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HYPERDONTIA IN CHILDREN AT THE PAEDIATRIC DENTAL CLINIC

(HIPERDONSIA PADA PASIEN KLINIK GIGI ANAK)

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Abstract

This was a retrospective study that looked at the prevalence, characteristics, gender predilection and common problems associated with supernumerary teeth found in children at the Paediatric Dental Clinic, National University of Malaysia (UKM). Four hundred ninety clinical records of children with relevant radiographs, mean age of 8 years (range 6-12 years old) were analyzed. The result showed that the prevalence of supernumerary teeth was found to be 3.1%. One hundred percent of the supernumerary teeth were found among patients of Mongoloid descendents (Malay and Chinese). Males were more frequently affected than females with a ratio of 4.1:1. Of the 22 supernumerary teeth found, 75.0% of the teeth were unerupted, 91.0% were located at the anterior maxillary region, 77.3% were conical in shape and 72.7% were of mesiodens type. Uneruption of permanent tooth and crowding were the common problems associated with the supernumerary teeth. All patients with supernumerary teeth were in the mixed dentition stage. In conclusion, majority of supernumerary teeth found were unerupted, located at the anterior maxillary region, mesiodens in conical shape and commonly seen in Mongoloid males.

Key words: supernumerary teeth, mongoloid, unerupted teeth

INTRODUCTION

A supernumerary tooth is defined as an additional tooth to those of the normal series and can be found in almost any tooth bearing areas of the dental arch. Supernumerary teeth may be classified according to their morphology or location in the dental arches.[1] There are many postulated theories to explain the development of supernumerary teeth such as hyperactivity of the dental lamina, dichotomy of the tooth bud and influence of the environmental factors.[2,3] Of late, genetic regulatory mechanisms at the molecular level have been suggested as another possible aetiology of supernumerary teeth.[4] Heredity influence has also been cited to play a role in the occurrence of this anomaly, as they are most commonly found in relatives of affected children than in the general population.[5,6] Often either single or double supernumerary teeth are of common appearance in general population. Multiple supernumerary teeth are commonly associated with developmental disorders such cleft lip and palate, cleidocranial dysostosis and Gardner's syndrome.[7] However, cases of non-syndromal multiple supernumeraries have been reported in the literature.[7-8]

The objectives of this study were to find out the prevalence, characteristics, gender predilection and common complications that are associated with supernumerary teeth.

MATERIALS AND METHODS

The study was carried out at the Paediatric Dental Clinic, University Kebangsaan Malaysia Dental Faculty. This was a retrospective survey where clinical records of paediatric patients from August 2004 to August 2008 were screened. The criteria of inclusion were subjects from the age of 4-17 years inclusive, with records of full history and examination, and orthopantomogram (OPG) radiographs or any other relevant radiographs available.

From the clinical records, subject's demographic data such as age, sex and race was recorded along with the radiograph analysis. The investigators were required to view the radiographs critically to check the consistency between their findings and that

reported by dentist in the patient's record at the time of examination. If a supernumerary tooth was found to be present, its date of diagnosis and actual presenting complaint were noted. In cases where the supernumerary tooth was discovered by the investigators but not reported by the dentist or complained by the patient, the tooth would be categorised as an incidental finding. This exercise was tested on a sample of 50 clinical records before the commencement of the actual study. Calibration of the two investigators was carried out at the same time in terms of radiograph assessment.

RESULTS

A total of 961 clinical records of subjects were reviewed. Of the total, only 490 records were included in the study, the incomplete clinical records were excluded. The mean age of the subjects was 8.0 years with the majority being in the age range between 6-12 years old. The demographic characteristics of subjects included in the study were as shown in Table 1.

Table 1. Demographic characteristics of subjects (N= 490)

Characteristics		n	%
Age (year)	< 6	69	14.1
	6 -12	395	80.6
	> 12	26	5.3
Race	Malay	401	81.8
	Chinese	35	7.1
	Indians	35	7.1
	Others	19	4.0
Gender	Male	246	50.2
	Female	244	49.8

Of the examined subjects, only 3.1% were found to have supernumerary teeth. The mean age of the patients with supernumerary teeth at the time of presentation was 8.1 years. Presences of the supernumerary teeth were only observed in the Malay and Chinese subjects. Supernumerary teeth appeared to be common among males compared to females. The percentages of subjects with supernumerary tooth/teeth were as shown in Table 2.

Table 2. Percentage of supernumerary tooth based on race and gender (N= 490)

Characteristics		Subjects (N)	Subject with Supernumerary tooth (n)	%
Race	Malay	401	14	3.5
	Chinese	35	1	2.9
	Indian	35	0	-
	Ithers	19	0	-
Gender	Male	246	12	4.9
	Female	244	3	1.2

Of the 15 subjects with supernumerary tooth/teeth, 73.3% of them presented with single tooth supernumerary, 20% with two supernumerary teeth, one subject with odontome and another one exhibited four supernumerary teeth. The total number of supernumerary teeth found among the 15 subjects was 22 (Table 3).

Table 3. Distribution of supernumerary tooth based on type and location

Type	Location	n
Mesiodens	Anterior maxilla	16
Supplemental lateral incisor	Anterior maxilla	4
Distomolar	Posterior maxilla	1
Odontome	Anterior mandible	1
Total		22

Most of the supernumerary teeth (77,3%) were conical in shape and 91% located at the anterior region of maxilla. Mesiodens (72.7%) appeared to be the commonest type of supernumerary teeth noted in the studied subjects. The distribution of the type and location of the supernumerary tooth/teeth were as shown in Table 3. Almost all the subjects were medically healthy expect one with unilateral cleft lip and palate who exhibited 4 supernumerary teeth.

Majority of the subjects with supernumerary teeth (60%) had no problem associated with their supernumerary tooth/teeth and were only detected during routine clinical examination. Of the 40% (n=6) subjects presented with complaints, crowding and delayed eruption of the permanent teeth were the most commonly noted problems. Breakdown of the common problems associated with the presence of supernumerary tooth/teeth were as shown in Figure 1.

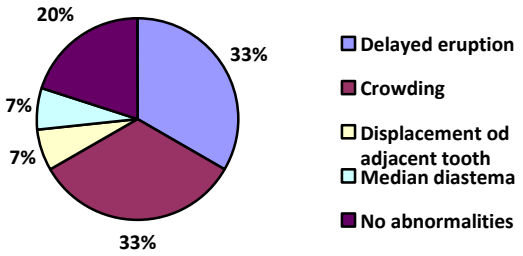

Figure 1. Common problems associated with supernumerary tooth/teeth

DISCUSSION

Although occurrence of supernumerary teeth are less common than other dental developmental anomalies,[9] nevertheless, their presence may cause pro-

blem in the developing dentition especially during the mixed dentition stage.[6] They are often diagnosed as incidental findings during routine radiographical examination because many remain unerupted.[8] This is in agreement with our study where nearly 2/3 of the supernumerary teeth were found to be unerupted.

Over the years, prevalence of supernumerary teeth has been reported to be in the range of 0.36%-3.4% depending on the surveyed population.[2-3, 9-13] Although there have been studies that reported higher prevalence of supernumerary teeth among Mongoloids compared to Caucasians.[2-3] In our study, the prevalence of supernumerary teeth was found to be 3.1% and this is in agreement with the findings of vast majority of studies in the literature, although, 100% of the supernumerary teeth noted in our survey were found among the Mongoloid descendents (Malay and Chinese ethnicity), which represented 89% of the studied subjects.

Prevalence of supernumerary teeth in primary dentition are often under reported because either there are no adequate radiological data available or no mass clinical examination performed or they don't pose major clinical problem as often all the teeth erupt into occlusion due to generally spaced dentition. Prevalence was reported to be much lower than in the permanent dentition in a range of 0.05 to 0.8%.[14] However, supernumerary teeth in primary dentition was reported to be slightly higher in the Caucasians than the Mongoloids.[14] In our study, none of the supernumerary teeth found were from the primary dentition.

When the gender ratio was analysed, our study was in agreement with other studies that supernumerary tooth/teeth were found more commonly in males than female. However, the male to female ratio in our study was 4. 1:1, much higher than the range of 1.4:1 to 3:1 reported by majority of the studies in the literature. [2,3,13,16] Based on our study, we are of view that there is a high predilection for supernumerary teeth to appear among Mongoloid males because all of the supernumerary teeth found in our study were from Mongoloid descendents. This is in agreement with other studies based on Chinese populations where ratios higher than 3.1:1 were reported in favour of males.[15-16]

Commonest type of supernumerary teeth was the mesiodens. They are often located at the anterior region of maxilla (premaxilla) and majority of them were conical in shape. Other forms of supernumerary teeth such supplemental, tuberculate and odontomes have been reported at the premaxillary region, although, they are usually small in number. Almost all the supernumerary teeth in our study with exception of two were found at the premaxillary region and majority were conical in shape. Mesiodens were the commonest form of the conical shaped tooth found. This is in agreement with other studies reported in the literature.[2-3, 15]

Multiple supernumeraries (five or more teeth) in non-syndromic patients are rare compare to syndromic patients.[3] Majority of the supernumerary teeth in the non-syndromic patients were found to be at the premolar region.[17] In our present study, majority of the supernumerary teeth found were of single entity in non-syndormic patients with the exception of one subject with cleft lip and palate who exhibited four supernumerary teeth. This is in accordance with cases reported in literature that patients with cleft lip and palate may present with either with hyperdontia or hypodontia.[18-19]

Although more than 75% of supernumerary teeth remain unerupted in most of the reported cases,[2,13,16] nevertheless, their presence may give rise to some common problems such as delayed eruption of permanent teeth, displacement or rotation of permanent teeth, crowding, diastema and other less common complications such cyst formation, migration of tooth towards nasal cavity and root resorption of adjacent teeth.[2-3] In our study, the two main complications encountered by the subjects with supernumerary teeth were delayed eruption of permanent teeth and crowding which account for 66% of the problems encountered clinically.

Plains film radiographs such as periapical, anterior occlusal and orthopantomogram have been the mainstay in the identification and localisation of majority of the unerupted supernumerary teeth. However, with advancements in imaging technology, use of computer tomography such as cone beam computer tomography (CBCT) is gaining popularity. Usage of this mode of imaging modality is able to provide useful information pertaining to the orientation of the supernumerary tooth, its relationship to adjacent structures, pathologies associated with it and planning of possible surgical access.[20-21] In our study only plain film radiographs were available; therefore it's not possible to discuss much on the orientation and direction of the supernumerary teeth found.

In conclusion, the prevalence of supernumerary teeth in children who attended the Paediatric Dental Clinic, at the Faculty of Dentistry UKM was 3.1%. They were more common in males than females. Mesiodens were the predominant supernumerary teeth type found and majority were conical in shape, remain unerupted and found at the premaxillary

region. Delayed eruption of permanent teeth and crowding were the common clinical presentations associated with the supernumerary teeth.

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