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Research Araştırma

Prevalence Of Congenital Missing Permanent Teeth In Children Group Aged Between 5-14 Years Living In The Konya Region: Retrospective Study

Konya İli ve Çevresinde Yaşayan 5-14 Yaş Grubu Çocuklarda Konjenital Daimi Diş Eksikliğinin Prevelansı: Retrospektif Çalışma

ABSTRACT

Congenitally missing tooth is anomaly frequent. This anomaly is classified as hypodontia, oligodontia and anodontia. Premolars and incisors are teeth most frequently affected. The congenitally missing teeth may be an important diagnostic feature of numerous syndromes. However one of the most important factors which cause to malocclussion is congenitally missing tooth. This study determined the prevalence of congenital lack of tooth in patient group between age of 5-14 years living in the Konya region.

In this retrospective study from Selcuk University Faculty of Dentistry Department of Pediatric Dentistry the records of 9950 patients from a period of 2000 to 2005 were studied.

The congenital lack of one or more teeth has been determined in 151 of the 9950 patients. Of all the 151 patients with congenital missing teeth were 0.7% with anodontia, 2.6% with oligodontia and 96.7% with hypodontia.

Key words: Hypodontia, Oligodontia, Anodontia, Prevalence, Children.

ÖZ

Konjenital diş eksikliği sıklıkla karşılaşılan bir anomalidir. Hipodonti, oligodonti ve anodonti olarak sınıflandırılan bu anomaliden en sık etkilenen dişler, kesiciler ve premolardır. Konjenital diş eksikliği birçok sendromun karakteristik özellikleri arasında yer almaktadır. Bununla birlikte konjenital olarak eksik dişlerin malokluzyona neden olan lokal faktörler arasında önemli bir yer tuttuğu bildirilmektedir. Bu çalışmada Konya ili ve çevresinde yaşayan 5-14 yaş grubu çocuklarda konjenital daimi diş eksikliklerinin prevalansının belirlenmesi amaçlanmıştır.

Bu amaçla 2000-2005 yılları arasında Selçuk Üniversitesi Dişhekimliği Fakültesi Pedodonti Anabilim Dalı'na başvurmuş olan hastaların kayıtları retrospektif olarak değerlendirildi.

Kayıtları incelenen toplam 9950 hastanın 151'inde konjenital daimi diş eksikliğinin yer aldığı saptandı. Bu eksikliklerin, %96.7'sinin hipodonti, %2.6'sının oligodonti ve %0.7'sinin anodonti olduğu belirlendi.

Anahtar sözcükler: Hipodonti, Oligodonti, Anodonti, Prevelans, Çocuklar.

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INTRODUCTION

Congenitally missing tooth results from disturbances during the early stages of tooth development(1). All permanent teeth excluding the third molars will have begun their mineralization by the age of 3.5. After this period if there is any congenital missing teeth it will be visible in a radiograph. Consequently, a tooth is defined to be congenitally missing if it has not erupted in the oral cavity and is not visible in a radiograph(1,2).

Congenitally missing tooth is anomaly frequent. Enviromental and genetics factors are effective in etiology. The anomaly appears in three different types. Hypodontia is defined as lack of 1 up to 6 teeth except the third molars (Figure 1-a). Oligodontia is defined as lack of more than six teeth except the third molars (Figure 1-b). Anodontia is a complete absence of teeth (Figure 1-c)(3).

Figure 1-a: Hypodontia

Figure 1-b: Oligodontia

Figure 1-c: Anodontia

Mandibular second premolar, maxillary lateral incisor, maxillary second premolar, mandibular lateral incisor are teeth most frequently affected (1,4).

Numerous studies have appeared on the prevalence of congenital lack of teeth in different countries, showing some variation in populations, on continents and among races. The prevalence of hypodontia in the permanent dentition was reported to be approximately 4.5% in Norwegian (5) whereas other studies have reported a ratio of 6.9% in Chinese children(6). Rølling and Poulsen (7) reported that oligodontia occurs in 0.16% of Danish schoolchildren.

In Turkey there was only one congenital lack of tooth prevalence study(8). This study was invastigated to be 2.265 in the 8-14 year age group patients for the prevalence of congenital lack of tooth in 1990 (8).

The congenital lack of tooth may be an important diagnostic feature of numerous syndromes (4,9,10). However one of the most important factors which cause to malocclussion is congenitally missing tooth (11).

This study determined the prevalence of congenital lack of tooth and its distribution according to tooth, jaw and gender in patient group between age of 5-14 years living in or around the Konya region refer our clinic of Selcuk Univercity, Faculty of Dentistry.

MATERIAL AND METHODS

This retrospective study in Selcuk University Faculty of Dentistry Department of Pediatric Dentistry. The records of 9950 patients from a period of 2000 to 2005 were overviewed. The cases without a history of permanent teeth extraction or impacted permanent teeth revealed by radiographs were selected from patient files. Excluding anodontia patient has ectodermal dysplasia syndrome, these cases had neither systemic diseases nor hereditary disorders which influenced tooth formation or eruption. Distribution according to tooth, jaw and gender in patient number of tooth lack of teeth lack assign to use Chi-Square and Fisher's Exact tests.

RESULTS

The congenital missing of one or more teeth has been determined in 151 of the 9950 patients referred to the department of pediatric dentistry from 2000 to 2005. Therefore this gives a ratio of 1.52% of the patients having congenital missing of teeth.

There were 83 (55%) female and 68 (45%) male with congenital missing teeth.

Of all the 151 patient with congenital missing teeth were found in the mandible of 67 (44.4%) patients, in the maxilla of 49 (32.5%), and in both the mandible and maxilla of 34 (22.5%).

Of all the 151 patients with congenital missing teeth were 1 (0.7%) with anodontia, 4 (2.6%) with oligodontia and 146 (96.7%) with hypodontia.

Of the 151 patients there were 44 (29.1%) of the single missing teeth (Table I), 78 (51.7%) of 2 missing teeth, 10 (6.6%) of 3 missing teeth, 11 (7.3%) of 4 missing teeth, 1 (0.7%) of 5 missing teeth, 2 (1.3%) of 6 missing teeth (Table II). Of all the patient has two missing teeth were symetric teeth lack in 68 (87.2%). Of more than one teeth lack have been determined distribution gender and jaw in Table III. Of one and more congenital teeth lack were found statistically not significant distribution between jaw and gender [Chi-square and Fisher's exact tests ($p>0.05$)].

Table 1: Gender and jaw distribution of single tooth lack

	Location	Male	Female	Total
Single lack	**Right Maksilla**	1	3	4
	Left Maksilla	3	4	7
	Right Mandible	8	4	12
	Left Mandible	10	11	21
	Total	22	22	44

Table 2: Gender distribution of congenital teeth lack

	Male	Female	Total
Single lack	22	22	44
Two teeth lack	36	41	77
3 teeth lack	3	7	10
4 teeth lack	2	9	11
5 teeth lack	0	1	1
6 teeth lack	0	2	2
Total	63	82	145

Table 3: Gender and jaw distribution of more than one teeth lack

	Location	Male	Female	Total
More than one teeth lack	**Maxsilla**	15	23	38
	Mandible	19	15	34
	Max+mand	11	23	34
	Total	45	61	106

Of the 151 patients it was found 72 (47.7%) of mandibular left second premolar agenesis (Table IV), 59 (39.1%) of mandibular right second premolar agenesis (Table V). Excluding third molars congenital permanent missing teeth to be distributed gender and prevalence (Table VI). Of the mandibular left second premolar and mandibular right second premolar agenesis has been found not significant statistically in distribution by gender ($p>0.05$).

Table 4: Gender distribution single and with other teeth of mandible left second premolar lack

MANDIBLE LEFT SECOND PREMOLAR LACK	Male	Female	Total
Only mandible left second premolar lack	8	11	19
Two teeth lack (at least one of the lacks is mandible left second premolar lack)	18	15	33
More than two teeth lack (at least one of the lacks is mandible left second premolar lack)	4	16	20
Total	30	42	72

Table 5: Gender distribution single and with other teeth of mandible right second premolar lack

MANDIBLE RIGHT SECOND PREMOLAR LACK	Male	Female	Total
Only mandible right second premolar lack	7	3	10
Two teeth lack (at least one of the lacks is mandible right second premolar lack)	17	13	30
More than two teeth lack (at least one of the lacks is mandible right second premolar lack)	4	15	19
Total	28	31	59

It has consequently been found that in children living in the Konya region, there is 1.47% prevalence of hypodontia, 0.04% prevalence of oligodontia, 0.01% prevalence of anodontia. The missing teeth appears to be most frequently consecutively mandibular second premolar, maxillary lateral incisor, maxillary second premolar and no significant difference exist in of this lack by jaw and gender.

DISCUSSION

Congenital lack of one or a few permanent teeth without any systemic disorders is a common dental anomaly. Numerous studies have appeared on the prevalence of hypodontia in different countries, showing some variation in populations. The prevalence of hypodontia was reported to be 4.5% in Norwegian (5) and 6.01% in Kansas (12). However an other study has reported a ratio of 6.9% in Chinese children (6). The reported prevalence of hypodontia in this study was found to be 1.52% a lower value than reported in most other studies (5,6,7,12).

Four individuals (2.6%) in this study was found to have agenesis of six or more teeth, consistent with oligodontia. This value was higher than other studies (5,7).

Congenital lack of all teeth (anodontia) without associated abnormalities is extremely rare(1). Only one individuals (0.7%) in this study was found have agenesis of all teeth. However this anodontia patient has had ectodermal dysplasia syndrome, which influenced tooth formation or eruption.

More females than males were found to have the hypodontia, confirming results from the other studies (5,6,8).

In this study the mandibular second premolar was found to be missing most frequently (excluding third molars), in agreement with many other invastigations (5,9,12). Followed by a maxillary lateral incisor and second premolar. In this study, 40.2% of the missing teeth were lower second premolars, 25.2% upper lateral incisors, 20.6% upper second premolars. Some authors have reported that maxillary second premolars are the second most often missing teeth (5,6). However, Davis (6) has reported that mandibular incisor are the most commonly missing teeth. Absence of maxillary central incisors, maxillary and mandibular first molars and canines seems to be very rare, confirming results from other studies (5,7,8).

Most individuals with hypodontia lack only one or two permanent teeth, confirming results from other studies (5,6,8).

No clear difference in congenitally missing teeth has been found between the maxilla and the mandible. Congenital missing teeth were found in the mandible of 77 cases, in the maxilla of 36 cases (6). Right and left sides of the jaw were affected with equal frequency in Chinese children (6). In this study, congenitally missing teeth were found in the mandible of 67 individuals, in the maxilla of 49 individuals and in both the mandible and the maxilla of 34 individuals.

Unilateral hypodontia is common, with no significant difference between the left and right sides of the jaws (5,6). However, in this study, bilateral hypodontia was higher than unilateral hypodontia.

CONCLUSION

Congenital missing teeth are seen in several syndromes together with malformations of other organs. These are, Down syndrome, osteogenesis imperfecta, hypohidrotic ectodermal dysplasia, book syndrome, ectrodactyly-ectodermal dyspalsia-clefting (EEC) syndrome, incontinentia pigmenti (Bloch Sulzberger syndrome), oligodontia and sparse hair/taurodontia syndrome, oral-facial-digital syndrome type 1 (4). Congenital missing teeth are has an important role in diagnosis of these syndromes. However one of the most important factors which cause to malocclussion is congenitally missing tooth (11,13). Early diagnosis and treatment planning would reduce the future problems in cases with congenitally missing teeth.

Table 6: Gender distribution and percent of tooth lack

		11	**21**	**12**	**22**	**13**	**23**	**14**	**24**	**15**	**25**	**16**	**26**	**17**	**27**
Female	**Lacking number of teeth**	0	0	24	25	0	0	1	2	22	25	0	0	0	1
	%	0	0	15.9	16.6	0	0	0.5	1.1	14.6	16.6	0	0	0	0.7
Male	**Lacking number of teeth**	0	0	16	17	1	2	1	2	10	10	0	0	0	0
	%	0	0	10.6	11.3	0.7	1.4	0.7	1.4	6.6	6.6	0	0	0	0
Total	**Lacking number of teeth**	0	0	40	42	1	2	2	4	32	35	0	0	0	1
	%	0	0	12.3	27.8	0.3	0.6	0.6	1.2	21.2	23.2	0	0	0	0.7
		31	**41**	**32**	**42**	**33**	**43**	**34**	**44**	**35**	**45**	**36**	**46**	**37**	**47**
Female	**Lacking number of teeth**	3	2	1	2	2	2	0	0	42	31	0	0	1	1
	%	2	1.3	0.7	1.3	1.3	1.3	0	0	27.8	20.5	0	0	0.7	0.7
Male	**Lacking number of teeth**	5	5	5	4	0	1	1	1	30	28	0	0	0	0
	%	3.3	3.3	3.3	2.6	0	0.7	0.7	0.7	19.9	18.5	0	0	0	0
Total	**Lacking number of teeth**	8	7	6	6	2	3	1	1	72	59	0	0	1	1
	%	5.3	4.6	4	4	1.3	2	0.7	0.7	47.7	39.1	0	0	0.7	0.7

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