the normal time, such as con-

genital teeth, fetal teeth, predecidual teeth and dentitio praecox. According to the definition presented by Massler and Savara (1950) (36), taking only the time of eruption as preference, natal teeth are those observable in the oral cavity at birth and neonatal teeth are those that erupt during the first 30 days of life. This definition has been accepted and used by most authors.

History

The presence of natal and neonatal teeth has been reported and associated with interesting beliefs during time. The first reports came from Roman times with Titus Livius (59 BC) and Caius Plinius Secundus (23 BC) (23). The first considered the presence of natal teeth to be a prediction of disastrous events while the second believed that a splendid future awaited male infants with natal teeth, whereas the same phenomenon was bad omen for girls. In many African tribes children born with teeth were murdered soon after birth because they were believed they bring misfortune to all they would contact.

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 Hannibal, Luis XIV, Mazarin, Richelieu, Richard II and Napoleon may also have been favoured by the presence of natal teeth (2,23,36).

Prevalence

Massler and Savara (36) reported a frequency of 1:2000 birth, 95% of them were deciduous teeth and only 5% su-

pernumerary. The literature reports incidence goes from 1:2000 to 1:3500 births (4). Kates, Needleman and Holmes (29) made a study with 18,155 infants and showed a prevalence of 1:716 live births. Leung (34) evaluated 50,892 infants over 17 years and found a prevalence of 1:3392 natal teeth. Even when there is not established (20), some investigators as Kates et al. (29) reported a higher prevalence of natal teeth in females with 66%. The variation in prevalence depends on the different population studied and on the methods employed in each study.

Aetiology

Many theories have been reported in order to explain the etiology of this phenomenon. The presence of natal and neonatal teeth is definitely a disturbance of histological chronology whose aetiology is still unknown. Some investigators suggest that natal teeth may be associated with some syndromes such as Ellis-van Creveld (Chondroectodermal dysplasia) (16,26), Hallerman-Streif (17), Pachyonychia congenita (13,45), Wiedemann-Rautenstrauch (51), cleft palate and cleft lip (16,21) and Soto (9).

It has been assumed that early eruption of primary teeth is the result of abnormal position of the germ during its development in the alveolar bone (5,40). Stewart and Prescott (50) believed that the superficial position of the dental germ increased rate of eruption due to febrile incidents, hormonal stimulation and heredity. Hals (22) thought that natal teeth were the result of hereditary influences. Bodentoff and Gorlin reported a family association in 14.5% of cases whereas Kates, Needleman and Holmes (29) found a positive family history in 7 of 38 cases of natal and neonatal teeth.

Osteoblastic activity has also been reported as a possible factor of this anomaly. Clergueau-Guerithault (26) suggested that the eruption of natal and neonatal teeth could be dependent on osteoblastic activity within the area of the tooth germ.

Clinical characteristics

Most of natal and neonatal teeth reported are early erupted teeth of normal deciduous dentition. The prevalence of supernumerary teeth has been suggested as ranging from 1 to 10% (29). Rusmah (43) described natal and neonatal teeth as conical or normal in size and shape and opaque yellow-brownish in colour. Bigeard (9) reported that dimensions of the crown are smaller than those reported by Lautrou (32) for primary teeth under normal conditions.

Histological reports about natal and neonatal teeth have shown that despite the normal structure of enamel of these teeth, early eruption interrupts the mineralization process of enamel (6,22). Hence, enamel has often been described as dysplastic or hypomineralized and has a tendency to wear and discolour (10).

Soni et al. (47) have published a microradiographical and polarized light microscopy (PLM) study of natal and neonatal teeth. They found enamel hypoplasia and dentinal disturbances including formation of irregular dentin and osteodentin in the cervical portions and interglobular dentin in the coronal region.

Meryem et al. (38) evaluated the surface topography of mandibular natal and neonatal incisors at the ultrastructural level using the scanning electron microscope (SEM). They found the hypoplastic enamel, depressed areas and the incisal edge of natal tooth lacked of enamel. In addition, root formation of the teeth was not complete which correlated with findings that teeth may erupt without root formation.

There is an interesting histological report on an upper natal molar made by Friend (18). He demonstrated that the alteration in amelogenesis detected in this tooth was due to premature exposure of it to the oral cavity, which finally resulted in metaplastic alteration of the epithelium of the normally columnar enamel to a stratified squamous configuration. This squamous aspect of enamel was visualized in the study made by Biggeard et al. (9).

The terms natal and neonatal teeth proposed by Massler and Savara (36) were limited only to the time of eruption, they did not consider the anatomical, morphological or structural characteristics of the teeth. Spouge and Feasby (49) in 1966 proposed a classification of these teeth based on their clinical characteristics. These teeth were then classified into:

Mature – when they are fully developed in shape and comparable in morphology to the deciduous teeth.

Immature – when their structure and development are incomplete.

The term mature may suggest that the tooth is well-developed compared to the remainder of the primary dentition and that its prognosis is relatively good. In contrast, the term immature assumes the presence of an incomplete structure and implies a worse prognosis for the tooth in question. On the basis of the literary data, Hebling (1977) (24), recently classified natal teeth into 4 clinical categories:

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 tissue.
4. Edema of gingival tissue with an unerupted but palpable tooth.

Diagnosis

It is important to determine if the tooth belongs to normal deciduous dentition or if it is supernumerary. Most of natal and neonatal teeth are primary teeth of the normal dentition and not supernumerary teeth (14). The use of cli-

nical and radiographic methods has been suggested by many authors (8,34,43). Radiographic verification shows adjacent structures of tooth and the presence or absence of germ in the primary tooth area (3).

Natal and neonatal teeth are usually located in the region of the lower incisors and are duplicated in 61% (2,11,29). Multiple natal teeth are extremely rare (41). However, some authors reported a case of natal teeth in which a second upper molar and lower canine were involved (37,52). Cysts of the dental lamina and Bohn nodules may be confused with neonatal teeth, the diagnosis can be made by radiographic examination (28,41,55).

Diagnosis is important for the maintenance of natal and neonatal teeth of the normal dentition. Premature loss of a primary tooth causes a loss of space and collapse of the developing mandibular arch with consequent malocclusion in permanent dentition (31).

Treatment and complications

The management of natal teeth depends on many factors. If it is a supernumerary tooth, then extraction is the best choice of treatment. If the tooth is excessively mobile and has poor implantation it is better to extract it and avoid risk of deglutition or inhalation. Hooley (25) found that 67% of natal and neonatal teeth would exfoliate prematurely, due to inadequate root formation and mobility of these teeth in the mouth. Bjueggren (10) published a report of 121 cases; he found that 38% of the natal and neonatal teeth exfoliated in the first year of life. When extraction is decided, it is necessary to be sure that the underlying dental papilla and Hertwig's epithelial root sheath are removed by a gentle curettage, otherwise, root development with continued (15). Ryba, Kramer, and Southam (44,48) reported that if there is remaining dental papilla, with the persistence of part of the radicular epithelial sheath of Hertwig there is a possibility of continuous dentin formation.

Extraction of these teeth is usually a simple procedure. But, it is important to recall precautions when the infant is

younger than 10 days of life. For haemorrhage prevention, vitamin K administration is indicated (12), until the 10th day of life when the intestinal flora becomes established and starts to produce vitamin K. This is essential for production of prothrombin in the liver and necessary in the normal healing process (2,43). If the extraction can not be delayed, consultation with the paediatrician is necessary to investigate if the child has been medicated with vitamin K immediately after birth as prevention of haemorrhagic disease of the newborn. Vitamin K is administered intramuscularly (0,5–1,0mg) (33).

Another factors to consider are implantation and degree of mobility, interferences with feeding, possibility of traumatic injury and inconveniences of sucking (35). A case was reported where the breast-feeding was prematurely interrupted due to the presence of neonatal teeth (29). If the tooth is part of normal primary dentition the maintenance of it must be the first treatment option, unless this would cause injury to the baby or to mother (16,42).

One of the most common complications associated with natal and neonatal teeth is Riga-Fede Syndrome. Antonio Riga (37), Italian physician (1881), was the first who described this lesion. In 1890, F. Fede (1) published histological study of these lesions. In the late 1800s', this lesion was of particular concern in Italy because it was associated with malnourished infants and often resulted in death (5,37). This syndrome refers the trauma of the tip or ventral surface of the tongue in newborn and infants (39). The lesion starts as an ulcer and after repeated trauma, progresses to an enlarged, fibrous mass, which appears like an ulcerative granuloma. Pain is present and the infant suddenly starts to suffer from dehydration, feeding difficulties and failure thrive. When the patient has systemic complications the risk of potential infection is high (46).

According to some investigators, the detection of this lesion is an indication for tooth extraction (16,27,54). In some cases smoothing can relieve an acute incisal margin (29,30). Goho (19) reported the treatment of a natal tooth as covering the incisal portion of the tooth with composite resin.



Fig. 1: 1 month old baby with natal teeth.

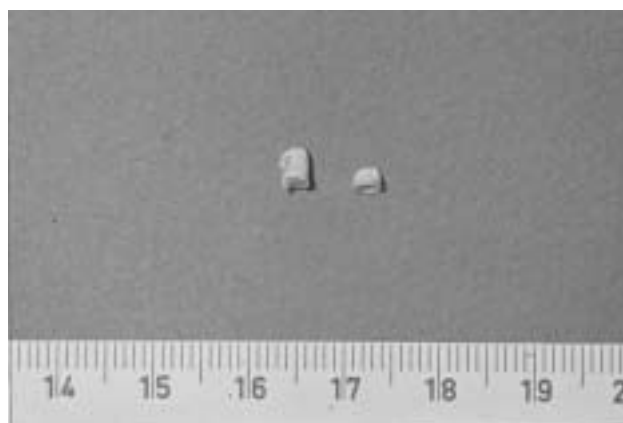


Fig. 2: Teeth after extraction.

Baghdadi (7) published a case of Riga-Fede disease in ten-days old male infant. The incisal edge was sharp and topical triamcinolone was applied, the ulcer resolved. Tomizawa (53) et al. reported seven cases of treatment of natal teeth by covering the incisal margin with resin, which aided rapid healing of the ulcers.

Stomahesive Wafers were used in some cases to cover the teeth and provide a smooth surface for the tongue to pass over during sucking, as in the cases published by Buchanan (15). He reported a case of four-week-old boy with a natal tooth and trauma of the tongue during sucking. The ulceration healed after four weeks using this conservative treatment. To relieve pain, treatment with an ointment such as Kenalog in Orabase is recommended (54).

Conclusions

Although natal and neonatal teeth do not appear frequently, proper evaluation and diagnosis is necessary for the best treatment option. Paediatricians are, usually, the first who find these teeth and early consultation with paediatric dentist can prevent complications.

Radiographic examination is the only way of revealing if the tooth is supernumerary or belongs to normal deciduous dentition. When 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 haemorrhage due to hypoprothrombinemia commonly present in newborns.

In most cases, natal and neonatal teeth belong to regular primary dentition and keeping these teeth in the mouth is the first choice of treatment. Alternatives such as smoothing the incisal edge or covering the edge with a composite resin are also recommended.

Periodic follow-up's by paediatric dentists are of fundamental importance, as are recommendations to the parents with respect to home dental hygiene and the use of fluoride.

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