

Natal and neonatal teeth

Deema J. Farsi, BDS, MSc, Muhammad M. Ahmed, DDC, MSc.

ABSTRACT

أسنان الولادة (الأسنان الظاهرة عند الولادة) وأسنان الأطفال حديثي الولادة (الأسنان التي تظهر في الـ 30 يوماً الأولى من الحياة) هي ظاهرة غير شائعة. يمكن أن تسبب هذه الأسنان مشاكل في التغذية وتقرحات على سطح اللسان السفلي. كما يمكن أن تكون مزعجة للوالدين وتؤثر على الرضاعة الطبيعية. نجري هنا استعراضاً للأبحاث السابقة لمراجعة مسببات هذه الأسنان وسمايتها السريرية مع التركيز بشكل خاص على مضاعفاتها وعلاجها. كما نلقي الضوء على فرصة إقامة برنامج أسنان وقائي من خلال الزيارات المبكرة لطبيب الأسنان. علاوة على ذلك، نقدم في هذا تفاصيل فحص وعلاج مولود لديه زوج من أسنان الولادة. يفضل تحويل حالات أسنان حديثي الولادة لطبيب أسنان الأطفال للفحص والعلاج.

Natal teeth (teeth present at birth) and neonatal teeth (teeth observed in the first 30 days of life) are uncommon. They may cause feeding problems and ulcerations on the ventral surface of the tongue. They can also be alarming to parents and cause discomfort with breastfeeding. A review of literature was conducted to review their etiology, significance, and clinical features with special emphasis on the complications and management. The opportunity of establishing a dental home through the early dental visits was highlighted. Furthermore, this case report details the examination and management of a 24-hour old neonate with 2 neonatal teeth. Natal teeth, although uncommon, are best referred to pediatric dentists for investigation and management.

Saudi Med J 2014; Vol. 35 (5): 499-503

From the Department of Pediatric Dentistry (Farsi), King Abdulaziz University, Jeddah, Kingdom of Saudi Arabia, and the Department of Pediatric Dentistry (Ahmed), Dubai Health Authority, Dubai, United Arab Emirates.

Received 27th October 2013. Accepted 3rd March 2014.

Address correspondence and reprint request to: Dr. Deema J. Farsi, Department of Pediatric Dentistry, King Abdulaziz University, PO Box 17848, Jeddah 21494, Kingdom of Saudi Arabia. Tel. +966 555681880. E-mail: deema.farsi@gmail.com

The birth of a new baby brings many emotions to the expecting family. Not only does it bring joy and happiness, but it also brings worry and anxiety. It is known that the first year of life witnesses many changes in infants, among which is the eruption of the first tooth. The eruption of the first tooth usually occurs around 6 months of age. However, for a small number of infants teeth can erupt a few months earlier, which can be alarming to the parents. Teeth that are present at birth are called natal teeth, while those occurring in the first month after birth are called neonatal teeth.¹ The prevalence of natal and neonatal teeth varies according to the type of the study, but are rare in general. According to a review by Leung and Robson et al in 2006,¹ the prevalence of those teeth was 1:2,000-1:3,500 live births.

The dental team constitutes an integral part of any well-managed health care center. It provides consultations and management to in- and outpatients. It also helps educate the patients on oral health and implements preventive measures. Proper liaison and interactive communication between the medical staff and dentists is essential to provide care in the most efficient way. The case presented is an example of a pediatric dentistry consultation provided to a neonate with natal teeth. The aim of this paper is to report the case of that neonate as well as to present a review of the literature with focus on the management.

Case Report. The pediatric dentistry team was called to evaluate a one-day old neonate at King Abdulaziz University Hospital, Jeddah, Saudi Arabia. The neonate was a healthy Saudi full-term male infant who was a product of a spontaneous vaginal delivery less than 24 hours earlier, weighing 3.2 kg at birth. His Apgar scores were 9 at 5 minutes, and 10 at 10 minutes. He received his intramuscular vitamin K as is

Disclosure. Authors have no conflict of interests, and the work was not supported or funded by any drug company.

the case with all neonates born at this hospital. Dental examination took place at the nursery and revealed 2 hard palpable masses covered by soft tissue on the anterior segment of the mandibular ridge. The masses exhibited grade II mobility. The right mass showed a narrow incisor edge erupting through the soft tissue (Figure 1). Interviewing the mother, she stated that the baby was her third son. None of her previous sons were born with teeth, but both of them had eruption of their lower incisors at the age of 4 months. She could not recall natal/neonatal teeth in her, or her husband's family. She was worried that these teeth were unusual, but was also delighted because she personally believed they meant that her child was gifted and strong. The mother was assured that these were most likely natal teeth and part of the child's set of primary teeth. She was instructed to closely monitor them and report any symptoms or discomfort on her follow-up visit. She was given an appointment in 2 weeks, a week after the child's circumcision appointment. Two weeks later

the mother brought the neonate to the dental clinic. She stated that the circumcision went smoothly, and no postoperative bleeding or adverse reaction took place. She did however, report discomfort while breast-feeding her baby, and mentioned that the baby had a hard time feeding properly. Proper examination was carried out in a knee-to-knee position. This time the oral examination revealed 2 incisors (natal teeth), barely attached to the gingival tissue with grade III mobility. No ulceration was noted on the ventral surface of the tongue (Figure 2). A decision was made to extract those teeth to prevent aspiration. No radiographs were taken at this point because the management was not going to change whether the teeth were actual primary or supernumerary teeth. Since the neonate was 2 weeks of age, and had already taken his vitamin K shot at birth, no vitamin K was administered that day. Approximately one third of a 1.8 ml-carpule of 2% lidocaine HCl with 1:100,000 epinephrine was infiltrated labially and lingually around the teeth and



Figure 1 - Examination at 24 hours of age. Two hard palpable masses were evident on the anterior segment of the mandibular ridge covered by soft tissue.



Figure 3 - Post extraction. The bleeding was controlled shortly after the simple extractions with the forceps.



Figure 2 - Examination at 2 weeks of age. Two primary incisors were evident, exhibiting grading III mobility.

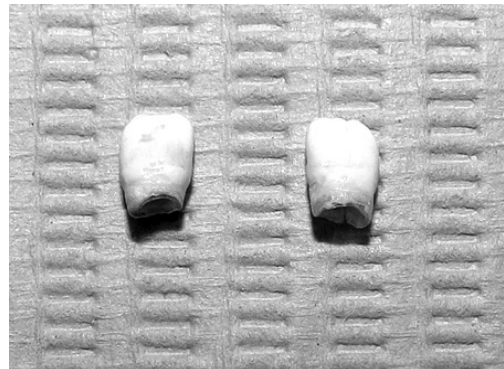


Figure 4 - The extracted natal teeth showing minimal root formation and yellowish mottling on the soft crowns.

they were ultimately extracted using lower deciduous anterior extraction forceps. Gentle curettage took place immediately after the extraction using a soft tissue curette. The neonate tolerated the procedure well and homeostasis was achieved shortly (Figure 3). The teeth were closely examined after extraction. They were normal in size with yellowish discoloration. The enamel was immature and hypoplastic with a few pitted areas. There was minimal root development (Figure 4).

Upon histologic evaluation, the ground sections of the primary mandibular left central incisor revealed discontinuous layers of enamel with a number of incremental lines of enamel formation and cross striations. The enamel-dentin junction was ill defined. The dentin structure was normal with some opened dentinal tubules showing remnants of odontoblastic processes. The ground sections revealed a pulpless and rootless tooth (Figures 5A & B). The infant was seen

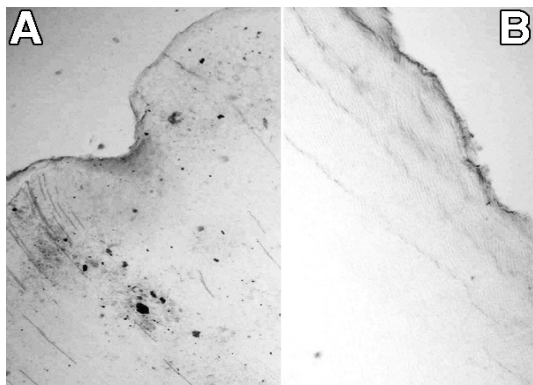


Figure 5 - Microscopic examination of the 2 ground sections of the primary mandibular left central incisor showing: A) discontinuous layers of enamel and an ill-defined enamel-dentin junction; and B) no pulp tissue or root structure was seen in the sections.



Figure 6 - Follow-up one month after extraction. The mandibular ridge was smooth pink and firm. No palpable masses or bleeding were noted.

a month later. The mother reported smooth breast-feeding and that her baby was gaining weight. Upon examination, the extraction sites had healed. No masses were palpable in the area. Soft tissues were all within normal limits (Figure 6). The dental visit was an excellent opportunity to establish a dental home for the family, who do not seek regular dental care. Time was taken to counsel the parents and provide anticipatory guidance, dietary recommendations, and simple oral hygiene instructions. The patient was put on a 6-month recall schedule. If no teeth erupted in the lower mandibular area by one year of age, an occlusal radiograph can be taken to confirm that the extracted teeth were in fact the primary central incisors.

Discussion. Pediatric dentists are among the most interactive dentists with the medical team. They provide dental treatment in the operating room for healthy children, and those with special health care needs. They also provide preventive and palliative treatment to oncology patients. They are regularly called to provide emergency treatment to inpatients as well as provide education on oral health to patients, their families, and staff. Furthermore, pediatric dentists can pay visits to wards and, when necessary, nurseries to provide consultations on oral and facial concerns.

For several decades now, there has been collaboration between the Department of Pediatrics at King Abdulaziz University Hospital (KAUH) and the Division of Pediatric Dentistry at the Faculty of Dentistry at King Abdulaziz University, Jeddah, Saudi Arabia. A recent channel for collaboration was established through neonates presenting with natal/neonatal teeth. Through a coordinated multidimensional strategy, a protocol for the referral and management of these neonates was established. The case presented in this paper was an example of this new channel of collaboration.

There are many theories behind natal and neonatal teeth, but none are conclusive. The most common explanations include: genetics, superficial position of the tooth germ, endocrine disturbances, nutritional deficiency, intrauterine experience, and infections. The most acceptable explanation is the superficial position of the tooth germ with hereditary influence.²

The most common natal/neonatal teeth are the mandibular primary incisors.¹ In most cases, these teeth are not supernumerary, and are part of the normal complement of the primary dentition. There have been reported cases of natal/neonatal teeth in the posterior region, but these were usually non-sporadic and were associated with a syndrome or systemic disease. Most

reported cases are of 1-3 teeth, but an interesting report by Masatomi et al in 1991,³ documented 14 natal teeth/hard structures in a neonate.

Clinically, these teeth are small in size. Most teeth are immature and hypoplastic with little if any root formation, as presently seen. They can be classified according to their presentation into 4 categories ranging from shell-shaped rootless crowns with poor gingival attachment, to localized gingival swellings covering palpable unerupted teeth.⁴ When they come attached to the soft tissue covering the alveolar ridge, they may exhibit excessive mobility with a true risk of being swallowed or more dangerously aspirated.

Natal/neonatal teeth can occur isolated or in association with developmental anomalies and syndromes such as pachyonychia congenita (an autosomal dominant skin and nail disorder), Hallermann–Streiff syndrome (a congenital disorder that affects growth, cranial development, hair growth, and dental development), Pierre Robin syndrome (a congenital condition of facial abnormalities), chondroectodermal dysplasia (rare genetic disorder of bone growth), craniofacial dysostosis (a genetic disorder characterized by the premature fusion of certain skull bones), and cleft lip and palate.^{2,4} In the case presented, the natal teeth came isolated as the pediatrician ruled out any such syndromes that could have been associated.

The most common complications of natal/neonatal teeth are the risk of swallowing and aspiration when the teeth are loose, as well as feeding difficulty, which can ultimately lead to dehydration and failure to gain weight. Furthermore, the mother may experience symptoms such as nipple ulcerations, inflammation, and pain from breastfeeding. Last is the development of Riga-Fede disease. Riga-Fede disease is a benign mucosal manifestation presenting as an ulcer most commonly on the ventral surface of the tongue.⁵ It is caused by repeated traumatic injuries due to backward and forward movements of the tongue over the mandibular incisors as in the course of feeding. It commonly affects young infants, especially those with natal/neonatal teeth. It can be asymptomatic, but is occasionally painful. The case presented in this report did not develop Riga-Fede disease.

Neonates with natal/neonatal teeth are usually referred to a dentist when these teeth interfere with proper feeding. Sometimes the unexpected appearance of these teeth alarms the parents so they seek a dentist for comfort and assurance. Nevertheless, depending on culture, parents sometimes bring in their children

for extraction when they fear that bad omen will be brought by its presence.²

The diagnosis of these teeth is important for proper treatment planning. It is based on complete history, and clinical examination with or without the aid of radiographs. Although most teeth are not supernumeraries, a conclusive diagnosis can only be made with the aid of a radiograph. The absence of a tooth germ in the primary tooth area would confirm that the natal/neonatal tooth belongs to the normal dentition and is not a supernumerary.

Management of natal/neonatal teeth should be conservative whenever possible. If the tooth is well-implanted, not excessively mobile, nor causing feeding difficulty or nipple symptoms, it should be preserved with close monitoring. If the incisor edge is sharp and is causing discomfort in the infant or the mother, or in case of Riga-Fede disease, it should be rounded and smoothed with an abrasive instrument.

Theoretically speaking, well-implanted teeth could benefit from a resin buildup over the hypomineralized and ultimately sensitive enamel. Attempts to bond resin to the hypomineralized enamel are very difficult and require proper access and moisture control. The retention of these resin restorations is questionable and should they fail the dislodged resin poses a swallowing/aspiration risk. From experience, if these teeth are maintained, it is suggested 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 does not correct the condition, or if the tooth is excessively mobile (2 mm or more), the tooth should be extracted.^{2,6} Extraction is usually not complicated and can be performed with forceps or fingers. 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.² Hertwig's sheath is a proliferation of epithelial cells in a developing tooth that initiates the formation of dentin in the root. After root formation the sheath eventually decomposes within the periodontal ligament, but may not disappear entirely. Remnants of the sheath may become infected, give rise to cysts and future root-like developments. In 1988, Berendsen and Wakkerman⁷ 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.

For some neonates, as the one presented in this report, the natal/neonatal teeth have to be ultimately

extracted, especially if they pose a risk of aspiration or feeding difficulty. Performing surgeries on neonates, even minor ones, poses risk for hemorrhage. Vitamin K is a fat-soluble vitamin that is essential for the formation of prothrombin in the liver and thus blood coagulation. It is synthesized by the commensal flora in the intestines that are established by the tenth day of life. It is advisable to postpone extractions until the neonate is at least 10 days old. If; however, the extraction cannot be postponed, the prophylactic administration of 0.5-1.0 mg of vitamin K intramuscularly before the extraction is advocated. It is relevant to mention that since the early 1960's, a recommendation by the American Academy of Pediatrics has been made to administer a single intramuscular dose of 0.5-1 mg vitamin K to all neonates for the prevention of hemorrhagic disease of the newborn.⁸ This recommendation has been strictly followed in all Saudi hospitals since then, and was applied to the neonate in the present case.

The prevention of pain in neonates is an expectation of parents, and should be a goal of all caregivers dealing with them. The lack of knowledge available on the extent and mechanism of pain perception in neonates and the limited expression of pain by these little infants should not lure the caregiver into underestimating its significance. The literature has described various means for the management of pain in neonates. The most commonly used local anesthetic in pediatric patients is the amide local anesthetic lidocaine.⁹ According to the American Academy of Pediatric Dentistry,¹⁰ the maximum recommended single dose of lidocaine is as low as 4.4 mg/kg. Only one third of a 1.8ml-carpule was used to anesthetize the neonate in this report. Treating post-extraction pain if any, can be managed by acetaminophen or non-steroidal anti-inflammatory drugs. The risk of aspiration during extraction can be prevented by stabilizing the neonate's head, applying gentle slow luxation strokes and spreading a piece of gauze behind the tooth during extraction.

The American Academy of Pediatric Dentistry recommends that the first dental visit should be no later than at 12 months of age. In most Saudi families, parents do not establish dental homes early for their children and only -seek dental care when their children are in pain or the caries have caused damage to the teeth. When a neonate with natal teeth is referred to a pediatric dentist, the dentist can utilize this opportunity in establishing a dental home for the infant. This early dental visit should not be only focused on the natal teeth, as it is an opportunity to educate the parents on oral hygiene measures and give dietary recommendations. It is a good opportunity

for counseling, providing anticipatory guidance, and formulating a follow-up plan.

In conclusion, natal/neonatal teeth, although uncommon, may cause feeding problems and oral ulcerations in neonates in addition to pain and frustration in parents. These teeth should receive proper examination and treatment planning, and should be managed in the most appropriate manner to ensure adequate feeding and promote stress-free growth. If a decision is made to extract those teeth, special attention should be given to hemostasis and pain control. Periodic recall is of pivotal importance. These early dental visits are excellent opportunities to establish a dental home and provide oral hygiene instructions, dietary recommendations, and anticipatory guidance. More longitudinal studies in Saudi Arabia are necessary to provide local data on prevalence, cultural significance, and management modalities.

Acknowledgment. *We would like to acknowledge Prof. Najat Farsi, Prof. Azza Elhousseini, and Prof. Shadia Abdelmeguid (Faculty of Dentistry), Dr. Abeer Arab (Department of Anesthesia), and Prof. Saad AlSaedi (Department of Pediatrics) for their support.*

References

1. Leung AK, Robson WL. Natal teeth: a review. *J Natl Med Assoc* 2006; 98: 226-228.
2. Rao RS, Mathad SV. Natal teeth: Case report and review of literature. *J Oral Maxillofac Pathol* 2009; 13: 41-46.
3. Masatomi Y, Abe K, Ooshima T. Unusual multiple natal teeth: case report. *Pediatr Dent* 1991; 13: 170-172.
4. Mhaske S, Yuwanati MB, Mhaske A, Ragavendra R, Kamath K, Saawarn S. Natal and Neonatal Teeth: An Overview of the Literature. *ISRN Pediatr* 2013; 2013: e956269.
5. Costacurta M, Maturo P, Docimo R. Riga-Fede disease and neonatal teeth. *Oral Implantol (Rome)* 2012; 5: 26-30.
6. American Academy on Pediatric Dentistry Council on Clinical Affairs. Guideline on Pediatric Oral Surgery. [cited 2013 November] Available from: http://www.aapd.org/media/Policies_Guidelines/G_OralSurgery.pdf
7. Berendsen WJ, Wakkerman HL. Continued growth of the dental papillae after extraction of neonatal teeth: report of case. *ASDC J Dent Child* 1988; 55: 139-141.
8. Ipema HJ. Use of oral vitamin K for prevention of late vitamin K deficiency bleeding in neonates when injectable vitamin K is not available. *Ann Pharmacother* 2012; 46: 879-883.
9. Gunter JB. Benefit and risks of local anesthetics in infants and children. *Paediatr Drugs* 2002; 4: 649-672.
10. American Academy of Pediatric Dentistry. Guideline on Use of Local Anesthesia for Pediatric Dental Patients. [cited 2013 November] Available from: http://www.aapd.org/media/Policies_Guidelines/G_LocalAnesthesia.pdf