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Age and Gender Distribution of Benign Paediatric Odontogenic Tumor: Experience of 30 Cases in Dhaka City

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Abstract

Background: Odontogenic tumor can occur among children with the variation of different age and gender. **Objective:** The purpose of the present study was to see the age and gender distribution of odontogenic benigntumor originated in the oro-facial region among children. **Methodology:** This cross-sectional study was studied in the department of Oral and Maxillofacial Surgery at Dhaka Dental College and Hospital, Dhaka, Bangladesh from January 2010 to June 2012 for a period of 2 and half year.Children below 18 years of age irrespective of gender, histopathologically diagnosed case of odontogenic tumours were included in this study. Diagnosis of those tumour was done by history, clinical findings and histopathological or cytopathological examination. The clinical, histopathological or FNAC findings were analysed. **Result:** Among the total benign lesions 30 were odontogenic. In the total odontogenic tumour patients 9 cases were odontogenic keratocyst; 9 cases were ameloblastoma; 5 cases were ameloblastic fibroma; 3 cases were odontogenic myxoma and 4 cases were odontogenic fibroma.Among the patients with odontogenic tumours 15 were less than 10 years old and 15 were 10 to 18 years old. Odontogenic Keratocyst was the most common benign tumour (20.0%) cases among less than 10 years of age group. In 10 to 18 years of age group the most common reported benign tumour was Ameloblastoma (21.6%). Male and female ratio was 1.7:1. Among male Ameloblastoma was the most commonly detected benign tumour (17.1%). Among female childrenodontogenic keratocyst was the most reported tumour (18.8%). **Conclusion:** In conclusion the most common odontogenic benign tumour are odontogenic keratocyst and ameloblastoma. *[Journal of National Institute of Neurosciences Bangladesh, 2019;5(2): 152-155]*

Keywords: Age and gender distribution; benign; paediatric odontogenic tumor

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Introduction

Odontogenic tumours are a group of tumours in the orofacial complex arising from tooth forming tissues and is less in the children[1]. Most are slow growing while a few are locally invasive and aggressive causing extensive local destruction. While majority of them are benign, a few are malignant and may metastasize outside the jaws. The incidence of odontogenic tumours in children is believed to differ according to country[2]. Although there have been some clinic-pathological reports on odontogenic tumours, according to the World Health Organization (WHO), statistical data are available only in certain countries incidence of odontogenic tumour more in males[3].

Ameloblastoma is the most common benign tumour (66.7%) followed by odontome (20%), adenomatoid odontogenic tumour (10%) and mandible is the more common site of occurrence for most odontogenic tumours[4]. Gender analysis showed a female predilection for most of the tumours except ameloblastoma[5]. Odontogenic tumours are relatively rare in the child age group; however certain lesions such as adenomatoidodotogenic tumour and ameloblastic fibroma occurs predominantly in children and therefore remain an important diagnostic consideration[6].

The behavior of lesions depends on whether they are benign or malignant. The classification of oral tumours assists the dentist or oral surgeon in making a decision regarding the nature of the management of tumours since they are generally named after their cells of origin[2]. This present study was undertaken to see the age and gender distribution of odontogenic benigntumor originated in the oro-facial region among children.

Methodology

This descriptive cross-sectional study was carried out in the department of Oral and Maxillofacial Surgery at Dhaka Dental College and Hospital, Dhaka, Bangladesh. According to inclusion and exclusion criteria patients of age below 18 years were studied from January 2010 to June 2012, who underwent biopsy or fine needle aspiration cytology (FNAC) of tumour for different oro-facial tumours. Study subject were recruited on the basis of inclusion and exclusion criteria and convenient sampling. Children below 18 years of age irrespective of gender, histopathologically diagnosed case of tumours, and Fine needle aspiration cytological diagnosed case of these tumours, parents or legal guardians who gave consent were included in this study. Adult patients above 18 years of age, incomplete clinical data, reports with doubtful and controversial diagnosis, patient with major salivary gland tumours and patient who refused to attained the research were excluded from this study. Diagnosis of those tumour was done by history, clinical findings and histopathological or cytopathological examination. The clinical, histopathological or FNAC findings were analysed. Data were analysed by SPSS, version 12. Comparison was done by chi-squire test or fisher exact test. Any p value less than 0.05 was considered statisticallysignificant. Qualitative data were expressed as frequency and percentage. Quantitative data were expressed as mean and standard deviation. Ethical committee of Dhaka Dental College had given the ethical clearance for this study.

Results

A total number of 30 cases of benign odontogenic tumour cases were recruited for this study. In the total odontogenic tumour patients 9 cases were odontogenic keratocyst; 9 cases were ameloblastoma; 5 cases were ameloblastic fibroma; 3 cases were odontogenic myxoma and 4 cases were odontogenic fibroma (Table 1).

Table 1: Type of Odontogenic tumour by origin of dental tissue

Type of benign Odontogenic tumour	Frequency	Percent
Odontogenic Keratocyst	9	30.0
Ameloblastoma	9	30.0
Ameloblastic Fibroma	5	16.7
Odontogenic Myxoma	3	10.0
Odontogenic Fibroma	4	13.3
Total	**30**	**100.0**

Among the patients with odontogenic tumours 15 were less than 10 years old and 15 were 10 to 18 years old. Odontogenic Keratocyst was the most common benign tumour which was 6(20.0%) cases among less than 10 years of age group followed by ameloblastic fibroma, odontogenic myxoma and odontogenic fibroma which were 4(13.3%) cases, 2(6.7%) cases and 2(6.7%) cases respectively. In 10 to 18 years of age group the most common reported benign tumour was Ameloblastoma which was 8(21.6%) cases followed by odontogenic keratocyst and odontogenic fibroma which were 3(8.1%) cases and 2(5.4%) cases respectively (Table 2).

Table 2: Individual type of benign Odontogenic tumour by age

Type	Age Group		Total
	< 10 years	10 to 18 years	
Odontogenic Keratocyst	6(20.0%)	3(8.1%)	9(30.0%)
Ameloblastoma	1 (3.3%)	8(21.6%)	9 (30.0%)
Ameloblastic Fibroma	4(13.3%)	1 (2.7%)	5 (16.7%)
Odontogenic Myxoma	2(6.7%)	1 (2.7%)	3 (10.0%)
Odontogenic Fibroma	2(6.7%)	2 (5.4%)	4 (13.3%)
Total	**15(100.0%)**	**15(100.0%)**	**30 (100.0%)**

*No significant difference was observed (Chi squire test; p value > 0.05)

Regarding sex distribution of odontogenic tumours 19 cases were male and 11 cases were female. Male and female ratio was 1.7:1. Among male Ameloblastoma was the most commonly detected benign tumour which was 6(17.1%) cases followed by ameloblastic fibroma, odontogenic keratocyst, odontogenic myxoma and odontogenic fibroma which were 4(11.4%) cases and 3(8.6%) cases each in the rest of the types. Among

female childrenodontogenic keratocyst was the most reported tumour which was 6(18.8%) cases followed by ameloblastoma which was 3(9.4%) cases (Table 3).

Table 3: Individual type of benign tumour by sex

Type	Gender		Total
	Male	Female	
Odontogenic Keratocyst	3(8.6%)	6(18.8%)	9(30.0%)
Ameloblastoma	6(17.1%)	3(9.4%)	9(30.0%)
Ameloblastic Fibroma	4(11.4%)	1(3.1%)	5(16.7%)
Odontogenic Myxoma	3(8.6%)	0(0.0%)	3(10.0%)
Odontogenic Fibroma	3(8.6%)	1(3.1%)	4(13.3%)
Total	**19(100.0%)**	**11(100.0%)**	**30(100.0%)**

*No significant difference was observed (Chi squire test; p value > 0.05)

Discussion

Tröbs et al[7] have demonstrated that the vast majority of oral lesions in infants and children is mesenchymal nature and is benign in character ranging from 84.0% to 99.0% of cases. This finding is not agreed with others as Nazimiet al[8] (9.5%), Arotiba et al[9] (40.2%) and Varkhede et al[2] (13.3%). Incidence of malignancy observed range of 1 to 16.0% reported by other European and North American studies[3,7] while the exceedingly high rate of 40% malignant tumours in Nigerian children is attributable to the high prevalence of Burkkit's lymphoma in that population[9]. In another study[10] it has been observed a 4 to 5 percent of Ewing's sarcoma; however, in this study found 2.8% cases of 71 patients. The low percentage of malignant tumours in this study could be due to the following reasons: inclusion of patients aged 18 years and below, inclusion of also tumour-like lesions in this study, and possibly, less sample size. It was found that malignant tumours affects equally in male female (1:1). Elarbi et al[11] reported that the male female ratio is 1.6:1. Most of the previous studies have found similar ratio with a high male predominance[9].

In the total odontogenic tumour patients 9 cases were odontogenic keratocyst; 9 cases were ameloblastoma; 5 cases were ameloblastic fibroma; 3 cases were odontogenic myxoma and 4 cases were odontogenic fibroma. Odontogenic tumours were 44.8% in this study among the all benign tumours. Keszler et al[12] and Maatia[13] describe that the rate of odontogenic tumours varies between 19% and 33.7%. Odontogenic tumours are found more often in male patients and ratio was 1.72:1, which is supported by Arotiba et al[9] in contrast female predominant is reported by Tröbs et al[7]. In another study[14] mostly encountered odontogenic tumour is benign in nature with only 4.5% being of malignant variety of which ameloblastoma is accounted for 69.2%, fibromyxoma(12.5%), adenomatoid odontogenic tumour (4.6%) and ameloblastic fibroma (3.1%).

Various reports in the literature of Adebayoet al[14] and Nazimi et al[15] confirm the rarity of odontogenic tumours in children and adolescents. These authors used various age categories for their subjects and considered odontogenic tumours within the spectrum of orofacial neoplasm's. According to Ulmanskyet al[16] between 1.0 and 28.8% of pediatric oral lesions are odontogenic tumours. In this series of oral tumours in children and adolescent ≤18 years old, 44.8% are odontogenic tumours. While this result is higher than the worldwide range given by Ulmansky et al[16]. However in another study[4] it has been observed that high prevalence of odontogenic tumour in young age while rare in children below 10 years of age. In contrast Arotiba et al[9] shows odontogenic tumours the male female ratio in 1.6:1. which is supported by this study.

Ameloblastoma occurred in 9 patients below 18 years old representing 30% of odontogenic tumours. Study shows that there are more in males (14.7%) than females (6.5%) and ratio was 5:2, while Nazimi et al[15] and Schafer et al[17] demonstrate the ratio 2:1 which is very close to this present study. Study about Ameloblastoma by Schafer et al[17] shows that 33.4% patients are within the age range between 10 to 19 years. In this study among the total patients 1 patient were in the age group below 10 years of age and another 8 patients were in between 10 to 18 years of age.

In this study ameloblastic fibroma represents 16.7%of total benign odontogenic tumour. All are below 10 year of age with a male female ratio of 4:1. Among the tumour 4 in mandible and 1 in other side. In contrast Ulmansky et al[16] shows Ameloblastic fibroma is rare accounting for less than 7.0% of odontogenic tumour, male female ratio was 2:1 and occurred in younger age group. Age group of ameloblastic fibroma in this study is 4 in age group below 10 and 1 is the age in between 10 to 18 years of old.

This study has been conducted in a particular tertiary hospital, so the findings cannot reflect the general scenario of the country. The relatively small sample size is another limitation in this study.

Conclusion

In conclusion, odontogenic benign tumour are found in all ages of children. The most common odontogenic

benign tumour among paediatric age group are odontogenic keratocyst and ameloblastoma. However, ameloblastoma is the most commonly detected benign tumour among male. Furthermore, odontogenic keratocyst is most frequently found in female.Further large scale study should be carried out.

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