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Paediatric and adolescent intra-bony oro-facial tumours and allied lesions in a Nigeria tertiary health facility: An 18-year retrospective analysis



Charles E. Anyanechi*

Oral and Maxillofacial Unit, Department of Dental Surgery, University of Calabar Teaching Hospital, Nigeria

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ABSTRACT

Objective: This study reviews the oro-facial intra-bony tumours and allied lesions in a Nigerian paediatric and adolescent population.

Methods: This was a retrospective analysis of medical records and histopathological reports of patients that presented to the Dental and Maxillofacial Surgery Clinic of our institution over an 18-year period. Records of patients' demographics, types, duration, site, and histopathological diagnosis of the conditions including treatments and complications were obtained and analysed.

Results: A total of 153 case files of subjects, aged 6–19 years with a mean age of 14.4 ± 3.7 years were reviewed. There were 82 (53.6%) males and 71 (46.4%) females, giving male to female ratio of 1.2:1. Benign lesions accounted for 139 (90.8%) while Burkitt's lymphoma ($n = 14$, 9.2%) was the only malignant tumour that presented. Ossifying fibroma ($n = 29$, 19.0%) was the most common benign tumour. More cases of unicystic ($n = 9$, 5.9%) than the multicystic ($n = 5$, 3.5%) ameloblastoma presented. The commonest site of occurrence was the mandible ($n = 91$, 59.9%). The major treatment method and complication were segmental mandibular resection ($n = 40$, 26.1%) and facial deformity ($n = 38$, 32.2%), respectively. There was significant association between the types of lesion and age, gender, site and treatment received ($p = 0.0000$) respectively.

Conclusion: The high prevalence of ossifying fibroma, polyostotic fibrous dysplasia, and unicystic rather than multicystic ameloblastoma when compared with previous studies requires further investigation.

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1. Introduction

Intra-bony oro-facial tumours and allied lesions are heterogeneous pathological disorders that present with different histological types and show diverse clinical behaviour. This behaviour is due to their growth by expansion, infiltration or metastasis causing destruction of adjacent and distant structures, teeth mobility including migration and loss, leading to aesthetic challenges, functional impairments and even death [1,2]. Consequently, these conditions have their peculiar clinical features and significance, and these have been detailed in various studies in Nigeria and across the

globe [3–7]. The available literature shows that it is difficult to categorize them in terms of their relative frequencies due to variation in the study designs resulting from differences in upper age limits, number of subjects and the duration of the studies among others that has characterized previous studies. However, like the studies carried out on different adult populations, majority of these conditions are mostly benign rather than malignant, and account for 11.2–38.3% of all cases [2,5,7–9].

While various studies have been done to determine the prevalence of these conditions in the Western and Northern parts of Nigeria, no study to the best of the author's knowledge has been carried out to establish the prevalence from the Eastern part of the country. This study therefore retrospectively analysed cases of paediatric and adolescent tumours and allied lesions that presented in our centre over a period of 18 years in order to determine the age, gender, type of tumour/lesion, anatomical site, duration on presentation, treatment received and complications following treatment. It is hoped that the findings from this study will form the basis for future research work on paediatric and adolescent tumours and allied lesions in this part of Nigeria.

* AsianAOMS: Asian Association of Oral and Maxillofacial Surgeons; ASOMP: Asian Society of Oral and Maxillofacial Pathology; JSOP: Japanese Society of Oral Pathology; JSOMS: Japanese Society of Oral and Maxillofacial Surgeons; JSOM: Japanese Society of Oral Medicine; JAMI: Japanese Academy of Maxillofacial Implants.

* Correspondence to: P.O. Box 3446, 540001 Calabar, Nigeria.

Tel.: +234 8100257825.

E-mail address: ceanyanechi@gmail.com

2. Materials and methods

This was a retrospective analysis of paediatric and adolescent intra-bony oro-facial tumours and allied lesions in patients who presented to the Dental and Maxillofacial Surgery Clinic of our tertiary health facility between January 1995 and December 2012. It is a 400-bed hospital that provides services in the various medical and surgical specialties, serving a population of about two million people. There was exemption for ethical clearance by the institution's Research and Ethics Committee. Patients of both genders and within the age of 19 years were included in the study. Excluded from the study were those subjects with incomplete clinical data, no plain radiographs, and those 20 years and above as at the time they presented. For this study, the subjects were divided into two age groups: paediatric (0–9 years) and adolescent (10–19 years). The diagnosis of the tumour/lesion was based on information derived from the medical records, plain radiographs and histopathological reports of the subjects. These conditions were diagnosed in the same histopathological laboratory of this institution by different pathologists. The classification of odontogenic tumours and cysts was based on WHO criteria of 2005 [10]. The variables obtained from the patients' case files and hospital register were recorded in a pro-forma questionnaire. These included age, gender and type of lesion. Other variables considered were duration and anatomical site of lesions within the jaws, treatment received, complaints during follow-up reviews and secondary treatment done to correct post-operative complaints. The data obtained were statistically analysed using EPI INFO 7, 0.2.0, 2012 version software (CDC, Atlanta, GA, USA). For analysis, simple frequency charts, descriptive statistics, and test of significance were used. p values <0.05 are considered significant.

3. Results

Of the 939 case files reviewed, 153 (16.8%) met the inclusion criteria, and were the paediatric and adolescent intra-bony tumours and allied lesions for this period. Table 1 showed the distribution of patients according to age and gender. The age distribution ranged from 6 to 19 years with a mean of 14.4 ± 3.7 years. There were 82 (53.6%) males and 71 (46.4%) females, giving male to female ratio of 1.2:1. The age and gender distribution of the subjects in Table 1 were significant ($\chi^2 = 38.1042$, $df = 9$, $p = 0.0000$).

3.1. Types of lesion

Benign tumours and allied lesions were 139 (90.8%) while malignant tumours represented by Burkitt's lymphoma were 14 (9.2%). A breakdown of the benign conditions showed that odontogenic tumours were 54 (35.3%), non-odontogenic tumours ($n = 33$, 21.6%), non-neoplastic lesions ($n = 26$, 17.0%), cysts ($n = 22$, 14.4%) while chronic suppurating osteomyelitis ($n = 4$, 2.6%) accounted for the infective process.

Table 1

Age and gender distribution of subjects having intra-bony oro-facial tumours/lesions.

Age	Gender		Total	Ratio (%)
	Male	Female		
0–9	12	9	21	13.7
10–19	70	62	132	86.3
Total	82	71	153	100.0

$\chi^2 = 38.1042$, $df = 9$, $p = 0.0000$.

3.2. Burkitt's lymphoma

The age of patients ranged from 6 to 12 years with a mean of 8.2 ± 1.3 years. All the tumours ($n = 14$, 9.2%) occurred only in males. Common site of occurrence was multifocal resulting in the involvement of mandibular and maxillary bones together ($n = 9$, 5.9%).

3.3. Odontogenic tumours

The most common was keratocystic odontogenic tumour ($n = 17$, 11.1%) having male:female ratio of 1.8:1, followed by ameloblastoma ($n = 14$, 9.15%). The male:female ratio for adenomatoid odontogenic tumour was 1.6:1. However, Ameloblastoma occurred exclusively in males while complex odontoma was found only in females. All the tumours occurred in the second decade of life, and 33 (21.6%) were found in males while 21 (13.7%) in females. Mandible was the commonest site of tumour ($n = 32$, 20.9%), (Tables 2–4). The age of patients that had keratocystic odontogenic tumour ranged from 14 to 19 years with a mean of 17.8 ± 1.0 while ameloblastoma was from 16 to 19 years with a mean of 17.5 ± 0.8 years.

3.4. Non-odontogenic tumours

Tumours were recorded in the first and second decades of life, and osteochondroma occurred only in the males while ossifying fibroma occurred in both genders with male:female ratio of 1.6:1. The age of occurrence of ossifying fibroma ranged from 7 to 19 years with a mean of 13.4 ± 4.7 years. Most common anatomical site of non-odontogenic tumours was mandible ($n = 20$, 13.1%), (Tables 2–4).

3.5. Non-neoplastic lesions

The male:female ratio for central giant cell granuloma was 2.3:1, whereas monostotic fibrous dysplasia occurred only in males and polyostotic was recorded exclusively in females. When considered in isolation, the relativity of occurrence between monostotic

Table 2

Distribution of age in relation to the types of intra-bony oro-facial tumours/lesions.

Type of tumour/lesion	Age (years)		Total	
	0–9	10–19	Number	Ratio (%)
<i>Odontogenic tumour</i>				
Keratocystic odontogenic tumour	0	17	17	11.1
Ameloblastoma (mural or unicystic)	0	9	9	5.9
Ameloblastoma (solid or multicystic)	0	5	5	3.3
Adenomatoid odontogenic tumour	0	13	13	8.5
Complex odontoma	0	10	10	6.5
<i>Non-odontogenic</i>				
Ossifying fibroma	8	21	29	19.0
Osteochondroma	4	0	4	2.6
<i>Non-neoplastic</i>				
Central giant cell granuloma	0	13	13	8.5
Monostotic fibrous dysplasia	0	9	9	5.9
Polyostotic fibrous dysplasia	0	4	4	2.6
<i>Cysts</i>				
Dentigerous cyst	0	17	17	11.1
Aneurysmal bone cyst	0	5	5	3.3
<i>Infection</i>				
Chronic suppurating osteomyelitis	0	4	4	2.6
<i>Malignant</i>				
Burkitt's lymphoma	9	5	14	9.2
Total	21	132	153	100.0

$\chi^2 = 516.5121$, $df = 108$, $p = 0.0000$.

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