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Original Research

Orofacial Neoplasm In Patients Visited St. Paul's Hospital, Addis Ababa, Ethiopia

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ABSTRACT

There is dearth of information on the prevalence and pattern of orofacial lesions in Ethiopia. An assessment of patterns of orofacial tumors managed in St.paul's millennium medical college oral and maxillofacial center is great important due to the increase in the number of new cases. The site and type of the lesions are valuable in diagnosis and patient management.

Objectives: - The aim of this study was to assess the pattern of orofacial tumors among patients visited St. Paul's Hospital Millennium Medical College Dental and Maxillofacial clinic from September 2012 to September 2014.

Methodology: A retrospective descriptive study was carried out among patients presented to St. Paul's Hospital Millennium Medical College Dental and Maxillofacial clinic from September 2012 to 2014GC. A structured questionnaire was used to collect information from patient's medical records. Data was collected by three dental interns under the supervision of the Principal investigator. Three hundred sixty two patients were recruited. Medical records of all patients were retrieved, review and analyzed.

Result: all cases diagnosed with orofacial tumor between September 2012 and 2014 were retrieved from medical record office. A total of 362 orofacial tumor patients were visited dental and maxillofacial center of St. Paul's Hospital millennium medical college in the last two years. The mean age of the study participants was 34.5 with SD of 2.35 and the male to female ratio was 1.21:1with a male dominance. Majority of the study participants were males (52.76%), and in the second decade of life (21-30 years). Ameloblastoma (16.02%), pleomorphic adenoma (11.88%), and squamous cell carcinoma (11.60%) were the most frequent orofacial tumors.

Conclusion: Most of tumors presenting in the orofacial area are benign and occurs in second and third decades of life. Ameloblastoma was the leading among benign tumors, while squamous cell carcinoma was the most prevalent malignant tumor. Surgical removal of the tumors was the predominant treatment method.

Introduction

Maxillofacial tumors are a group of heterogeneous pathologic disorders with various clinical behaviors and histological type(1). The oral and maxillofacial region, includes jaw bones of mandible and maxilla, is a site for many neoplasm(2). These lesions could be benign or malignant(3). Orofacial tumors have a devastating effect, due to their anatomical site and its result in extreme disfigurement or disability, and associated functional effects, bone expansion, tooth mobility, and adjacent structure destruction(1, 2, 4). Oral cancers can spread to distance parts of the body and may cause extreme disfigurement of the maxillofacial area and deserves plastic surgery for intervention(4).

The distribution of orofacial tumors, exhibit geographic variation due to social, cultural,

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occupational, and climatic factors(5, 6). The evidence of orofacial tumors in east Africa goes back to 1956, when pritan and cook reported odontoma ,carcinoma and sarcoma as the common maxillofacial tumors in Uganda(7). Another study from Kenya by Wakiagan JM et al. found that Ameloblastoma, Burkett's lymphoma and Ossifying fibroma were the common occurring tumors in Kenya(8). Arotibal etal(5), in a report from Nigeria found that squamous cell carcinoma and Ameloblastoma were the most common tumors.

There is anatomical variation between the orofacial tumors; tongue and salivary gland s were the common sites of lesion in Iran (9). A study done in Japan by Tanaka showed that hemangioma (36.2%) and Papilloma (27.5%) were the most common soft tissue benign tumors, which affects mostly tongue. On the other hand, odontoma (42.4%) and Ameloblastoma (33.3%) were the common bone tumors mostly affected the mandible(10). Kaposi's sarcoma was the common malignant of the palate while pleomorphic adenoma was the tumor of parotid salivary gland(11).

A study done in Nigeria by Kaduna showed that. Ameloblastoma (73%) and odontogenic myxoma (12%) were the major tumors. Segmental resections (61%), and enucleation (23%), were the major treatment modalities(12). While similar study done in Japan found that 93% of patients had benign tumors, and haemangioma was the common benign tumor and the most common malignant tumor was sarcoma. Most common site of soft tissue tumor was tongue(13).

Treatment of the jaw tumors differs according to the type of the tumor. Benign tumors were treated by surgical removal and malignant lesions may treated by chemotherapy, surgical removal or combination of this three methods(14). A study done in Nigeria showed that benign tumors were treated by segmental resection; enucleation and dentoalveolar segment resection with preservation of lower border of the mandible were the common surgical interventions. There was a recurrence of 13% of patients treated with the diagnosis of Ameloblastoma(12).

. Therefore, this study will provide crucial information on the pattern and type of maxillofacial tumors, which may serve as a driving force for the concerned body to bring appropriate intervention and a base line data for the coming researchers.

Methods and materials

St.paul's hospital millennium medical college is one of the tertiary hospitals in Ethiopia. This hospital is the only governmental treatment center for oral and maxillofacial surgery in the country until now. The data were retrieved from patient's medical records in the oral and maxillofacial center from 2012 to 2014 with the diagnosis of orofacial tumors; the diagnoses were in keeping with the WHO classification of tumors. The type of lesion, age, sex and site of the tumor was recorded in a structured checklist. The age of the patients was divided in to 8 groups. During data collection, the diagnosis is recorded as registered in the medical record of the patient. Data was analyzed using SPSS for window version 20. Depending on the variable type, descriptive analysis outputs were given in percentages and numbers.

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Ethical clearance

Ethical clearance was taken from Jimma University Student research programme and also permission for retrieval of individual charts of patients was obtained from St. Paul's Hospital millennium Medical college

provost office and confidentiality of patients' information was secured.

Results

Types of orofacial tumors

A retrospective descriptive analysis was done on the prevalence of orofacial tumors on the patient who visited St. Paul's Hospital millennium medical college Dental and Maxillofacial center. In the period from September 2012 to September 362 cases of orofacial tumors were retrieved and 75.41% of them were benign tumors. Majority of the patients were males (52.76%), within the age group of 21-30(22.93%) years old. Ameloblastoma (16.02%), pleomorphic adenoma (11.88%), and odontoma (8.56%) were the common benign tumors. On the other hand, squamous carcinoma (11.60%), nasopharyngeal carcinoma (6.63%) and Burkett's lymphoma (3.60%) were the major orofacial malignancies (See table1).

Age and gender distribution of the tumors

Of the retrieved cases, 52.76% were males with male to female ratio of 1.21:1. Orofacial tumors showed a large range of age distribution with the peak level of in the second and third decades except Burkett's lymphoma, which is more common in the first and second decade. The prevalence of Ameloblastoma and squamous cell carcinoma are more common in the elderly patients (see table 2).

Location of tumors

The location of orofacial tumors is summarized in table 3. The most commonly involved site was mandible (26.79%), followed by maxilla (14.36%) and buccal mucosa (13.26%). The least site involved was submandibular gland area (1.38%). Ameloblastoma and fibroma are exclusively affected the mandible but Burkett's lymphoma is found in the maxilla (see table 3). 59.8% of tumors located in mandible are Ameloblastoma, while 46.3 % of maxillary tumors are Fibrous dysplasia (See table3).

Treatment modalities and duration of appointment

Surgical intervention was done on 83.70% of patients and 13.26% of patients had medical treatment in addition to surgical intervention (see figure 1). Majority of the patients had treated with in 4 months since their first presentation (see figure 2).

Discussion

The present study revealed the type and distribution of oral and maxillofacial tumors in St.paul's millennium medical college oral and maxillofacial center. The prevalence was high in males with a male to female ratio of 1.21:1 which is in line with a study done in Tanzania that shows a male to female ratio of 1.16:1 (8). In addition the observed male predominance is also supported by a study done in Nigeria with a ratio of 1.2:1(15), sudan,3:2(16). However, this result is against the study done in Nigeria (1:1.5)(17).

The prevalence of oral and maxillofacial tumor is more common in 3rd decades (21-30 years) followed by 2nd decades (11-20) years except Burkett's lymphoma , which reach peak in age group of 0-10 years. This result is similar with the study done in Tanzania (8) and Nigeria(15) . However, it is against the result found by Nwashindi where the fifth decade was the most affected age group(17).

In the present study, majority of orofacial tumors were benign which is in agreement with Bassey et al (86.3 %)(18), and Sato et al (93%)(13). However, Nwashindi et al (17) shows that 39.78% of the patients had malignant tumor. This variation may be due to social, cultural, occupational, and climatic factors(5, 6).

In this study, Ameloblastoma was the common orofacial tumor and represents 16.02% of the overall orofacial tumors among 362 patients which is supported by many literatures(17, 18). There is a male predominance (1.32:1) and the prevalence is high in the third, fourth and fifth decades of the patients. This is similar with the study done by Bassey where, Ameloblastoma (77.3%) was the commonly occurring benign tumor and its occurrence is high in fourth decade of age(18). In addition, to this Bassey found that Ameloblastoma is common in the fourth decade of life(18). However, a study done in Argentina found that odontoma was the most prevalent odontogenic tumor(19). Ameloblastoma was exclusively affected the mandible and the mean age of the patients affected was 35.5years.This variation may be due to the difference in social patterns(12, 13).

Pleomorphic adenoma was the major salivary gland disease and accounts 11.88% of the overall tumor prevalence. This incidence is similar with the study done in Nigeria, where 14% of orofacial tumors are salivary gland tumors(17) and similar result is found in Ghana, where it constituted 50% of all the salivary tumors(20).

Squamous cell carcinoma, the major malignant tumor, was common in elderly patients (51-70 years old) with male to female ratio of 1.62:1 and affects mostly the buccal mucosa and tongue. This is similar with the result found in Nigeria, where it was highly prevalent in 6^{th} decade of life and males are the most affected with a male to female ratio of 1.65 to 1.Maxillary antrum, gingiva and tongue were the commonly affected sites(21) and a study done by Bassey showed that it's common in the sixth and seventh decade of life(18). Osman et al (16) also found that squamous cell carcinoma (73.6%) is the major malignant in the orofacial tumors.

In this study, majority of the patients (83.7%) had surgical intervention within one to four months after their first presentation, which is comparable with the result found in Calabar, Nigeria(15). Surgical intervention was done in 83.70% of patients and 13.26% of the patients had medical intervention in addition to the surgical removal of the tumor. This is in line with a study done by Tanaka, where resection was done in each of benign tumors (10) and the study done by Anyanechi , where 96.8% of them had surgical intervention. There is recurrence rate of 3.5% which is low relative to the study done in Nigeria (12). This delayance may be due to financial problem, the absence of facility and the phobia developed by the patients(15).

Conclusion

Most of tumors presenting in the orofacial area are benign and occurs in second and third decades of life. Ameloblastoma was the leading among benign tumors, while squamous cell carcinoma was the most prevalent malignant tumor. Surgical removal of the tumors was the predominant treatment method.

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Conflict of interest

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Table 1: Histopathological diagnosis of orofacial neoplasm among patients visited St. Paul's Hospital millennium Medical college Dental and Maxillofacial center, Addis Ababa, Ethiopia, 2012-2014(n=362).

Orofacial tumors	**Number**	**%**
Ameloblastoma	58	16.02
Odontoma	31	8.56
Fibroma	15	4.14
Ossifying Fibroma	10	2.76
Osteosarcoma	4	1.10
Burkett's lymphoma	13	3.60
Squamous cell carcinoma	4 2	11.60
Basal cell carcinoma	6	1.66
Pleomorphic adenoma	43	11.88
Kaposi's sarcoma	12	3.31
Lipoma	23	6.35
Fibrous dysplasia	29	8.01
Fibrous epulis	11	3.06
Papilloma	26	7.18
Nasopharyngeal carcinoma	24	6.63
Others	15	4.14
Total	362	100

Table 2: Age distribution and male to female ratio of orofacial tumors among patients who attended St.pauls's Hospital millennium medical college Dental and maxillofacial clinic, Addis Ababa, Ethiopia, 2012-2014 (n=362).

Oral and maxillofacial tumors	Age in years								Male/female ratio
	<10	11-20	21-30	31-40	41-50	51-60	61-70	>71	
Ameloblastoma	0	8	16	10	16	4	4	0	1.32:1
Odontoma	0	10	10	4	3	4	0	0	1.58:1
Fibroma	2	1	6	5	1	0	0	0	1.5:1

Ossifying fibroma	0	4	0	6	0	0	0	0	1.5:3
Osteosarcoma	0	3	1	0	0	0	0	0	1:3
Burkett's lymphoma	8	5	0	0	0	0	0	0	1.63:1
Squamous cell carcinoma	0	2	4	5	4	14	9	4	1.62:1
Basal cell carcinoma	0	0	1	0	0	0	5	0	6:0
Pleomorphic adenoma	0	8	12	11	7	5	0	0	1:1.87
Kaposi's sarcoma	0	1	5	6	0	0	0	0	1:2
Lipoma	2	6	2	8	5	0	0	0	1:1.3
Fibrous dysplasia	3	14	12	0	0	0	0	0	1.23:1
Fibrous epulis	0	2	9	0	0	0	0	0	1.75:1
Papilloma	0	4	10	8	0	4	0	0	1:1.6
Nasopharyngeal carcinoma	6	15	3	0	0	0	0	0	1:2
Other	5	0	4	4	0	2	0	0	2.75:1
Total	26	83	95	67	36	33	18	4	1.21:1

Table 3: Site distribution of some selected Orofacial tumors in St.pauls's Hospital millennium medical college Dental and maxillofacial clinic, Addis Ababa, Ethiopia, 2012-2014.

Oral and maxillofacial tumors	**Sites involved**									
	Maxilla	**Mandible**	**Tongue**	**Palate**	**Buccal**	**Gingival**	**Labial**	**Submandibular**	**Parotid gland**	**Floor of the mouth**
Ameloblastoma	0	58	0	0	0	0	0	0	0	0
Odontoma	6	25	0	0	0	0	0	0	0	0
Fibroma	0	15	0	0	0	0	0	0	0	0
Ossifying fibroma	7	3	0	0	0	0	0	0	0	0
Osteosarcoma	1	3	0	0	0	0	0	0	0	0
Burkett's lymphoma	13	0	0	0	0	0	0	0	0	0
Squamous cell carcinoma	0	0	10	4	14	3	5	0	0	6
Basal cell carcinoma	2	0	0	0	4	0	0	0	0	0
Pleomorphic adenoma	0	0	0	13	0	0	0	3	27	0
Kaposi's sarcoma	0	0	2	1	5	0	2	0	0	2
Lipoma	0	0	8	0	12	0	3	0	0	0
Fibrous dysplasia	25	4	0	0	0	0	0	0	0	0
Fibrous epulis	0	0	0	0	0	11	0	0	0	0
Papilloma	0	0	0	11	6	7	2	0	0	0
Nasopharyngeal carcinoma	0	0	11	4	4	1	4	0	0	0
Others	0	1	2	1	2	2	2	2	2	1
Total	54	97	33	35	48	24	18	5	29	9

Figure 1: Types of treatment given to patients with orofacial tumors in St.pauls's Hospital millennium medical college Dental and maxillofacial clinic, Addis Ababa, Ethiopia, 2012-2014(n=362).

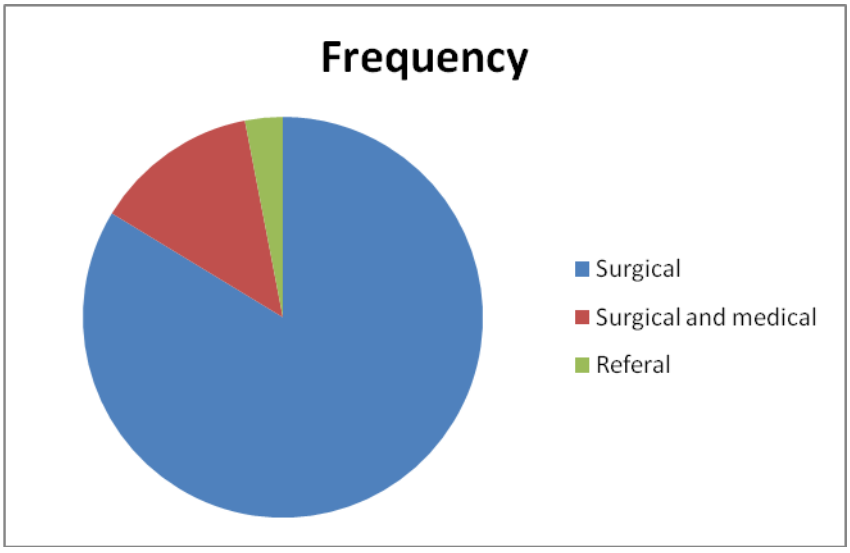

Figure 2: Time lag between treatment done and first presentation of patients with orofacial tumors in St.pauls's Hospital millennium medical college Dental and maxillofacial clinic, Addis Ababa, Ethiopia, 2012-2014(n=362).