

Conservative management and minimal intervention in patients with natal and neonatal teeth: Report of four cases.

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Abstract: Natal and neonatal teeth are present at birth or in the first month of life. They are observed more frequently in the mandibular central incisors, and in most cases, these teeth represent the true primary teeth. Clinical characteristics, possible complications and the clinical course are parameters to consider for proper management. Nevertheless, different reports argue that complications may occur after extraction in newborns. To date, there are no documented cases reported in the literature describing complications in retained teeth, such as aspiration of a tooth. The objective of the present study is to introduce four cases, three of which were treated with conservative management. Considering that the prevalence has increased progressively in recent years, neonatologists and pediatric dentists must make an early diagnosis and offer adequate treatment, providing general and oral wellness for each patient. The success of the treatment depends on periodic follow-up.

Key words: Natal teeth, neonatal teeth, primary teeth, management, postoperative complications.

Manejo conservador e intervenção mínima em pacientes com dentes natais e neonatais: Relato de quatro casos.

Resumo: Os dentes natais e neonatais estão presentes no nascimento ou no primeiro mês de vida, respectivamente. Eles são vistos com mais frequência nos incisivos centrais inferiores e, na maioria dos casos, esses dentes representam os dentes decíduos. As características clínicas, as possíveis complicações e o curso clínico são parâmetros a serem considerados para um manejo adequado. Porém, diferentes relatos afirmam que complicações podem ocorrer após a realização da extração em recém-nascidos. Até o momento, não há relatos de casos documentados na literatura descrevendo complicações em dentes preservados, como aspiração dentária. O objetivo deste estudo é apresentar quatro casos, três dos quais foram tratados com conduta conservadora. Considerando que a prevalência tem aumentado progressivamente nos últimos anos, os neonatologistas e odontopediatras devem fazer o diagnóstico precoce e oferecer tratamento adequado, proporcionando bem-estar geral e bucal a cada paciente. O sucesso do tratamento depende de monitoramento regular.

Palavra-chave: Dentes natais, dentes neonatais, dentes decíduos, gestão, complicações pós-operatórias.

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Manejo conservador e intervención mínima en pacientes con dientes natales y neonatales: reporte de cuatro casos.

Resumen: Los dientes natales y neonatales están presentes al momento del nacimiento o en el primer mes de vida respectivamente. Son observados más frecuentemente en los incisivos centrales inferiores, y la mayoría de los casos estos dientes representan los dientes primarios. Las características clínicas, posibles complicaciones y el curso clínico son parámetros por considerar para un adecuado manejo. Sin embargo, diferentes reportes afirman que pueden ocurrir complicaciones después de realizar la extracción en recién nacidos. A la fecha, no se han documentado reportes de casos en la literatura describiendo complicaciones en los dientes que se conservan como lo es la aspiración de los mismos. El objetivo del presente estudio es presentar cuatro casos, tres de los cuales fueron tratados con un manejo conservador. Considerando que la prevalencia ha incrementado progresivamente en los últimos años, neonatólogos y odontopediatras deben hacer un diagnóstico temprano y ofrecer un adecuado tratamiento, brindando un bienestar general y oral en cada paciente. El éxito del tratamiento depende de un seguimiento periódico.

Palabras clave: Dientes natales, dientes neonatales, dientes primarios, manejo, complicaciones postoperatorias.

Introduction

Natal teeth have been defined as teeth that are present in the oral cavity of the infant at the time of birth, while neonatal teeth refer to teeth that erupt during the neonatal period (from birth to 30 days).¹ These teeth most commonly occur in the mandibular central incisor region¹⁻⁵ followed by the maxillary incisors.⁴⁻⁸ Only 1% to 10% of natal and neonatal teeth are supernumerary.^{3-6, 8} According to the evidence, the main clinical characteristics are summarized in Table 1.

Some complications reported in the literature include pain on sucking,^{4,9} ulceration on the ventral surface of the tongue^{8, 9} and aspiration or swallowing of the teeth;^{5, 10} however, no report of the last complication is evident.

The prevalence has been reviewed by most authors around the world. The first reports were from Magitot and Puech, with prevalences of 1:6000 and 1:30.000, respectively, in the year 1876; Alalusua reported 1:1000 in 2002, Kathib reported

1:3400 in 2005, and George reported 3:1038 in 2008.^{4, 5, 7, 8} It is evident that the number of cases has increased considerably in recent years.

The exact etiology has yet to be proven; although, there are correlations between natal teeth and hereditary transmission,¹⁻⁵ environmental factors, some syndromes,⁷ the superficial position of the tooth bud,³⁻⁵ infection, malnutrition, and eruption accelerated by febrile incidents.^{4, 5, 9}

In relation to management, we discuss treatment plans, although most reports tend to be radical and not very conservative. In 1950, Massler and Savara concluded that an indiscriminate extraction of these teeth is to be deplored;¹ others authors claimed the decision to leave or extract the tooth should be evaluated in each case.^{4, 11} The guideline on Pediatric Oral Surgery from the American Academy of Pediatric Dentistry in 2010 affirms that treatment should be conservative and focus on creating round, smooth incisal edges.¹²

Table 1. Clinical characteristics natal and neonatal teeth.

Teeth position	Mandibular central incisors are more frequently followed by maxillary incisors, mandibular canines and molars, and maxillary canines and molars.
Dentition	Numerous studies have found 90% of the natal and neonatal teeth to be primary teeth, with only 10% being supernumerary.
Clinical presentation	Occur more frequently bilaterally.
Gender	There are no significant differences according to gender.
Clinical characteristics - crown	Variable shape and size; generally small, conical and may also resemble normal teeth, enamel hypoplastic, discolored, brown-yellowish / whitish opaque
Clinical characteristics - root	Root formation is immature and root development is incomplete or defective, which leads to mobility in the teeth.

Source: (Massler M *et al* 1950, Mhaske, S *et al* 2013, Basavanthappa, N. N *et al* 2011, Markou I 2012, Kana A *et al* 2013.)

Most studies report conducting extraction in all cases; however, it is important to note that the literature search failed to identify a report of aspiration of a natal tooth;^{2,13,14} neither a systematic review nor a meta-analysis were found. Based on this, it would seem that the extraction of natal teeth to prevent the possible risk of aspiration is unjustifiable.¹³ In addition, the neonatal period is susceptible to osteomyelitis due to several iatrogenic predisposing factors, and we should consider that osteomyelitis of the contiguous focus type could occur, as the infant suffers trauma at the time of natal tooth extraction.¹⁵ Other complications can occur after removing natal teeth, with ensuing abnormal proliferation of the dental papilla.¹⁶

Based on the current literature and evidence, it is important to have better knowledge about the treatment of natal or neonatal teeth to know whether it would be convenient to conduct an initial operation with tooth extraction or leave the tooth in place and conduct periodic follow-up. The

management of these teeth is essential for the overall well-being of a child and their parents.

In 1966, Spouge and Feasby classified natal and neonatal teeth on the basis of developmental stages, whereas in 1997, Hebling *et al.* classified them according to the appearance of each natal tooth into the oral cavity (Table 2).^{4, 6, 7}

The purpose of this report is to present four cases of natal and neonatal teeth, where the management depended on the clinical manifestations and complications. Clinical follow-up was performed from birth, and for one case, follow-up was carried out for 5 years. The cases correspond to the Pediatric Stomatology Service for two health institutions in the city of Bogotá (Colombia) and are described in Table 3. Informed consent was obtained from all individual participants included in the study. It was signed by the children's parents of the reported cases.

Table 2. Classification of natal/neonatal teeth

A. Spougy Feasby (1966)	
Class	Clinical description
1	A mature natal or neonatal tooth is one that is nearly or fully developed and has a relatively good prognosis for maintenance.
2	The term immature natal or neonatal tooth, on the other hand, implies a tooth with an incomplete or substandard structure; it also implies a poor prognosis.
B. Hebling (1997)	
Class	Clinical description
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

Source: Cunha RF *et al* 2001, Mhaske S *et al* 2013, Rahul M. *et al* 2018.

Table 3. Distribution by gender, age, classification, description and management of natal/neonatal teeth

N	Gender	Gestational age at birth (weeks)	Time of tooth appearance (days)	Number of teeth	Tooth location	Family history (natal/neonatal teeth)	Classification Hebling's (1997)	Macroscopic features	Chief symptoms/complaint	Management
1	M	36	2	1	71	(Yes) Father	2	Hypoplastic enamel	Tongue ulceration; Increased mobility; Difficulty feeding; Irritability; Constant crying	Extraction
2	M	40	7	2	71 - 81	(Yes) Mother	(2-3)	Hypomineralization	Bad suction pattern; Mobility grade II	Conservation; Clinical follow-up; Family oral health education
3	F	37	0	2	71 - 81	(Yes) Aunt, cousin	(3-3)		Dental size smaller than the other teeth	Conservation; Clinical follow-up
4	M	39	0	2	71 - 81	None	(3-3)	Yellowish-white color	Difficulty feeding; Mobility grade II	Conservation; Clinical follow-up; Family oral health education

Case reports

Case 1:

Preterm newborn, twin birth by natural way. The mother reported prenatal care without complications. The baby was 35 days old; the presence of a neonatal tooth had been confirmed in the lower central incisor at two days old. The child's father reported having neonatal teeth in his upper central incisor. An intraoral examination revealed an ulceration on the ventral surface of the tongue (1 mm diameter) (Figure 1). The newly erupted tooth had severe mobility (grade III) and hypoplastic enamel on the lingual surface. After day 3 and 4 of follow-up, it was noted that the baby presented greater irritability, cried continuously, had increased mobility, and had an increase in the size and depth of Riga-Fede disease. Due to a probable risk of exfoliation or aspiration of the tooth, the treatment option in this case was extraction without complications.



Figure 1. Neonatal tooth in a two-day-old boy, Ulcer on ventral aspect of the tongue; Riga-Fede disease.

Case 2

A 2-week old male infant presented with poor suction and natal teeth with inflamed

gingiva; the mother noted an inferior tooth one week after birth and the patient had a positive family history of natal teeth. Intraoral examination revealed partially erupted natal teeth 81 and 71 and gums with edema and erythema, with a mobility grade of I and II, respectively. After 2, 4 and 6 days, the follow-up showed satisfactory progress regarding improvement of the patient's suction pattern, without increased mobility and without alterations in the adjacent tissues. In the one-month follow-up period, we observed stable neonatal teeth without increased mobility, the mother reported an adequate feeding pattern, and there was no ulceration on the ventral surface of the tongue. We observed hypoplastic teeth in the vestibular zone and fluoride varnish was applied. (Figure 2)



Figure 2. Neonatal teeth in a seven-day-old boy. Teeth O and P erupting, without alteration of the adjacent oral tissues. Application of fluoride varnish.

Case 3

A 30-day-old female infant had been delivered by caesarian section, with an unremarkable prenatal history and positive familial history of neonatal lower central incisor teeth in her maternal aunt

and cousin. She presented with gingival edema and the presence of teeth from birth. An intraoral examination revealed one-third of the crown of tooth 71 with mobility grade I, the incisal edge of tooth 81 without mobility, and no interferences in proper sucking or feeding. Follow-up from birth to age five revealed the proper eruption process, with no alterations in the enamel; however, the dental size was smaller than the other teeth. The patient was managed by the stomatology service. The development of deciduous teeth was evaluated in this service as the form, size, color and mobile. Radiographs were not taken, the teeth were not mobile; the follow up was clinical. Education and activities in oral hygiene were provided to the mother. (Figure 3)



Figure 3. Neonatal teeth in a seven-day-old girl. Teeth O and P partially erupted.

Case 4

NA 14-day-old male infant had been delivered via natural childbirth. Two teeth were present in the anterior mandibular region from birth, which generated difficulty and discomfort during sucking.

The mother noted lacerations of the breasts during breast feeding and intense pain in her nipples during lactation, which showed that these teeth were generating lacerations that sometimes bled. The pain increased when she tried to remove the breast. Upon intraoral examination, there was the presence of neonatal teeth O and P, both with mobility grade II. There were no incisal cutting edges or alterations of adjacent tissues. The initial treatment was aimed at providing instructions to the mother about techniques and positions during lactation. The most recommended position is with the baby in front position, infant's nose approaches to the nipple. The baby commences a breastfeed by taking the nipple, areola and underlying breast tissue deeply into his mouth to the junction of the hard and soft palate. The nipple elongates 2-3 times its resting length. The correct nipple position not stimulated the bite reflex. When the position is comfortable and the infant is well aligned with the breast, a deep and effective latch is more likely thus the symptoms caused during breast feeding improve. (Figure 4)



Figure 4. Natal teeth. Teeth O and P without alteration of adjacent tissues; tooth O mobility grade II.

Discussion

Natal and neonatal teeth diagnoses requires a detailed case history, accompanied by a thorough clinical examination,^{4,5,17} to define the symptoms in newborns and mothers. After the parents are properly informed about all aspects regarding the situation, it is important to consider the parent's opinion,^{4,8-10} as well as the management of complications, when planning the clinical course.

Natal teeth occur more frequently; they are approximately three times more common than neonatal teeth.^{5,6,9} However, in the present study, two of the cases were neonatal teeth and two were natal teeth. These kind of teeth occur more frequently bilaterally,⁵ and in this report, we observed three bilateral cases and one unilateral case. The most affected to were the lower primary central incisors,^{1-5,8} which coincides with all the cases that we found in the literature. Histologically, a thin layer of enamel may be seen, or in extremely rare conditions, an absence of the enamel layer. The enamel hypoplasia could be attributed to the disturbance in amelogenesis;⁵ we observed this characteristic in three of the four cases in this report.

Most reports claim the hereditary transmission of a dominant autosomal gene.^{1,4,11} In our report, three of the four cases had a positive family history: parent, cousin and aunt.

There is an agreement among authors of clinical studies that natal and neonatal teeth should be retained because they are most frequently teeth of the normal primary dentition.^{4,7,18} Furthermore, it is not necessary take a radiograph; the exposure

to radiation is unwarranted when natal teeth are present. The decision-making process is solely based on the clinical context and would not be influenced by radiographs.¹⁹

A systematic review was conducted in 2013; Kana claimed that the prevalence of natal and neonatal teeth requires more research under specific scientific conditions in order to provide treatment based on evidence.¹¹ For this reason, it is necessary to broaden the knowledge of clinical findings and complications. Based on the current evidence for the overall well-being of a child and their parents, a multidisciplinary treatment would increase the possibility of preservation in the mouth, when a pediatric dentist is consulted in a timely manner. Pediatric dentists must educate parents and the medical community about proper management.^{5,19}

In Colombia, one of the main tools for conducting integrated care in children under one year of age is the Strategy for Integrated Care for Prevalent Childhood Disease (AIEPI), which establishes dental visits starting at the first month of age as key practice.²⁰ This allows health professionals and dentists to provide an early diagnosis, appropriate treatment and follow-up.

According to research and clinical experience, it is adequate to provide conservative management that includes oral health education, grinding of sharp edges of the tooth, changes in feeding technique,^{4,10,11} using composite resin to form a dome shape over the edge of the tooth,⁹ and most importantly, clinical follow-up. After reporting these cases, we conclude the importance of conservative management as the first option. Teeth with mobility grade I or II and poor root

formation; is possible to preserve as long as the family follow the recommendations of pediatric dentistry; all care must be taken in order to the root continues its formation and thus reduces mobility, is important giving the tooth time to form. In the first case, we could have potentially kept the tooth by modifying the feeding behavior or offering feeding advice, treating symptoms with oral triamcinolone acetonide in Orabase paste applied on the lesion, and giving the tooth time to form.¹⁷ Pediatric dentists should make an effort to conserve the teeth using these treatments. In cases where tooth preservation is impossible, after extraction, curettage of the underlying tissues of the dental papilla is indicated to prevent further growth of dental papilla remnants.¹⁸

Conclusions

The treatment most reported in the literature is invasive. Nevertheless, it is necessary to evaluate the clinical manifestations and possible complications that the natal and neonatal teeth could generate for the correct management and treatment. Performing extraction causes more complications than leaving the tooth.

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Longitudinal studies are suggested in order to have a greater amount of evidence based dentistry.

Based on the extensive literature review and the management provided in the different cases reported, the development of a guide for the management of natal and neonatal teeth is proposed in order to help the professionals to establish proper management.

Conflict of interest

The authors declare no conflicts of interest.

Ethical Approval

No animals were involved in this study. All procedures performed involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration, including its later amendments or comparable ethical standards.

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