Pattern and distribution of tumours and tumour- like lesions in the oro-facial region of children

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Abstract:

Introduction : *Tumours and tumour-like lesions of children have bizarre pattern of distribution in oro-facial region. The proper treatment of this type of tumour has become a challenge for the maxillofacial surgeon due to diagnostic problem. This study was designed to determine the pattern, distribution, tissue origin and type of tumours and tumour-like lesions in the oro-facial region among the children, which would help for better diagnosis of this group of lesions and subsequent treatment.* ***Objective:*** *To determine the pattern and distribution of oro-facial tumours and tumour-like lesions in the children.* ***Materials and method:*** *This is a cross sectional descriptive study and was designed to determine the pattern and distribution of oro-facial tumours and tumour-like lesions of children. A total number of 71 cases of tumours and tumour-like lesions of age below 18 years were studied in the department of Oral and Maxillofacial Surgery in Dhaka Dental College and Hospital from January 2010 to June 2012.* ***Result:*** *Total number of patient was 71 in this study. Thirty two (45.1%) of these patients were less than 10 years old and the rest 39(54.9%) patients were older and residency distribution was 53(74.6%) in rural area and 18(25.4%) in urban area. Among the total patients 37(52.1%) were male and 34(47.9%) were female. In the total studied patient 67(94.4%) had benign and the rest 4(5.6%) had malignant types of lesion. In benign tumour, 30 were below 10 and 37 were older and there male female ratio is 1.1:1. In malignant tumour 2 were below 10 and 2 were older and there male female ratio is 1:1. Among the total benign tumours, 30 were odontogenic, and 37 were non-odontogenic. Most of the non-odontogenic tumours occurred in female patients and age was between 10 to 18 years.* ***Conclusion:*** *Orofacial tumours are not uncommon among the children and adolescents as observed. Study shows lower incidence of malignant tumours. In benign tumours higher incidence of non-odontogenic tumour was found in the age group 10–18 years and of female predominant. It indicates the probable relation of hormonal change of female sex child to adolescent.*

Key Words: *Pattern of tumour, Benign, Odontogenic, Non-odontogenic Children*

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Introduction:

The oro-facial region including the jaw bones (maxilla,mandible) tongue, cheek, submandibular, sublingual, also parotid region and related tissues can be the site of multitude of neoplastic conditions. Oro-facial tumours have a predilection for the entire facial region: however, odontogenic tumours tend to affect the mandible more than the maxilla, especially, in West African children[1]. Tumour include congenital over growth, hamartomas and true neoplasms. These lesions involve both the oro-facial soft tissues and the jaws[2]. Ameloblastoma derived from epithelial or mesenchymal elements or both those are part of tooth-forming apparatus. They are therefore, found almost exclusively in the mandible and maxilla but they can even be found in the gingival and buccal mucosa on some occasions[3]. In a study of benign tumour showed the prevalence of odontogenic tumours is 67% and among this ameloblastoma is the highest (80%) [4]. This study also shows that non-odontogenic tumour is 33% and among this fibrosseous lesion is the highest (50%). A study (One and half year) conducted in Dhaka Dental College showed 65 (1.69%) patients with tumours and tumour-like lesions out of 4159 attending in outpatient department of maxillofacial surgery[5].

Ameloblastoma is the most common benign tumour (66.7%) and mandible is the more common site of occurrence for most odontogenic tumours with a ration of 2.3:1. Gender analysis showed a female predilection for

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most of the odontogenic tumours except ameloblastoma. Adenomatoid odontogenic tumour showed predilection for the maxillary anterior region [6].

Most oral and maxillofacial tumours in children are benign or malignant tumours of soft tissue and bones [7]. Tumours affecting the lower face are common whilst those affecting the mid face are uncommon. Benign lesions found in the lower face are odontogenic or non-odontogenic tumours, predominantly ameloblastoma [8].

Few data are available on the incidence of tumours and tumour-like lesions in children among various countries. It is very difficult to comparing the results from the studies around the world had been highlighted earlier by some authors, owing to the absence of uniformity in the study criteria [9]. But oro-facial tumours are not uncommon among children and adolescents [10].

So far it had been known that no study has been carried out in Bangladesh in relation to tumours and tumour-like lesions in children. This study was conducted to see the pattern, distribution and origin of tumours and tumour-like lesions in the oro-facial region among the children attending in Dhaka Dental College and Hospital.

The Research Question

What are the pattern and distribution of tumours and tumour-like lesions in the oro-facial region of children?

Review of Literatue

In children and adolescents, neoplastic diseases are often benign and of mesenchymal origin [11].Tumour histology in this age group did not correspond to their clinical behavior[12]. There are few reports of odontogenic tumours of children and adolescents in the literature [2,13]. Review of the literature revealed that odontogenic tumours accounted for between 1.0 and 28.8% of oral lesions [11].

Ewing's sarcoma is a highly malignant tumour which develops from the medullary tissue of bone. It accounts for 4 to 5 percent of all primary bone tumours. Ewing's sarcoma is the second most common malignant bone tumour of childhood and adolescent, yet it is a rare tumour. Less than 3% of all Ewing's sarcoma originates in the maxillofacial region, usually involving the mandible, 90% occur in the first three decades of life and males are more often affected than females. Clinical symptoms such as swelling, pain and sensory disturbances are rather unspecific and sometimes be misleading [14].

Ewing's family of tumours (EFTs) comprise highly malignant, nearly undifferentiated neoplasms including Ewing's sarcoma(ES), primitive neuroectodermal tumour (PNET) and a spectrum of other unusual variants. For differential diagnosis sarcomas of bones and soft tissue as well as carcinomas of the salivary glands have to be taken in to an account. There are specific aspects related to certain developmental and biological characteristics that make a more conservative approach preferable in the management of childhood disease [7].

Malignant odontogenic tumour represents 4.7 % of the entire odontogenic tumour. It is not surprising to find that most of the orofacial tumours seen in the young population are benign in nature. Benign non-odontogenic tumours and tumour-like lesions of oro-facial region among children are usually mesenchymal in origin. The most common lesions are giant cell lesions, fibromas and fibro-osseous lesions. The striking feature being inclusion of odontogenic keratocyst as benign tumour of odontogenic epithelium, termed as Keratocystic odontogenic tumour [9].

Ameloblastoma is a fairly common tumour of Nigerian Africans accounting for 73% of odontogenic tumours and 24% of all tumours and tumour-like lesions of the oral and perioral structures [15]. Among the benign odontogenic tumour ameloblastoma is very common entity frequently seen in posterior mandible and in adult age groups. In an analysis of 706 odontogenic tumours found ameloblastoma to account for 11% [16].

Central giant cell granulomas of the jaw occur predominantly in children and young adults with a predilection for females. They are most frequently located in the anterior part of the mandible. Central giant cell granulomas were formerly known as giant cell reparative granuloma first described in the jaw by jaffne in 1953. Central giant cell lesions of the jaws are uncommon. The clinical behavior ranges from a slow growing, asymptomatic radiolucent lesion, discovered on routine radiographs to an aggressive lesion presenting with pain, root resorption and a tendency to recur after curettage [17].

Central giant cell granuloma (CGCG) is defined by the World Health Organization (WHO) as an intraosseous lesion consisting of cellular fibrous tissue that contains multiple foci of hemorrhage, aggregations of multinucleated giant cell and occasionally trabeculae of woven bone. It is considered to be a benign intraosseous jaw lesion and more in primary tooth-bearing area of mandible and predominantly found in children and young adults [18].

The group of cysts included tumour-like lesions are retention cysts of the small salivary glands like mucocele and retention cyst of small glands like ranula, Thyroglossal

duct cyst, Gastrogenic cyst, cystic hygroma, Dysontogenetic cysts of the tongue lined with respiratory epithelium [19].

Congenital granular cell tumour is a specific lesion representing a hamartomatous proliferation of granular cells rather than a true neoplasm. It is present at birth as a mass arising from the anterior maxillary or mandibular gingiva. It is more common in females than in males (9:1) and more common in the maxillary gingiva than in the mandibular gingiva (3:1) [20].

Odontogenic tumours are a group of tumours in the orofacial complex arising from tooth forming tissues and is less in the children. 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. Among 546 cases mostly encountered odontogenic tumour was benign in nature with only 4.5% being of malignant variety. Ameloblastoma accounted for 69.2%, fibromyxoma 12.5%, adenomatoid odontogenic tumour (AOT) 4.6% and ameloblastic fibroma 3.1%.The malignant lesions encountered were intra-alveolar carcinoma 14 (2.6%), malignant ameloblastoma 6(1.1%) ameloblastic fibrosarcoma 4(0.7%) and ameloblastic odontosarcoma 1 (0.1%) [8].

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 with a mandible maxilla ratio of 2.3:1. Gender analysis showed a female predilection for most of the tumours except ameloblastoma [6].

The incidence of odontogenic tumours in children is believed to differ according to country; this information is helpful to clinicians and oral pathologists. Although there have been some clinicopathological 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 [21].

Odontogenic tumours are relatively rare in the child age group; however certain lesions such as adenomatoid odotogenic tumour and ameloblastic fibroma occurs predominantly in children and therefore remain an important diagnostic consideration [22,6].

Vascular lesions are among the most common congenital and neonatal abnormalities. Hemangiomas are benign vascular anomalies which may occur in various areas throughout the body with 50% being located in the head and neck. Capillary hemangiomas are the most common with an incidence of 1-1.5% in infants. Hemangiomas usually appear a few weeks after birth and grow more rapidly than does the infant. The proliferative phase is followed by a spontaneous, slow involution. By the age of five years usually 50% of the lesions have involutes. This increases to nearly 70% by the age of 7 years and about 90% by the age of 9 years [23].

An Aaneurysmal bone cyst (ABC) is an expansible, often multilocular, osteolytic lesion, with blood-filled spaces separated by fibrous septa containing giant cells and reactive bone and most of the patients are between 10-20 years of age. Its occurrence in the maxillofacial region is uncommon, with fewer than 100 reported cases in the Jaw and 9 originating in the condyle [24].

Aneurysmal bone cyst is not true tumour but tumour-like lesion. These are benign and may cause pathological fractures. It grows outwards and is located subperiosteally. These are benign tumour-like conditions and may cause pathological fractures [25].

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 and Oral and maxillofacial tumours are common in children [2].

The Rationale

The existing data on tumours and tumour-like lesions in the oro-facial region of children shows difference in prevalence and distribution. So that proper diagnosis in proper time of this type of tumour is a debatable issue. In Bangladesh no study was performed previously to determine the pattern, distribution and tissue origin of tumours and tumour-like lesions in the oro-facial region of children. The optimum treatment of this type of tumour has become a challenge for the maxillofacial surgeon. This study was designed to determine the pattern, distribution, tissue origin and type of tumours and tumour-like lesions in the oro-facial region among the children, which would help for better understanding of this group of lesions and subsequent treatment.

Objectives

General Objective

To determine the pattern and distribution of oro-facial tumours and tumour-like lesions in the children.

Specific Objectives:

1. To find out the age and sex distribution of these tissue tumours
2. To find out the anatomical location of these tumours
3. To detect the histopathological type of these tumours
4. To determine the tissue origin of these tumours

Materials and Methods:

This cross sectional descriptive study of tumours and tumours like lesion in orofacial region of children was carried out in the department of Oral and Maxillofacial Surgery, Dhaka Dental College and Hospital. According to inclusion and exclusion criteria a total number of 71 patients of age below 18 years were studied from January 2010 to June 2012, who underwent biopsy or fine needle aspiration cytology (FNAC) of vascular tumour for different oro-facial pathologies.

Recruitment procedure:

Study subject were recruited on the basis of inclusion and exclusion criteria and convenient sampling.

Inclusion criteria:

- Children below 18 years of age irrespective of gender
- Histopathologically diagnosed case of tumours and tumour-like lesions
- Fine needle aspiration cytological diagnosed case of these tumours
- Patients and parents who gave consent to be included in the study

Exclusion criteria:

- Adult above 18 years of age
- Incomplete clinical data
- Reports with doubtful and controversial diagnosis
- Patient with major salivary gland tumours
- Patient who refuses to attained the research

Patient with major salivary gland tumour are excluded in this study due to unavailability, because these group of patients are treated both in the department of Otolaryngology and Oral and Maxillofacial Surgery. So reported cases in this study from the Oral and Maxillofacial Surgery Department alone would not reflect the actual picture of tumours originated from major salivary glands.

Diagnosis of those tumour and tumour-like lesion was done by history, clinical findings and histopathological or cytopathological examination. For the purpose of this study, the findings were divided in clinical and histopathological / cytopathological group. The clinical, histopathological or FNAC findings were analyzed and also on age, sex, site and were co-related.

Data analysis:

Data were analyzed by SPSS, version 12, with the help of resource personnel in the field of biostatistics. Comparison was done by chi-squire test or fisher exact test. Any p value >0.05 was considered statistically insignificant. Data were presented as frequency and percentage in tables and figures.

Operational Findings:

Children:-

According to Bangladesh government constitution Ballayo Bibaho Protirodh act 1929 children are in the age group bellow 18 years. According to UNICEF definition a child means every human being below the age of 18 years unless under the law applicable to the child [26]. This study included patients whose age was bellow 18 years.

Tumour:-

Tumours mean all types of benign and malignant tumour.

Tumour-like lesion:-

Tumour-like lesions included cyst of salivary gland origin: as for example, retention cysts of small salivary glands, Thyroglossal duct cyst, Cystic hygroma, Fibroepithelial polyp etc. Besides WHO histopathological tumour classification-2005 Odontogenic keratocyst included as a tumour-like lesion [27]. Aneurysmal bone cyst and simple bone cyst are also included as tumour-like lesions.

Boundary of orofacial region:-

The orofacial region is made up of the entire maxilla and mandible supported by the covering soft tissue and encloses the tongue. The region is bounded superiorly by the nasal base and infra-orbital rim, posteriorly by the fronto-zygomatic suture, zygomatic arch, condyler head extra-orally and intra-orally up to oro-pharynx. The minor salivary glands of the lower lip, muscles and structures of the floor of the mouth are included in this region. Inferiorly, the mandible and hyoid bone forms a boundary. Posteriorly bounded by posterior border of ramus of mandible and anterior border of the sternocleidomastoid muscle.

Flow chart showing the sequence of chart:

Study population
↓
Sample (Inclusion and exclusion criteria)
↓
Preparation of questionnaire and data sheet
↓
Finalization of questionnaire
↓
Data collection
(History, clinical examination, histopathological / cytopathological report)
↓
Data analysis
↓
Data presentation
↓
Result

Ethical clearance:

All patient having tumours and tumour-like lesions reported at Oral and Maxillofacial Surgery Department of DDCH from January 2010 to June 2012 were included in this study. The purpose of this study was to evaluate pattern and distribution of different type oro-facial tumours and tumour-like lesions. Since this is a cross sectional descriptive type of study, there was no physical risk of the patients through out the study period. All patients had a case number to maintain their confidentiality. No information was withheld from the patient. No experimental drug of placebo was used. All patients in this study were signed written informed consent form. Finally ethical committee of Dhaka Dental College had given the ethical clearance for this study.

Result:

During the period of one and half year, a total of 71 cases of tumours and tumour-like lesions were examined clinically, and followed by histopathological / FNAC examination done for various oro-facial lesions in patients aged 18 years or below. Thirty two (45.1%) of these patients were less than 10 years old and the rest 39(54.9%) patients were older and residency distribution was 53(74.6%) in rural area and 18(25.4%) in urban area (Table-1). Among the total patients 37(52.1%) were male and 34(47.9%) were female (Table-II).

Table-I

*Residence (n and %) by age**

Residence	Age		Total
	< 10 years N (%)	10 to 18 years N (%)	
Rural	24 (75.0)	29 (74.4)	53 (74.6)
Urban	8 (25.0)	10 (25.6)	18 (25.4)
Total	32	39	71

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

Table-II

*Residence (n and %) by sex**

Residence	Sex of the child		Total
	Male N (%)	Female N (%)	
Rural	29 (78.4)	24 (70.6)	53 (74.6)
Urban	8 (21.6)	10 (29.4)	18 (25.4)
Total	37	34	71

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

The residency distribution of the tumours and tumour-like lesions by age and sex of the patients are described in the following figures (Figure-1).

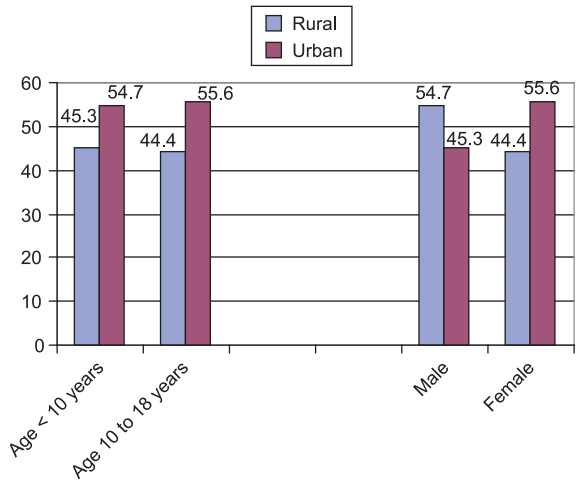


Fig.-1: *Age (<10 years & 10-18 years) and sex distribution (%) of patient by residence. Patients age <10 years 45.3%(n=24) in rural, 54.7%(n=29) in urban area and age between 10 to18 years 44.4%(n=8) in rural, 55.6%(n=10) urban area. Among male patients 54.7%(n=29) in rural area, 45.3%(n=24) in urban area and in female patients 44.4%(n=8) in rural, 55.6%(n=10) in urban area.*

Among the patients studied 67 patients had benign and the rest 4 patients had malignant types of lesion. In benign tumour, 30 were below 10 and 37 were older and there male female ratio is 1.1:1. In malignant tumour 2 were below 10 and 2 were older and there male female ratio is 1:1. Described in the tables 3 and 4 among the 4 malignant tumours, two were Ewings sarcoma and one each was Granulocytic sarcoma and Burkkit's lymphoma.

Table-III

Type of tumours and tumour- like lesions by histopathologycal classification and age

Histopathology	Age group		Total
	<10 years N (%)	10 to 18 years N (%)	
Benign	30 (93.8)	37 (94.9)	67(94.4)
Malignant	2 (6.3)	2 (5.1)	4(5.6)
Total	32 (100)	39 (100)	71

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

Table-IV

Type of tumours and tumour- like lesions by histopathologycal classification and sex

Histopathology	Sex		Total
	Male N (%)	Female N (%)	
Benign	35 (94.6)	32 (94.1)	67(94.4)
Malignant	2 (5.4)	2 (5.9)	4(5.6)
Total	37 (100)	34 (100)	71

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

The type of all benign tumours and tumour- like lesions and their distribution by age and sex are described in details in the following tables V and VI.

Table-V

Individual type of benign tumour by age

Type	Age group	
	< 10 years N (%)	10 to 18 years N (%)
Odontogenic Keratocyst	6 (20.0)	3 (8.1)
Ameloblastoma	1 (3.3)	8(21.6)
Ameloblastic Fibroma	4 (13.3)	1 (2.7)
Odontogenic Myxoma	2 (6.7)	1 (2.7)
Odontogenic Fibroma	2 (6.7)	2 (5.4)
Ossifying Fibroma	1 (3.3)	2 (5.4)
Fibrous Dysplasia	2 (6.7)	3 (8.1)
Giant Cell Granuloma	1 (3.3)	4 (10.8)
Giant Cell Tumour	1 (3.3)	0 (0)
Anurysmal Bone Cyst	1 (3.3)	0 (0)
Neurofibroma	1 (3.3)	0 (0)
Fibroepithelial Polyp	2 (6.7)	1 (2.7)
Gingival Hyperplasia	1 (3.3)	0 (0)
Cystic Hygroma	1 (3.3)	0 (0)
Haemangioma	4 (13.3)	8 (21.6)
Lymphangioma	0 (0)	2 (5.4)
Schwanoma	0 (0)	1 (2.7)
Oncocytoma	0 (0)	1 (2.7)
Total	30 (100)	37 (100)

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

Table-VI

Individual type of benign tumour by sex

Type	Sex	
	Male N (%)	Female N (%)
Odontogenic Keratocyst	3 (8.6)	6 (18.8)
Ameloblastoma	6 (17.1)	3 (9.4)
Ameloblastic Fibroma	4 (11.4)	1(3.1)
Odontogenic Myxoma	3 (8.6)	0 (0)
Odontogenic Fibroma	3 (8.6)	1(3.1)
Ossifying Fibroma	1 (2.9)	2 (6.3)
Fibrous Dysplasia	1 (2.9)	4 (12.5)
Giant Cell Granuloma	2 (5.7)	3 (9.4)
Giant Cell Tumour	1 (2.9)	0 (0)
Anurysmal Bone Cyst	0 (0)	1 (3.1)
Neurofibroma	1 (2.9)	0 (0)
Fibroepithelial Polyp	2(5.7)	1 (3.1)
Gingival Hyperplasia	0 (0)	1 (3.2)
Cystic Hygroma	0 (0)	1 (3.1)
Haemangioma	6 (17.1)	6 (18.8)
Lymphangioma	0	2 (6.3)
Schwanoma	1 (2.9)	0 (0)
Oncocytoma	1 (2.9)	0 (0)
Total	35 (100)	32 (100)

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

Among these benign lesions the site distribution was 67.2% (n=45) in mandible, 9.0% (n=6) in maxilla, 2.9% (n=1) in both maxilla and mandible, 22.4% (n=15) in other sites in relation to maxilla and mandible (Figure-2).

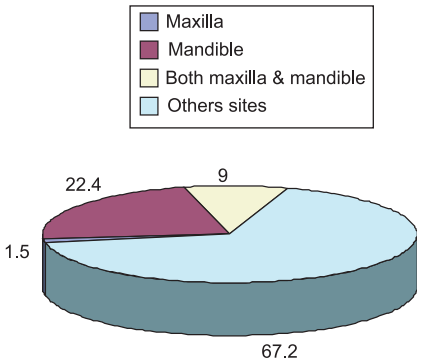


Fig.-2: *Site distribution (%) of tumours and tumour- like lesions. In mandible 67.2% (n=45), in maxilla 9.0% (n=6), both maxilla and mandible 1.5% (n=1) and in other sites 22.4% (n=15).*

Among the total benign lesions 30 were odontogenic, 37 patients were non-odontogenic (table VII). In the total odontogenic tumour patients 9 were Odontogenic keratocyst, 9 were Ameloblastoma, 5 were Ameloblastic fibroma, 3 were Odontogenic myxoma, and 4 were Odontogenic fibroma.

Among the total non-odontogenic tumour 3 were Ossifying fibroma, 5 were Fibrous dysplasia, 5 were Giant cell granuloma, 1 was Giant cell tumour, 1 was Anurysmal bone cyst, 1 was Neurofibroma, 3 was Fibroepithelial polyp, 1 was Gingival hyperplasia, 1 was Cystic hygroma, 12 were Haemangioma, 2 were Lymphangioma, 1 was Oncocytoma, and 1 was Schwanoma (table-VII).

Table-VII

Type of benign tumour by origin of dental tissue

	Type of tumour	
	Odontogenic	Non-odontogenic
Odontogenic Keratocyst	9 (30.0)	0 (0)
Ameloblastoma	9 (30.0)	0 (0)
Ameloblastic Fibroma	5 (16.7)	0 (0)
Odontogenic Myxoma	3 (10.0)	0 (0)
Odontogenic Fibroma	4 (13.3)	0 (0)
Ossifying Fibroma	0 (0)	3 (8.1)
Fibrous Dysplasia	0 (0)	5 (13.5)
Giant Cell Granuloma	0 (0)	5 (13.5)
Giant Cell Tumour	0 (0)	1 (2.7)
Anurysmal Bone Cyst	0 (0)	1 (2.7)
Neurofibroma	0 (0)	1 (2.7)
Fibroepithelial Polyp	0 (0)	3 (8.1)
Gingival Hyperplasia	0 (0)	1 (2.7)
Cystic Hygroma	0 (0)	1 (2.7)
Haemangioma	0 (0)	12 (32.4)
Lymphangioma	0 (0)	2 (5.4)
Schwanoma	0 (0)	1 (2.7)
Oncocytoma	0 (0)	1 (2.7)
Total	30 (100)	37 (100)

Table VIII describe the site distribution of benign tumour and tumour-like lesions by age and sex. Of all odontogenic tumour 28 were in mandible and 2 were in maxilla.

Tumour involvement was observes as 30 in hard tissue, 14 in soft tissue, and 3 in both hard and soft tissue. Among the hard tissue involved tumour 5 were in the anterior region, 11 in the premolar region,12 in the molar region, 2 in the palate, 4 in the angle of the mandible, 3 in angle and ramus of the mandible, 5 in the premolar and molar,4 in the molar and palate, 5 in the premolar, molar and palate. Among the soft tissue involved tumour 5 were in the upper lip, 2 in the lower lip, 1 in the cheek, 5 in the tongue, 2 in the floor of the tongue, 1 in the gingiva.

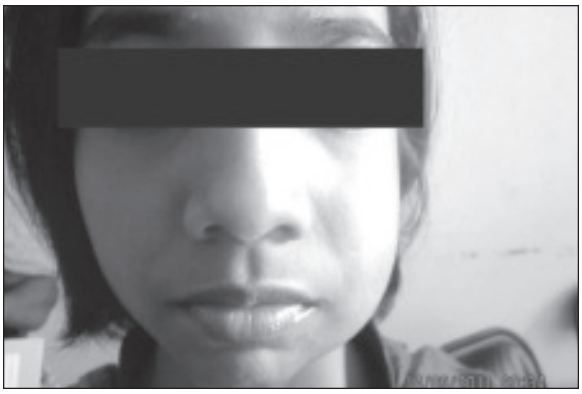
Among the total benign lesions 44.8% (n=30) patients were odontogenic tumours (Table-VII). The most common odontogenic tumour were Odotogenic keratocyst 30.0% (n=9), and Ameloblastoma 30.0% (n=9), Ameloblastic fibroma 16.7% (n=5) and Odontogenic myxoma 10.0% (n=3). Among the patients with odontogenic tumours 15 were less than 10 years old and 15 were 10 to 18 years old(Table-IX). The sex distribution of odontogenic tumours were 19 in male and 11 in female. Male female ratio was 1.7:1 (Table-X)

There were 55.2% (n=37) patients non- odontogenic tumours (Table-VII) among the total benign tumours. The most common non-odontogenic tumours was haemangioma 32.4% (n=12) followed by fibrous dysplasia 13.5% (n=5) and giant cell granuloma 13.5% (n=5). Most of the non-odontogenic tumours 59.5% (n=22) occurred in patients in age between 10-18 years (Table-IX). In the sex distribution of non-odontogenic tumours male to female ratio is 1:1.3 (Table-10). Of all non-odontogenic tumours 17 in mandible, 5 in maxilla, 1 in both and 14 in others site (Table-VIII).

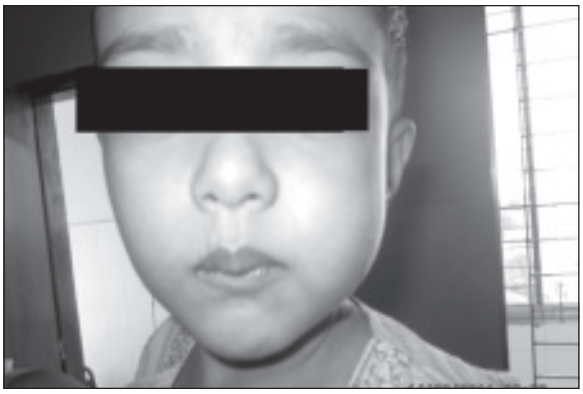
Table-VIII

Site distribution (n and %) of benign tumour by age, sex and type of tumour

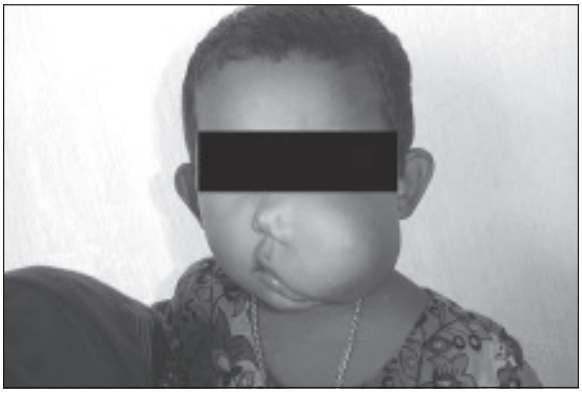
	Age		Sex of the child		Total
	< 10 years N (%)	10 to 18 years N (%)	Male N (%)	Female N (%)	
Maxilla	0 (0)	6 (16.2)	2 (5.7)	4 (12.5)	6 (9.0)
Mandible	24 (80.0)	21 (56.8)	28 (80.0)	17 (53.1)	45 (67.2)
Both maxilla & mandible	1 (3.3)	0 (0)	0 (0)	1 (3.1)	1 (1.5)
Others	5 (16.5)	10 (27.0)	5 (14.3)	10 (31.3)	15 (22.4)
Total	30	37	35	32	67



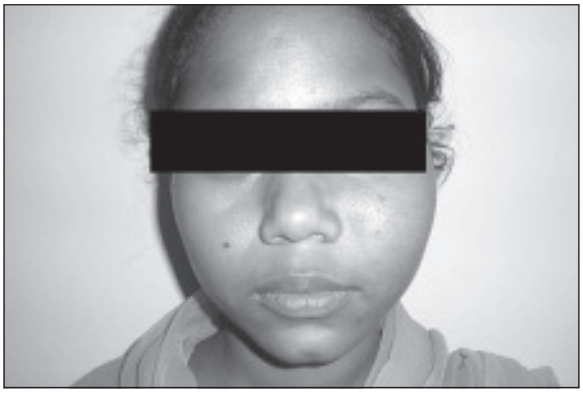
Ameloblastoma (Profile View)



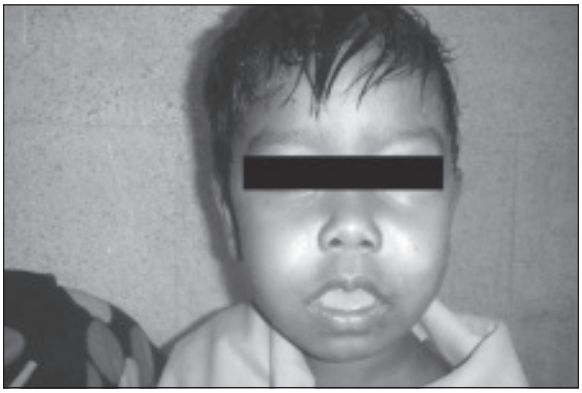
Ameloblastic fibroma (Profile View)



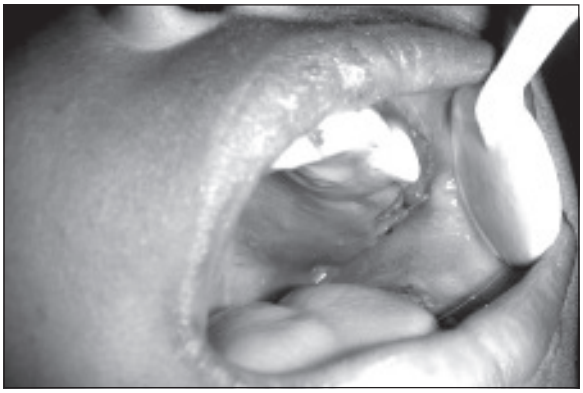
Lymphangioma



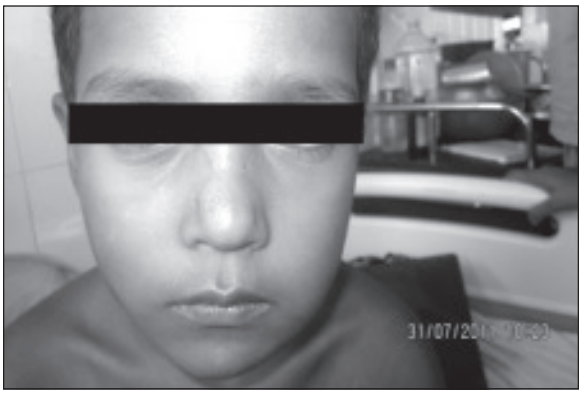
Fibrous dysplasia



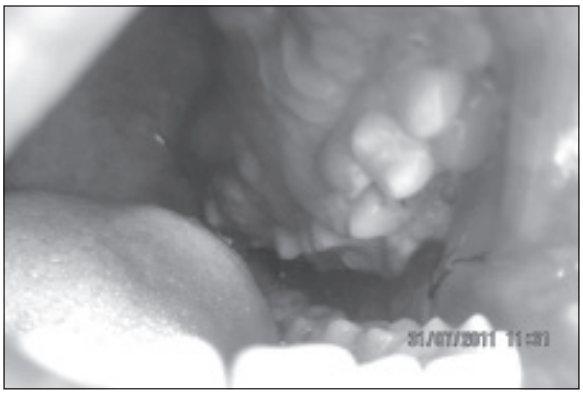
Burkkit's Iymphoma



Intra-oral view (Burkkit's Iymphoma)



Ewing's sarcoma



Intra-oral view Ewing's sarcoma

Table-IX

Type of tumour by age

Age	Type of tumour		Total
	Odontogenic N (%)	Non-odontogenic N (%)	
< 10 years	15 (50.0)	15 (40.5)	30 (44.8)
10-18 years	15 (50.0)	22 (59.5)	37 (55.2)
Total	30	37	67

Table- X

Type of tumour by sex

Sex	Type of tumour		Total
	Odontogenic N (%)	Non-odontogenic N (%)	
Male	19 (63.3)	16 (43.2)	35 (52.2)
Female	11 (36.7)	21 (56.8)	32 (47.8)
Total	30	37	67

In this study conclusive findings

Benign tumour	Malignant tumour
Benign tumours were more common in our population(99.4%)	Malignant tumour were less common in our population(5.6%)
Benign non-odontogenic tumour were more common than odontogenic	All malignant tumour were non-odontogenic type and 55% were Ewing's sarcoma
Non-odontogenic tumour were more common in the age group of 10-18 years (55.2%)	Equal percent of patient were in both <10 and 10-18 years age group
In benign non-odontogenic tumour male female ratio was 1:1.4	Male female ratio was 1:1

Discussion:

This study reports tumour and tumour-like lesions on a number of 71 children age below 18 years who were subjected to history taking, clinical examination and taking biopsy or FNAC over the period of one and half years.

As previous studies Ralf-Bodo et al have demonstrated , the vast majority of oral lesions in infants and children is of mesenchymal nature and was benign in character ranging from 84% to 99% of cases, malignant ranging from 1% to 16% [7]. However of all the cases of oro-facial tumours in this study only 5.6%(n=4) were malignant. This finding is not agreed with others as Bhaskar found 9% [2], Ulmansky et al. showed 9.5%, Arotiba 40.2%, and Ajinkya et al. 13.3% [11,8,6]. Incidence of malignancy observed range of 1-16% reported by other European and North American studies, 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. Ackerman et al.observed 4 to 5 percent of Ewing's sarcoma, in this study found 2.8%(n=2) 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). M. Elarbi reported that the male female ratio is1.6:1. Most of the previous studies have found similar ratio, with a high male predominance [9].

In this study total benign tumours were 94.4% (n=67) of jaw tumours and more in the mandible 67.2% (n=45) than in the maxilla 8.9% (n=6). Tumours were more in the mandible which is supported by Ezekiel et al and Ajinkya et al [15,6]. In contrast S.B.Aregbesola et al shows benign jaw tumour was 49% (n=72) and slightly larger in the maxilla 56% (n=23) than in the mandible 44% (n=18)). This discrepancy is present may be due to Burkkit's lymphoma and other malignancy is less in Bangladeshi people, beside this study include both bi-maxillary and soft tissue involve tumours and also because of small sample size.

Odontogenic tumours were 44.8%(n=30) in this study among the all benign tumours. Bhaskar SN, Keszler et al. and Maatia JK describe that the rate of odontogenic tumours varies between 19% and 33.7% [2,28,29]. Odontogenic tumours were found more often in male patients and ratio was 1.72:1, which is supported by Arotiba GT, in contrast female predominant was reported by Ralf-Bodo Trobs et al [10,7].

Various reports in the literature of Bhaskar,, Ulmansky et al, Ezekiel et al confirm the rarity of odontogenic tumours in children and adolescents [2,11,15]. These authors used various age categories for their subjects and considered odontogenic tumours within the spectrum of orofacial neoplasm's. According to Ulmansky et al between 1.0 and 28.8% of pediatric oral lesions are odontogenic tumours [11]. In this series of oral tumours and tumour like-lesions in children and adolescent d" 18 years old, 44.8% (n=30) were odontogenic tumours. While this result was higher than the worldwide range given by Ulmansky et al [11]. However Sharanjeet Gill et al observed that high prevalence of odontogenic tumour in young age while rare in children below 10 years of age. Odontogenic tumours were more often seen in the mandible 93.3% (n=28) while less in the maxilla and male female ratio were 1.7:1. In contrast G T Arotiba et al shows odontogenic tumours were located less amount in the mandible (68.8%), [10] but the male female ratio was 1.6:1. which is supported by this study. Sharanjeet Gill et al describe as male :female ratio is 1.3:1.

Ameloblastoma occurred in 9 patients below 18 years old representing 30% of odontogenic tumours. Study shows that there were more in males (14.7%) than females (6.5%) and ratio was 5:2, while Ezekiel et al and Sadat et al demonstrate the ratio 2:1,which is very close to our study [15,16] . Study about Ameloblastoma by Sadat SMA Shows that 33.4% patients are within the age range between 10-19 years and 95.83% present in the mandible. 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 and all 9 (100%) cases were in the mandible.

In this study Ameloblastic fibroma represents 16.7% (p=5) of total benign odontogenic tumour, all are below 10 year of age, male female ratio is 4:1. Among the tumour 4 in mandible and 1 in other side. In contrast Ezekiel Taiwo et aI shows Ameloblastic fibroma is rare accounting for less than 7% of odontogenic tumour, male female ratio was 2:1 and occurred in younger age group [15]. Age group of ameloblastic fibroma in our study is 4 in age group below 10 and 1 is the age in between 10 to 18 years of old.

The most common non-odontogenic tumours were hemangioma 32.4%(n=12), then comes Giant cell granuloma 13.5%(n=5),fibrous dysplasia 13.5%(n=5), ossifying fibroma 8.1%(n=3). S.B.Adebesola et al. supported this data except hemangioma. R.Choung et al. reported that America and Canada show a higher incidence of giant cell and fibro-osseous lesions [30]. Apart from these lesions, other benign non-odontogenic tumours and tumour-like lesions showed varied clinical presentation and not seem to have any racial or geographical predilection.

Patient in the age between 10-18 years encountered for 59.5% (n=22) of the total patients of benign non-odontogenic tumours. Whereas M.Elarbi et al shows 43% of the total cases of benign non-odontogenic tumours and the age group was (10-14 years) [9]. Benign non-odontogenic tumours were found 1:1.4 (n=16, 21) between male and female patients, M. Elarbi et al shows male to female ratio being 1:1.7 and also comments that a high involvement of the female sex and more patients in age group of 10 to 14 years could possibly re-emphasize the role of hormones responsible for these kinds of lesions. Our study also co-relates these comments. The benign non-odontogenic tumours and tumour like-lesions seen in this study presented in maxilla 13.5%, in mandible 45.9%, in both maxilla and mandible 2.7% and in others 37.8%. There is not total but maximum supported by the study of M.Elarbi et al [9].

The pathogenesis of vascular anomalies is controversial. While some author consider them to be developmental malformations, however some other regards them as hamartomas of blood vessels. They reported that more cases of haemangiomas in Northern Jordanian adolescents in age 12 to 18 years of age but found a preponderance of lymphomas in children younger than 6 years of age. In this series, 66.7% (n=8) vascular tumours were in children between the 10 to 18 years age.

In conclusion, orofacial tumours are not uncommon among the children and adolescents as observed. In this study lower incidence of malignant tumours, because Burkkit's lymphoma and other malignancy are less common in our population than that of African or other countries. The relatively higher incidence of non odontogenic tumour was found in the age group 10–18 years and of female predominant. It indicates the probable relation of hormonal change of female sex child to adolescent. But no available data was found regarding this.

Limitations of the Present Study

As the study was conducted in a particular tertiary hospital, so the findings can not reflect the general scenario of the country.

The relatively small sample size was another limitation in this study.

Conclusion:

Oro-facial tumours and tumours-like lesions have predilection for orofacial region of children and adolescents attending in the Dhaka Dental College and

Hospital. Most of the oral and maxillofacial tumours in children are present in the mandible, age group 10-18 years, female sex and benign non–odontogenic in nature. This result may enrich the knowledge of tumours and tumour-like lesions of childhood and subsequently would help to formulate protocol for disease pathology and their management.

Recommendations:

On the basis of the result of present study integrated with the understanding from the available literature it may be recommended that it will worthy to recommend further study, because the present study had very small sample size.

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