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ORIGINAL ARTICLE

A survey of natal and neonatal teeth in newborn infants

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Background/Purpose: Since there is no comprehensive research of natal and neonatal teeth in Taiwan, careful investigation of natal or neonatal teeth is worthy of being studied. This retrospective study investigated the prevalence and clinical characteristics of natal or neonatal teeth in a hospital setting, and analyzed the possible relationships between investigated variables of the natal or neonatal teeth.

Methods: All of the 12,019 infants born at an assigned hospital between January 1, 2008 and December 31, 2014 were investigated for natal or neonatal teeth. The identified individuals were reviewed for systemic diseases. Dental examinations included the location, clinical appearance, and degree of mobility. A positive family history of natal or neonatal teeth and mother's physical condition before delivery were also investigated. The collected data were analyzed using Fisher's exact test.

Results: Thirty infants were identified with a total of 43 natal or neonatal teeth (females, 19; males, 11). Most of the teeth were in the mandibular primary incisor position (97.6%). A radiographic examination confirmed that not all of the natal or neonatal teeth were supernumerary. No significant differences were observed between males and females in tooth morphology, positive family history, and treatment methods ($p > 0.05$) or between normal and conical shapes in positive family history, premature infant, mother's physical condition before delivery, and treatment methods ($p > 0.05$).

Conclusion: Most of the natal or neonatal teeth were in the mandibular primary incisor position and not all of them were supernumerary. No gender differences were found in tooth morphology, positive family history, and treatment methods. The tooth morphology was not significantly related to a positive family history, premature delivery, or the mother's physical condition before delivery. Copyright © 2016, Formosan Medical Association. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Conflicts of interest: The authors have no conflicts of interest relevant to this article.

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Introduction

Natal teeth are defined as teeth being present at birth, and neonatal teeth are those that erupt during the first 30 days of life.¹ Because of its rare occurrence and appearance, affected children were considered monsters and bearers of misfortune in China in the past.² However, eruption of the first tooth in a baby's first year of life is currently thought of as a major milestone in terms of functional and psychological changes in the infant, not as misfortune.³

The prevalence of natal or neonatal teeth varies widely, ranging from 1:1000 to 1:30,000 live births.^{3,4} Natal teeth are more frequent than neonatal teeth with the ratio being approximately 3:1.² The etiology of early eruption of these natal or neonatal teeth is still unknown. A number of factors favoring the occurrence of these teeth have been described in the literature, including hereditary transmission of a dominant autosomal gene, endocrinal disturbances, superficial position of tooth germs, osteoblastic activity within an area of the tooth germs, febrile status, environmental toxicants, eruption accelerated by febrile incidents or hormone stimulation, and association with some syndromes and systemic conditions.²⁻¹⁴

Since natal and neonatal teeth draw the attention of both parents and dentists because of their varied clinical features, careful evaluation of infants with natal or neonatal teeth is recommended. Liu and Huang¹⁵ in their survey of oral abnormalities in Taiwanese newborns found that the frequency of natal and neonatal tooth was 01:140 (1%). However, there is still no comprehensive research of natal or neonatal teeth in Taiwan. The aims of this retrospective study were to investigate the prevalence, clinical characteristics, treatment methods, infant's systemic and hereditary factors, and familial pattern of natal or neonatal teeth in a hospital setting, and to analyze the possible relationships between each variable of the natal or neonatal teeth.

Methods

All of the 12,019 infants born at Kaohsiung Chang Gung Memorial Hospital, Taiwan between January 1, 2008 and December 31, 2014 were investigated for natal or neonatal teeth. The newborn babies with natal or neonatal teeth identified in the nursery were referred to a pediatric dental clinic for further examinations. The study was approved by the Institutional Review Board of Chang Gung Memorial Hospital (IRB no: 104-1872D). The procedures were explained to the parents/guardians and their informed consent for a dental examination was obtained prior to the investigation.

In the initial examination, all individuals were examined and reviewed for the presence of systemic diseases, and a positive family history of natal and neonatal teeth was traced. Dental examinations by a senior dentist (C.-H.W) included the type, location, clinical appearance, and degree of mobility of the natal and neonatal teeth. The mothers' physical condition and profession before delivery were also investigated.

All individuals were reevaluated 12 months later and radiographs were taken for diagnosis of a supernumerary

tooth. The treatment methods (extraction or observation) were also recorded. The collected data including clinical characteristics, treatment methods, infant's systemic and hereditary factors, and familial pattern were analyzed using Fisher's exact test for assessing possible relationships between each of the variables of the natal or neonatal teeth. A p value < 0.05 was considered to be significant.

Results

Thirty infants were identified in the nursery of the hospital with a total of 43 natal or neonatal teeth. Natal teeth were more abundant than neonatal teeth (31:12) with a ratio of 2.58:1. The prevalence of natal and neonatal teeth in this hospital over a 6 year period was 1:401. They were more commonly found in females than in males: 19 females (63.3%) and 11 males (36.7%). Of the 30 infants, 13 (43.3%) had a pair of teeth. Most of the natal or neonatal teeth (97.6%) were in the mandibular primary incisor position except one (2.4%) in the maxillary incisor position (Figure 1). Morphologically, all of the teeth developed a small crown, and 12 cases (40%) presented a conical shape compared with 18 cases (60%) with a normal shape (Figure 2). Four cases (10%) had enamel hypoplasia with yellowish-brown color.

Fourteen (46.7%) of the 30 cases had tooth mobility greater than degree I. Among these 14 cases, nine (30%) exhibited hypermobility which resulted in extraction. One special case had a cyst-like lesion, which was enucleated following extraction of the tooth. A radiographic examination confirmed that not all natal or neonatal teeth were supernumerary.

Five cases (16.7%) had a positive family history of natal or neonatal teeth. One case was associated with cleft lip and palate. Five infants (16.7%) were identified as premature. Three mothers (10%) were found to have fever before delivery. There were no significant differences between males and females in tooth morphology, a positive family history, and treatment methods ($p > 0.05$) (Table 1). Regarding the tooth morphology of natal or neonatal teeth, there were no significant differences between normal and conical shapes in a positive family history, premature



Figure 1 The natal tooth was in the mandibular primary incisor position with a normal shape.

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