

## NATAL AND NEONATAL TEETH- AN UNCOMMON ORAL FINDING: A CROSS SECTIONAL STUDY IN PAKISTANI SUBJECTS

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### ABSTRACT

*The objective of this study was to determine the frequency, types of teeth present at the time of birth and reasons for extraction of natal and neonatal teeth in Pakistani neonates. This cross sectional hospital based study was carried out during the period February 2011 to May 2013 at different dental colleges of Karachi and Hyderabad. All neonates with natal and neonatal teeth referred from different dental sections of Karachi and Hyderabad were included in the study. Their characteristics, common sites of eruptions, complications and reasons for extractions were observed and analyzed. A total of 22 patients were selected for data analysis out of which 8 (36.4%) were males and 14 (63.6%) were females and standard deviation was  $SD \pm 9.74$ . Out of 22 subjects studied, 17 (77.3%) had natal and 05 (22.7%) neonatal teeth which were uncomfortable both for the mother and the neonate. The most common teeth present at the time of birth were mandibular central incisors. It was concluded that it was a benign but rare condition of oral cavity among Pakistani neonates which requires special attention when causing feeding problems for mothers and children.*

**Key Words:** Natal, Neonatal, Teeth, Neonates, Child.

### INTRODUCTION

The presence of teeth in newborns is a rare benign condition of the oral cavity. Eruption of teeth is a normal human physiological process and it is a very important occasion for the parents. If this eruption occurs earlier than its normal time, it often creates disturbing situation for the mother and the family. Massler and Sava have defined the natal and neonatal terms on the basis of time of eruption of teeth. Teeth present at

birth in a child are called natal teeth (NT) while, teeth appearing in 1-4 weeks after birth are referred to as neonatal teeth (NNT).<sup>1</sup> These teeth usually erupt in oral cavity in either arch but are most commonly seen in mandibular arch. Literature has revealed that 85% of the erupted teeth at birth or soon after birth are lower central incisors with 11% being maxillary central incisors, 3% being mandibular canines or molars and 1% are maxillary canines and molars.<sup>2</sup> It is rarely seen in upper molar region.<sup>3</sup> The prevalence of natal and neonatal teeth varies in different geographical locations. A study conducted by Kumar revealed presence of natal and neonatal teeth in 1:2000 to 1:3500 new born infant patients.<sup>3</sup> Kovac's study on Slovakian population showed incidence of these teeth as 1:800 to 1:6000.<sup>4</sup>

The precise etiology of natal teeth is unknown but among various theories documented the premature eruption is strongly linked to hereditary transmission of autosomal dominant disorders, endocrine disturbances particularly due to excessive secretion of pituitary, thyroid, or gonads, superficial position of tooth germs, osteoblastic activity occurring in the area of tooth germs, febrile condition like fever and

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exanthemata during pregnancy may enhance eruption. Infection or malnutrition, nutritional deficiency for example hypovitaminosis,<sup>5</sup> and environmental factors (Polychlorinated biphenyls and Dibenzofuran) also contribute in the pathogenesis of natal teeth.<sup>6,7</sup> Natal teeth are associated with genetic conditions and other diseases such as, Hallermann-Strieff syndrome,<sup>8</sup> Ellis Van Creveld syndrome (chondroectodermal dysplasia),<sup>9</sup> cyclopia, pachyonychia congenita, cleft lip and palate, Down's syndrome, Pierre-Robin, Pallister-Hall, short rib-polydactyly type II, Wiedeman-Rautenstrauch (neonatal progeria).<sup>10,5</sup>

There are some misconceptions and myths associated with natal and neonatal teeth. It varies among various geographical locations, for instance, in Asian countries like China, India, Poland and African sub-continent the affected children are considered to be a sign of curse.<sup>11</sup> On the other hand in Malaysian population natal tooth is taken as good fortune<sup>2</sup> and in England, France and Italy the person possessing natal tooth is believed to be a world conqueror. Premature eruption of natal and neonatal require special clinical attention because it results in several complications like discomfort during nursing, laceration of mother's breast, sublingual ulceration, and risk of aspiration and swallowing of mobile tooth by infant during nursing.<sup>11</sup>

The aim of this study was to investigate the information regarding natal and neonatal teeth, its occurrence according to gender, associated disorders, complications and treatment options of natal and neonatal teeth.

**METHODOLOGY**

This multi central cross-sectional study was conducted during February 2011 to May 2013 at Dental section of Liaquat University of Medical and Health Sciences, Hyderabad, dental section Bahria University of Medical and Dental College, Karachi and Department of Dentistry and Mamji Hospital, Karachi. The inclusion criteria of the study population was new born neonates, both sexes, who were born with teeth and those who develop teeth within first month after birth. Any genetic disease and syndrome associated with natal and neonatal teeth were included in the study. Twenty two subjects in the age range from 01 to 40 days were taken as study subjects presenting with the compatible picture of natal and neonatal teeth. In this study subjects were referred to us by different Pediatricians. Informed consent was obtained from parents. The personal history was taken which included age, sex, occupation, education level and medical history by interviewing the mother and filling of questionnaire. The subjects were then clinically examined. The pro-forma was designed based on previous research. The diagnostic criterion for natal and neonatal teeth was based on history, clinical presence and absence of natal

and neonatal teeth at birth and postnatal life. The age range of the sample was classified into four groups, Group 1(day 01-day 10), Group 2 (day 11-20), Group 3 (day 21-30), Group 4 (day 31-40).

Data was evaluated and analyzed using Statistical Package for Social Science (SPSS) version 15. Descriptive statistics were used for calculating frequency of age, gender, presence of natal and neonatal teeth.

**RESULTS**

A total of 22 patients were selected for data analysis out of which 8(36.4%) were males and 14(63.6%) were females with a mean age 12.45 (days) with a standard deviation (SD) of ± 9.74. The age range of sample was from day 1 to day 40. Out of 22 subjects studied, 17(77.3%) had natal and 05(22.7%) neonatal

TABLE 1: DISTRIBUTION OF NATAL AND NEONATAL TEETH

No. of patients/cumulative (%)	
Natal Teeth	17( 77.3)
Neonatal Teeth	5 (22.7%)
Total	22 (100.0%)

TABLE 2: UPDATED LIST OF INCIDENCE OF NATAL AND NEONATAL TEETH DOCUMENTED IN LITERATURE

S. No.	Name of Researcher	Prevalence
1.	Magitot, 1876	1:6000
2.	Puech, 1876	1:30000
3.	Ballantyne, 1897	1:6000
4.	Massler & Savara, 1950	1:2000
5.	Allwright, 1958	1:3408
6.	Bodenhoff, 1959	1:3000
7.	Wong, 1962	1:3000
8.	Bodenhoff & Gorlin, 1963	1:3000
9.	Mayhall, 1967	1:1125
10.	Chow, 1980	1:2000 to 3500
11.	Anderson, 1982	1:800
12.	Kates et al., 1984	1:3667
13.	Leung, 1986	1:3392
14.	Bedi & Yan, 1990	1:1442
15.	Rusmah, 1991	1:2325
16.	To, 1991	1:1118
17.	Almeida & Gomide, 1996	1:21.6
19.	Kovac J and Kovac D (2011) <sup>4</sup>	1:800, 1:6000

(Adapted from Robson Frederico Cunha et al, 2001)<sup>11,4</sup>

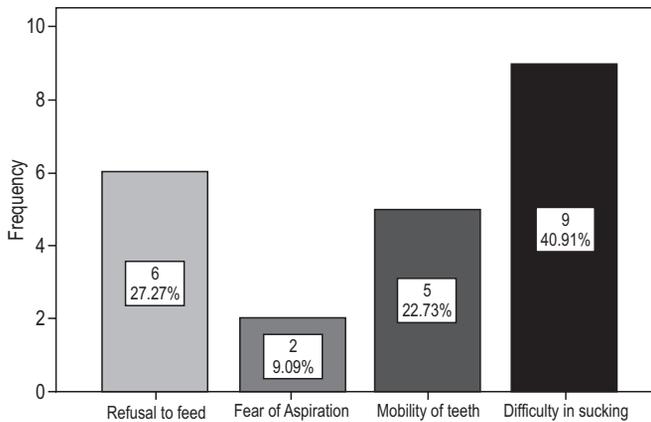


Fig 1: Showing reasons for extraction of natal and neonatal teeth

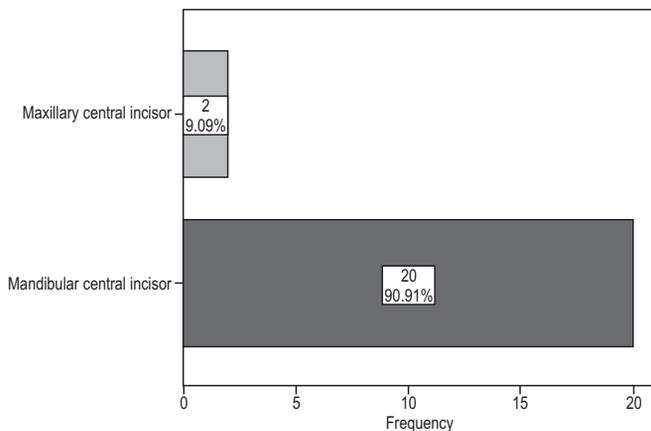


Fig 2: Showing most commonly erupted natal and neonatal teeth



Fig 3: Showing natal teeth (lower central incisors) in 01 month old female

teeth (Table 1). It was reported that 09(41%) patients had difficulty in suckling, in 06(27.2%) patients mothers refused to feed because of breast trauma during feeding, 05(22.7%) subjects had mobility of teeth causing difficulty in feeding and in 02(9.09%) patients mother had fear of aspiration because of mobility of teeth (Fig

1). Most common teeth which presented in both natal and neonatal teeth were mandibular central incisors (Fig 2).

### DISCUSSION

Literature search has been done and according to our knowledge, this is the first research conducted in Pakistan on occurrence, patterns and reasons for extraction of natal and neonatal teeth particularly in relation to dentistry. Literature has shown the diversity in the eruption pattern and prevalence of both natal and neonatal teeth (Table 2).<sup>11</sup> It has proven that incidence of natal teeth are more common than neonatal.<sup>4,2</sup> In our study also we found higher expression of natal than neonatal teeth, which supports the previous studies despite the small size of our study population. This gives us a rough idea to estimate the frequency of both natal and neonatal teeth.<sup>2,12</sup> As described in the literature. The natal teeth incidence ranges from 1:2000 and 1:3500 live births.<sup>3</sup> Bodenhoff study has shown incidence in a range of 0.3 to 0.5%. Variation in the prevalence of natal and neonatal teeth has been reported throughout the world.<sup>12</sup> Another study conducted in Hong Kong on Chinese subjects showed natal teeth prevalence of 1:1118 and the teeth most commonly affected were mandibular central incisors.<sup>13</sup> In Slovakian population natal and neonatal cases reported were 1:800 and 1:6000 birth respectively.<sup>4</sup> Freudemberger reported higher frequency of natal teeth in Mexican neonates.<sup>14</sup>

Leung and colleagues has cited the incidence of natal teeth ranging from 1:2000 to 1:3500 births approximately.<sup>15</sup> Majority of studies reviewed by various investigators revealed that the incidence of natal and neonatal teeth varies widely. In the current study we noticed its higher percentage in females than males. Past studies also supports our findings showing female predominance. Literatures have shown variation in gender difference. This aspect requires more research and data collection to clarify the picture of gender difference.<sup>5,7,15</sup> In our study, reported mandibular central incisor is the most common teeth erupted in natal and neonatal teeth. This finding is also supported by previous studies.<sup>4,2</sup>

As described by Spoug, the classification of natal and neonatal teeth depends on their degree of maturity. They stated that a mature tooth is one which is partially or fully developed and has a good prognosis for its maintenance. On the other hand immature natal teeth consist of incomplete tooth substance.<sup>5</sup> The emergence of natal teeth into oral cavity has been classified into four groups. First is shell shaped crown poorly fixed to the alveolus and absence of root, second being the solid crown poorly fixed to the alveolus and with little or no root, third being the incisal margin of crown only evident and fourth is the un erupted and palpable tooth

with edema of gingival tissue.

Howkins (1932) first documented histological aspects of natal and neonatal teeth which were later discussed in detail by Boyd and Miles. They revealed that NT and NNT usually have a normal crown but with thin enamel layer or hypomineralized enamel. They have irregular arrangement of enamel prisms with irregular detino-enamel junction. The pulp chamber and radicular canals are wider despite normal development of pulp. The cell rich zone and Weil's zone are absent with absent or lack of cementum or root development.<sup>12,5</sup>

As for the etiology of natal and neonatal teeth is concerned researchers have identified various etiological factors. Literature has proved the association of NT and NNT with various diseases and syndromes. Anupama and colleagues reported an interesting case of hyper IgE syndrome (multisystem disorder) which is featured by cutaneous abscess, multiple bone fractures, joint hyperextensibility, high level of IgE, bilateral cervical ribs and may also be associated with deafness. Orally retained deciduous teeth and natal teeth may be seen.<sup>17</sup> Gladen reported one out of 10 mothers in Taiwan (Yusheng accident) who were heavily exposed to environmental toxin polyhalogenated aromatic hydrocarbons (PCB), polychlorinated dibenzofuran (PCDF) gave birth to infants having natal teeth. The same was observed in Japan (Yusho accident). Both human and experimental studies support the premature eruption of teeth.<sup>6,18</sup> Alaluusua and colleagues worked on similar study in South Finland on the causative role of environmental toxin polyhalogenated aromatic hydrocarbons (PCB), polychlorinated dibenzofuran (PCDF), which are the wide spread environmental pollutant. In their study they did not find any association with natal and neonatal teeth most likely because PCDD/Fs and PCBs levels were below threshold to cause premature eruption of teeth.<sup>6</sup>

Today in modern world some people still believe in myths and misconceptions and there is a negative cultural attitude towards the natal teeth. This negative behavior has been reported in various parts of the world, particularly in African tribes children born with teeth are killed because they are considered ill omen. On the other hand in England the children with natal teeth become famous soldier or conqueror.<sup>2,19,20</sup> The Swedish population believed that by placing an injured finger in the mouth of a child with natal teeth can cure it.<sup>21</sup> In China it is considered a bad sign for the family. Therefore very strong parental counseling is needed to avoid the serious consequences.<sup>19,20</sup>

In our opinion the early days of mother after delivery are very important. The infants are referred by the pediatrician to the dentist with the complaint ulceration of tongue, mobility of teeth, continuous crying and

refusal to suck milk. There is a form of disease which is closely associated with natal teeth representing ulceration of tongue called Riga-Fede Disease (RFD). It was first identified by Italian Physician Riga and later discussed by Fede in 1890. This disease is characterized by traumatic ulceration of oral mucosa caused by the repetitive movement of tongue over the lower anterior teeth. It may be associated with primary dentition of lower anterior teeth or natal and neonatal teeth in neonates.<sup>22</sup> It was shown in our study findings that most of the teeth were mobile in neonates. This may be due to incomplete formation of tooth substance that was hanging with gums superficially. This factor was a great risk for life in newborns. Extraction of NT and NNT must be advised if they are causing problem for both mother and neonates. Our study findings of reasons for extraction are also supported by other investigators.<sup>23</sup>

We did not find any genetic disease or syndrome association in our study subjects as reported in few studies around the globe.

Presence of natal teeth may cause various complications for mother and neonates. Therefore conservative management is recommended at first. Surgical intervention should proceed when it is causing serious problems. The prime objective for the extraction of natal and neonatal teeth is to avoid possible trauma to the oral tissue and mother's breast, difficulty in suckling and fear of inhalation.<sup>24</sup>

There are various treatment modalities for NT and NNT. Numerous cases have been reported for NT and NNT for which only topical anesthesia is required for extraction. However, dentist must try to follow conservative treatment as much as possible to avoid stressful surgical procedure associated with extraction and curettage, and bleeding problems. Vitamin K (0.5- 1 mg, I/M) play an important role in the controlling bleeding. Therefore Heather Dymont and other investigators emphasized that in case of tooth extraction within first to ten days of life postnatal vitamin K injection must be given to neonates to avoid post extraction bleeding.<sup>25,7</sup>

## CONCLUSION

Natal and neonatal teeth are rare benign conditions of oral cavity which are usually referred to the dentist by the pediatrician. Extraction of natal and neonatal should be performed carefully to avoid unnecessary trauma. Periodic follow up is recommended to monitor any complication.

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