

Prevalence and management of natal/neonatal teeth in cleft lip and palate patients

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ABSTRACT

Objective: The aim of this study was to determine the prevalence and distribution of natal/neonatal teeth in infants with cleft lip and palate (CLP) according to gender, involving jaw and side and to show the management of some cases. **Materials and Methods:** A retrospective study was carried out on medical history and photographic records of 69 infants with CLP, who were treated at the CLP clinic of Yeditepe University between years 2014–2015. The presence of neonatal teeth was determined, and if present the gender, type of cleft, and position were recorded. Statistical analysis was performed. **Results:** Neonatal teeth were observed in 7% of the study group. No significant differences were found between cleft types and gender ($P > 0.05$). The prevalence of neonatal teeth in bilateral, unilateral and isolated cleft type was 16.5%, 6.5%, and none, respectively. All neonatal teeth were located in the maxilla and on the cleft-side (100%). **Conclusion:** The presence of natal/neonatal teeth in infants with CLP was not rare. In all of these cases the teeth were located adjacent to the cleft region. In isolated palatal cleft, where the alveolar region including the teeth buds are away from the cleft, no neonatal teeth were observed. It may be concluded that neonatal teeth in infants with CLP are frequently present and located inside the borders of the presurgical orthopedic treatment (POT) plate. Therefore, if possible, immediate extraction of the neonatal teeth is advised or if not possible because of systemic health reasons, modifications of the plate are required.

Key words: Cleft lip and palate, natal/neonatal teeth, orthodontics

INTRODUCTION

The normal eruption of primary teeth begins at approximately 6 months of age.^[1] Presence of teeth in a new born is a rare condition with an incidence ranging from 1:1000 to 1:30000.^[2-4] Teeth present at birth and emerging in the oral cavity within the first 30 days of life are defined as natal and neonatal teeth, respectively.^[2] Almost all of these teeth are normal primary complement and are often loose due to incomplete root development. However, persistent natal/neonatal teeth can be uncomfortable for the infant as well as the mother. Complications such as aspiration into the infant's lung and ulceration of the tongue can occur. In addition, the sharp incisal edges of these teeth may cause difficulties during breast-feeding for the mother.^[5] Therefore, disking of the sharp edges or extraction in cases of hyper-mobility can be choose as treatment.^[6,7]

Cleft lip and palate (CLP) is a common congenital malformation.^[8,9] The treatment of patients with CLP

starts as soon as possible after birth and does not end until the adulthood. After clinical evaluation and taking the history, the orthodontist takes intraoral impression routinely for preparing the feeding/presurgical orthopedic therapy plate. Consequently, presence of natal/neonatal teeth has a paramount importance for the orthodontist. First, natal teeth have to be noted and essential treatments should be performed before the impression stage to prevent any aspirations. The duration of the presurgical orthopedic therapy is approximately 3–4 months. If

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teeth emerge after birth (neonatal teeth); the intraoral plate may not fit and modifications of the plate may be required. In some cases, the therapy has to stop and postpone until the teeth has extracted. Moreover, researches stated that natal/neonatal teeth are more frequently observed in patients with CLP compared to general population.^[10,11] Therefore, the aim of this retrospective study was to determine the prevalence and the distribution of natal/neonatal teeth in infants with CLP according to gender, involving jaw and side and to show the management of some cases with natal/neonatal teeth.

MATERIALS AND METHODS

The present study was performed retrospectively using the data of 88 infants with CLP who were treated in the CLP clinic of Yeditepe University during 2014–2015.

Nineteen of 88 patients were excluded from the study because of the following reasons:

- No records were taken at weekly follow-up appointments ($n = 9$)
- Referred to the clinic later than 1 week after birth ($n = 10$).

Finally, 69 (31 females, 38 males) infants with CLP were enrolled into the study. Infants with natal/neonatal teeth were determined. Afterward, a categorization of the natal teeth was performed according to gender, cleft type, location, and position.

Statistical analysis

The results were evaluated, and statistical analysis was performed using statistical software program IBM SPSS Statistics 22 (IBM SPSS, Turkey). To analyze the data, descriptive statistical methods (mean value, prevalence ratio, and standard deviation) were carried out. To compare qualitative data Fisher’s exact test and χ^2 test was used. The significance level was set at $P < 0.05$.

RESULTS

Neonatal teeth were recorded in five infants (5/65; 7%). No statistical significant difference according to gender was found ($P > 0.05$). However, more than half (60%) of the neonatal teeth were determined in female infants [Table 1].

The presence of neonatal teeth was not statistically different between cleft types ($P > 0.05$). Neonatal teeth

Table 1: Comparison of neonatal teeth presence between gender and cleft types and distribution of neonatal teeth according to gender, cleft type, region, jaw and side

	Neonatal teeth					
	+	n (%)	-	n (%)	P	
Female	3	(9.7)	28	(90.3)	0.651	3 (60) 0.655
Male	2	(5.3)	36	(94.7)		2 (40)
Bilateral CLP	2	(16.7)	10	(83.3)	0.289	2 (40) 0.655
Unilateral CLP	3	(6.5)	43	(93.5)		3 (60)
CP	0	(0)	11	(100)		0
Region vestibular region						4 (80) 0.180
Region palatinal region						1 (20)
Jaw maxilla						5 (100)
Jaw mandible						0 (0)
Cleft side						5 (100)
Noncleft side						0 (0)

Fisher’s exact test, Chi-square test. CLP: Cleft lip and palate, CP: Cleft palate

were more frequently present in unilateral CLP cases. None of the patients with isolated cleft palate (CP) showed natal teeth. Natal teeth were identified in vestibular alveolar region in more than $\frac{3}{4}$ (80%) of the cases. All of the neonatal teeth were located in the maxilla (100%) and positioned on the cleft-side (100%) [Table 1].

Case 1

A 5-day-old female infant with complete bilateral CLP was referred to the cleft clinic. A dark soft tissue extension was evaluated on the right-labial cleft-side of the premaxillary segment by examination [Figure 1a-d]. At the 1 week follow-up appointment a progressive eruption of the neonatal tooth was observed [Figure 1e-h]. After blood test (prothrombin level) was performed, the neonatal tooth was extracted and 1 week later the intraoral impression were taken [Figure 1i-l]. The nasopalveolar molding therapy was started at the age of 20 days by direct addition of nasal stents and vertical and horizontal bands.

Case 2

A 12 day male infant with complete bilateral CLP presented with a neonatal tooth on the right-palatal cleft-side of the premaxillary segment [Figure 2a]. The tooth was extracted and an appointment for 1 week later was set [Figure 2b]. Nevertheless, at this appointment, a large dark brown soft tissue extension of the palatal healing side was recorded. Therefore, to avoid any misdiagnose (either re-emerge of another neonatal tooth or the eventually eruption of primary tooth) a periapical radiograph was taken [Figure 2c]. Hence, no presence of any tooth in the soft tissue was observed, the presurgical orthopedic treatment was started.

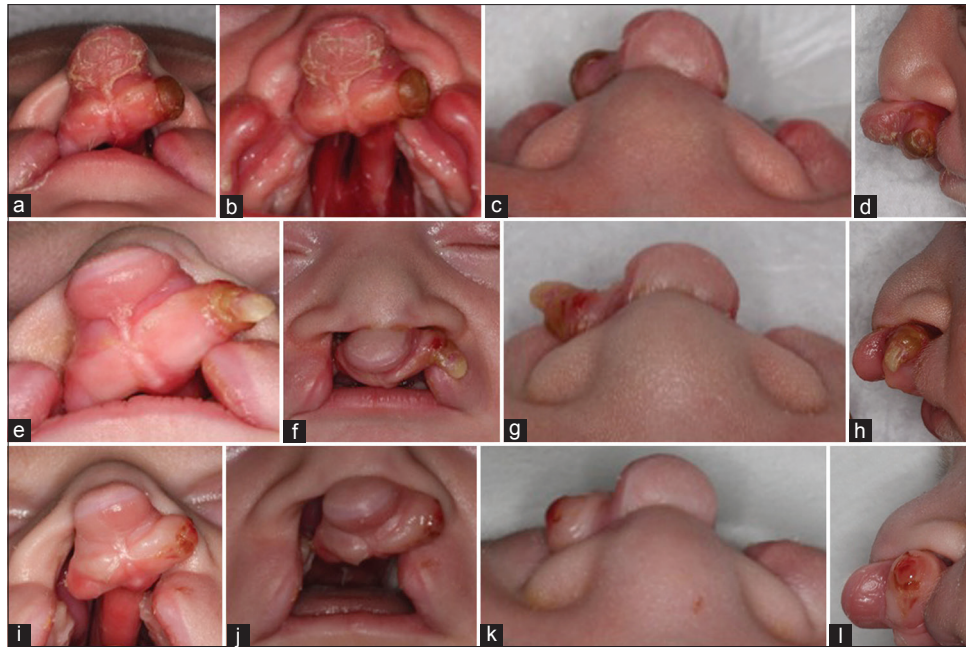


Figure 1: Female case with bilateral complete cleft lip and palate. (l) Initial records, 5-day-old. (a) Columellar view. (b) Intraoral view. (c) Nostril view. (d) Lateral view; Neonatal teeth on cleft-side vestibular region, 13-day-old. (e) Columellar view, f. Intraoral view, g. nostril view. (h) Lateral view; final records, 20-day-old. (i) Columellar view. (j) Intraoral/frontal view. (k) Nostril view. (l) Lateral view

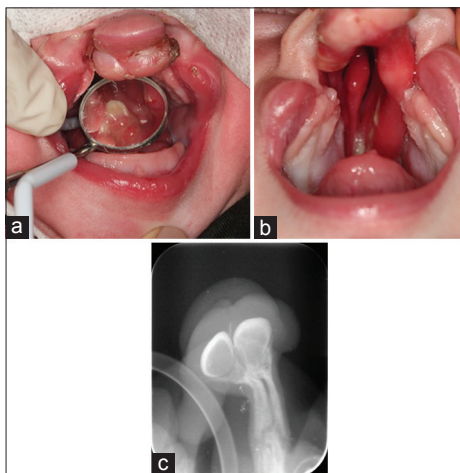


Figure 2: A male case with bilateral complete cleft lip and palate. (a) Intraoral view of neonatal teeth on cleft-side palatal region, 12-day-old. (b) Intraoral view after extraction, 20-day-old. (c) Intraoral radiograph to determinate soft tissue extension

Case 3

A neonatal tooth on the cleft-side of the greater alveolar segment in 18-day-old female infant with complete left unilateral CLP was observed during the intraoral evaluation in the cleft clinic [Figure 3a]. 1 week after the extraction of the neonatal teeth, the soft tissue was not healed yet [Figure 3b]. To avoid any irritation of the healing side, the nasoalveolar therapy was postponed for 2 weeks and only horizontal lip bands were used [Figure 3c].

DISCUSSION

The 1st year after the birth is marked with different developments. One of these developments is the eruption of the first primary teeth. The normal eruption is at approximately at 6 months of age and is celebrated in the family in many cultures.^[1] However, if this eruption is considered rather early, at birth for instance; it leads to anxiety and worry in parents. Not only the chaotic feelings of the parents are of matter for specialists but also the difficulties during daily functions such as feeding concerns them. In summary, presence of these teeth has to be recognized as a disturbance of biological chronology and should be approached with ample attention.^[2]

The incidence of natal/neonatal teeth is relatively low in infants without cleft.^[12,13] On the other, the prevalence of natal or neonatal teeth was found significantly higher in patients with CLP.^[10,14] No significant difference was stated between genders [Table 1]. Ronk^[15] and Leung^[16] mentioned that these teeth are more frequent in females. Similarly, Kates *et al.*^[6] found that the ratio of natal teeth presence is double in females compared to males. On the other, some researches argued that this situation occurred more frequently in males or that no gender differences are evident.^[10,11,17]

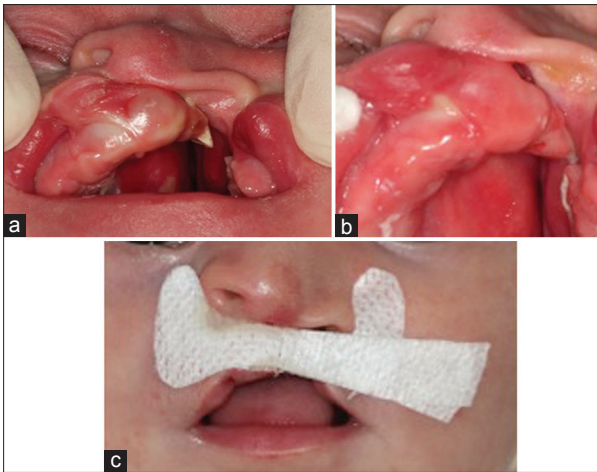


Figure 3: A female case with unilateral complete cleft lip and palate. (a) Intraoral view of neonatal teeth on cleft-side vestibular region, 18-day-old. (b) Intraoral view after extension, 19-day-old. (c) Follow-up of the healing period by using horizontal lip bands, 25-day-old

No significant differences were found in comparison of neonatal teeth presence and cleft type. 60% neonatal teeth were from unilateral cleft patients though the frequency was lower than the bilateral patients. In bilateral CLP cases, de Almeida and Gomide^[10] stated a lesser whereas Iwamoto *et al.*^[11] studies showed a higher prevalence. None of the infants with only CP showed the presence of natal/neonatal teeth. Other studies argued also that they not recorded natal/neonatal teeth in cases with only CP.^[10,11]

All natal/neonatal teeth were found in the maxilla and on the cleft-side. de Almeida and Gomide^[10] also reported that the most prevalent location of these teeth were in the maxillary incisor region. On the other, Kadam *et al.*^[18] reviewed 151 infants with CLP and recorded three cases with neonatal teeth. Two of these three cases were paired mandibular incisors. Indeed, in the general population, the most frequent location of natal/neonatal teeth was described as the mandibular incisor region.^[19] Tsai *et al.*^[20] argued that natal teeth among cases with CLP were more often observed in the premaxillary and maxillary segments, unlike the cases without cleft. They suggested that variations in tooth number such as supernumerary teeth occur most often in the cleft areas in both primary and permanent dentition, whereas tooth anomalies outside the cleft region are more seen in the permanent dentition. Neonatal teeth may also be indicated as primary supernumerary teeth and consequently always located on cleft-side.^[21]

In the management of neonatal teeth, sometimes a dental radiograph may be helpful in the differentiation

of premature eruption of deciduous tooth or large soft tissue enlargement with different color from a supernumerary (neonatal teeth).^[22,23] Hebling *et al.*^[24] suggested to preserve and to maintain the tooth in healthy condition using all possible clinical resources. In an overview of 60 research, the authors outlined that all neonatal teeth were extracted.^[25] Ziai *et al.*^[26] mentioned that when infants with CLP have neonatal teeth, they interfere with fabrication and application of intraoral appliance. Therefore, they recommended extraction of neonatal teeth to facilitate orthopedic therapy. According to the results of this study, all the neonatal teeth were located at the cleft-side and consequently inside the borders of the intraoral molding plate. Therefore, in the routine protocol of our cleft clinic, neonatal tooth extraction is performed in all cases with CLP who will undergo presurgical orthopedic treatment. The extraction is performed not earlier than 10 days after birth. During the first 10 days after delivery, the bacterial flora may be ineffective in Vitamin K production, which plays a major role in prothrombin synthesis. The risk of hemorrhage due to hypo-prothrombinemia is present. To avoid any complications, prothrombin blood tests are also reviewed before any intervention. Basavanthappa *et al.*^[23] advised Vitamin K administration if extraction due to mobility has to be performed before the age of 10 days. After an approximately 1-week healing period, the presurgical orthopedic treatment is always started. However, sometimes the healing period is longer and during the follow-up period only horizontal lip bands may be used. In some cases, neonatal teeth emerge during the 1st month of life after the start of presurgical orthopedic treatment or the systemic well-being do not enable the extraction. In such cases, modification of the border of the intraoral plate until the extraction and during the soft tissue-healing period to enable fit of the plate may be recommended.

CONCLUSION

Following the results of the present study, the presence of natal/neonatal teeth in infants with unilateral and bilateral CLP was not rare. In all of these cases, the teeth were located adjacent to the cleft region. In isolated palatal cleft, where the alveolar region including the teeth buds are away from the cleft, no neonatal teeth were observed. It may be concluded that neonatal teeth in infants with CLP are frequently located inside the borders of the presurgical orthopedic plates. If possible immediate extraction of the neonatal teeth is advised. In cases of systemic health pathologies, modifications of the

plate should be considered. Hence, the physiology is different in infancy, the specialist has to be careful in management of them. Overall, more studies are needed to make up guidelines for management of neonatal teeth in infants with CLP.

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Conflicts of interest

There are no conflicts of interest.

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