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Primary malignant oro-facial tumours: A 14 year experience in a tertiary health institution in Gombe, North-East Nigeria

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Abstract
Objectives: *To determine the pattern of presentations of oro-facial malignant lesions in Gombe, North-East Nigeria*
Subjects and Methods: *Records of all patients with histologically diagnosed oro-facial malignant lesions in Federal Teaching Hospital, Gombe from January 2002- December 2016 were retrospectively reviewed. Information obtained from patients records were age, sex, site and histological diagnosis. The information were analysed using SPSS version 21.*
Results:*. Fifty seven patients consisting of 29 males and 28 females presented with oro-facial malignant lesions during the study period. The mean age of patients was 41.9 ± 21.0 years. 43 (75.4%) were carcinomas, 10 (17.6%) were sarcomas and 4 (7%) had lymphomas. Mandible was the most favoured site while the lip and floor of the mouth were least affected. Patients with carcinomas were significantly older than those with sarcomas and lymphomas. The most commonly diagnosed carcinomas were squamous cell carcinoma, mucoepidermoid carcinoma and that for sarcomas and lymphomas were osteogenic sarcoma and Burkitt's lymphoma respectively.*
Conclusion: *Oro-facial malignant lesions are relatively uncommon, male are slightly more affected and mandible the most common site. Carcinomas are the most common oro-facial malignancy and patients with carcinomas were older than those with sarcomas and lymphomas. Squamous cell carcinoma is the most common carcinoma and the most common lesion overall.*
Keywords: *Oro.-facial, Malignancies, Presentation, Gombe ,Nigeria*

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I. Introduction

Oro-facial cancer is a common lesion and it is associated with high morbidity and mortality (1). Oral cancer is reported as the 6th commonest cancer globally and the most common head and neck cancer (2). There is wide variation in the incidence of oral cancer in different parts of the world, in Europe and America, oral cancer is reported to account for 2-4 of all cancers (3) while in South East Asia, it accounts for up to 40% of all cancers (4). More than 50% of oral cancers are derived from the epithelial origin, thus oral carcinomas are the most common oro-facial malignancies (5-7). Oral carcinomas are reported to affect males more than females and are seen more predominantly in patients older than 40 years of age (5-7). However, recent reports have indicated increasing incidence in patients younger than 40 years (7). Squamous cell carcinomas constitute more than 70 % of diagnosed oro-facial carcinomas (1, 5-7). Sarcoma of the oro-facial region are reported to be less common than oral carcinomas, while Ajayi et al (6) reported a prevalence of 18% in their study, Udeabor et al (7) reported a prevalence of 22.7% for these lesions. Also, unlike carcinomas in which one lesion is consistently reported to be constant, different sarcoma has been reported to be the most common in different studies (5-7). Sarcomas tend to occur in younger age group and show variable degree of aggressiveness and growth rates (8). Lymphomas are malignant lesions that affect different types of lymphocytes but commonly the B lymphocytes; they occur commonly in children and young adults (8). They consisted of Hodgkin's lymphoma and more commonly the non-Hodgkin's lymphoma. While both lesions are primarily disease of the lymph nodes, non-Hodgkin's lymphoma also tends to occur frequently within the soft tissue (6,8).

There are several publications from different parts of the country on oro-facial malignancies (1, 5-7, 9). A previous study from this centre in 2013 focus on head and neck cancers (5), this study was therefore designed

to study the pattern of presentations of only oro-facial malignancies and to compare with similar studies from within and outside Nigeria.

II. Materials and Methods

This ~~is~~ was a retrospective review of all oro-facial malignant cases seen at the Dental and Maxillofacial Clinic of the Federal Teaching Hospital, Gombe, Nigeria from January 2002 to December 2016. The archived slides of the patients were retrieved from the Histopathologic and Forensic Medicine department records to confirm the diagnosis. Patients that met the inclusion criteria were included in this study, those whose diagnosis cannot be confirmed to be malignant lesions because the histologic slides, tissue blocks and histologic tissue were missing were excluded from the study. The following information were retrieved from the record book of patients that met the criteria; age, sex, site of lesion and histologic diagnosis. The information were analysed using SPSS (version 21, SPSS Inc. Chacago IL.). Descriptive and summary statistics were performed, relationship between variables was assessed using Chi Square and expressed as p-value.

III. Results

A total of 57 patients with malignant oro-facial tumours were seen during the study period. This consisted of 29 males and 28 females giving a male to female ratio of 1.03: 1, with a mean age ± SD of 41.9 ± 21.0 years. 43 (75.4%) of the patients had carcinomas and these consisted of 22 males and 21 females with a mean age of 48.7 ± 19.2 years. 10 (17.6%) of the patients had sarcomas and these consisted of 4 male and 6 females with a mean age of 21.3 ± 10.2 years. The remaining 4 (7%) patients had lymphomas which consisted of 3 males and one female and with a mean age of 20.0 ± 8.3 (Table 1).

The most commonly affected sites were the mandible and the maxilla with 22 (38.6%) and 11 (19.3%) cases respectively while the least affected sites were the lower lip and floor of the mouth with 2 (3.5%) cases each. The other sites reported in this study were the cheek, parotid and palate (Table 1).

The age range for all the patients was 3-80 years and more than half of the patients were 40 years and above. Patients that ~~are~~ were above 40 years all ~~have~~ had carcinomas while those with sarcomas and lymphoma ~~are~~ were below 40 years. The patients with carcinomas were significantly older than those with sarcomas and lymphomas (P>0.05) [Table 2].

Out of the 43 diagnosed carcinomas, 24 (55.8%) were squamous cell carcinomas, 17 (39.5%) were salivary gland carcinomas and the remaining 2 (4.7%) were odontogenic in origin. Squamous cell carcinomas also represented the single most common oro-facial malignancy in this study accounting for 42.1% of all malignancies. The most common sarcoma was osteogenic sarcoma accounting for 60% of all sarcomas. The next most common sarcoma was rhadomyosarcoma (20%). Only 2 types of lymphomas were reported in this study with Burkitt's lymphoma being the most prevalent with 3 (75%) cases (Table 3)

IV. Discussion

Oral cancer is a growing health problem and its pattern of occurrence differs in different parts of the world. In the present study, a total of 57 cases of oro-facial malignant lesions were reported in the centre in the 14 years study period, this ~~give~~ gives an average of about 4 cases per year. This yearly average is low compared to 38 reported for south western, 24 for middle belt and 24 reported for northern regions of Nigeria (9). In a study by Udeabor *et al* (7) in south-south region of Nigeria he reported an average of 9 cases per year. The reason for the very low average reported in this present study is not clear but may be caused by several factors which include; poor awareness of availability of specialised oral and maxillofacial surgery services in the centre, poverty among patients, illiteracy, cultural and religious beliefs which limit access to health care.

In the current study, there ~~is~~ was a slight male predominance with a male to female ratio of 1.03:1; this is lower than a ratio of 1.3:1 reported for head and neck cancer in the same centre in 2013 (5). However, both ratios fell within the range 1:1-2.3:1 reported by da Lilly-Tariah *et al* (9) in a review of Nigerian studies. The reason for this apparent reduction of male to female ratio is not clear but may be related to the fact that while the old study included lesions from outside the mouth and face, this present study focused on oro-facial lesions alone. Contrary to the finding of this study, Dhanuthai *et al* (10) reported a female predominance in a multicentre study of similar lesions in Thailand.

Mandible ~~is~~ was the most favoured site in this study followed by the maxilla, this is similar to the experience of Udeabor *et al* (7) in a similar study in Port Harcourt Nigeria. Also, as reported in the Port Harcourt study, floor of the mouth ~~is~~ was the least affected site. The reason why mandible and maxilla are favoured sites for oral malignancies is not obvious.

The mean age of all patients with oro-facial malignancies in this study was 41.9 ± 21.0 years. This mean age is lower than 42.2 ± 1.5 years reported in Lagos and 43.0 ± 20.6 years reported in Port Harcourt in Nigeria in similar studies respectively (6,7). However, the mean age reported in this study is higher than 34.6 ± 4.6 reported by Bassey *et al* (11) in Calabar, Nigeria. The mean ages of patients in this study and others in

Nigeria were less than 59.13 ± 17.32 years in Thailand and 53.7 ± 18.6 years reported in Iran (10, 12). The lower mean ages of patients in Nigeria may be due to early exposure to the causative agents and or the shorter life expectancy in Nigeria.

Carcinomas were the most common diagnosed oro-facial lesion in this study, this is in agreement with the observation of several other researchers who have reported carcinomas as the most prevalent lesion in their studies (6,7, 10-13). Squamous cell carcinoma was the most common carcinoma in this study accounting for 42.1% of all carcinomas. Even though this is similar to the observations from different parts of Nigeria and the world, however, there are regional variations in the relative frequencies of this lesion. Udeabor *et al* (7) and Bassey *et al* (11) reported relative frequencies of 43.5% and 43% in south-south Nigeria while Ajayi *et al* (6) and Okoturo *et al* (14) reported higher frequencies of 63% and 58.1% in south west Nigeria. Also, higher frequencies of 67.4% and 50.5% were reported by Dhanuthai *et al* (10) and Andisheh *et al* (12) in Thailand and Iran respectively relative to our study. Other carcinomas reported in this study ~~are~~ were salivary gland tumours (with mucoepdermoid carcinoma being the most prevalent) and malignant odontogenic tumour. Other studies from different parts of Nigeria have also reported mucoepidermoid carcinoma as the second most common carcinomas in their reports (6, 7, 14). However, contrary to this observation, Otoh *et al* (15) in their study reported adenoidcystic carcinoma as the second most common.

It was observed in this study that more than two-third (67.5%) of the patients with carcinomas were 40 years and above with a mean age of 48.7 ± 19.2 years and peak incidences within the 50-59, 60-69 and 70-79 year age groups. Also, it was noted that all patients above 40 years in this study only had carcinomas. The mean age of patients with intra oral carcinomas in this study is lower than the 51 ± 17 years reported by Ajayi *et al* (6), 51.2 ± 15.6 years reported by Otoh *et al* (15) and 52.5 ± 16.1 years reported by Udeabor *et al* (7) all in different regions of Nigeria. Carcinoma is known to be a disease of the young adult and the elderly, however, recent studies have been reporting increasing incidence of this lesion in the younger age group. The reasons given for the changing pattern of this disease are; changing in sexual habits and exposure to unknown carcinogen in addition to the etiologic factor of smoking and alcohol consumption (16). The peak incidence reported in this study is similar to those reported by Akinshipo *et al* (17) in North West Nigeria and Onotai *et al* (18) in South South Nigeria. Also, Chindzonga reported a similar finding in peak incidence in a study in Zimbabwe (13).

Sarcomas and lymphomas were reported to occur less frequently than carcinomas (5-7, 10-17) as also observed in this study. Sarcomas were the second most common oro-facial malignant lesion in this study in agreement with the observation of other researchers (6,7,12,17). However, several other researchers have reported lymphomas as the second most common lesions in their studies (5, 10, 11, 13). The mean age of patients with sarcomas was higher than those with lymphomas in this study in agreement with the observation of Ajayi *et al* (6) and Udeabor *et al* (7). The mean ages reported for patients with sarcomas by Ajayi *et al* (6) and Udeabor *et al* (7) [29.2 ± 17.2 and 31.8 ± 13.4 years respectively] were higher than that reported in this study (21.3 ± 10.2 years). On the contrary, the mean ages reported for patients with lymphomas in their studies (14.7 ± 14.1 and 17.7 ± 20.4 respectively) were lower than that reported in this study (20.0 ± 8.3). The reason for this variation in mean ages in the different studies is not clear.

The most common sarcoma reported in this study was osteosarcoma, this is in agreement with the observations of Ajayi *et al* (6), Dhanuthai *et al* (10) and Bassey *et al* (13) but differs from the observations of Akinmoladun *et al* (5), Udeabor *et al* (7), and Akinshipo *et al* (17) who reported rhadomyosarcoma as the most common sarcoma while Chindzonga (13) reported Kaposi's sarcoma as the most common in his study. As regards lymphoma, Burkitt's lymphoma was reported as the most common in this study in agreement with several other studies (6, 10, 11, 13, 17). However, contrary to this observation, Akinmoladun *et al* (5) reported Hodgkin's lymphoma as the most common lymphoma while Udeabor *et al* (7) reported equal predilection between the two lesions. The inclusion of neck lesions in the study by Akinoladun *et al* (5) may be responsible for the predominance of Hodgkin's lymphoma which is a primary disease of lymph nodes.

This study is a hospital based retrospective study and therefore the findings of this study should be interpreted with caution because it may not be a true representation of what is obtained in the community. However, it may give us an insight to what is to expect. There is need to increase the enlightenment of the community about the availability of specialised maxillofacial surgery services in this centre so that they can avail themselves the opportunity whenever the needs arise. Finally, government should include management of advance maxillofacial procedures in the existing health insurance scheme so that poor patient who cannot afford the cost of treatment can be treated.

V. Conclusion

Oro-facial malignant lesions are relatively uncommon in this centre and it affects more male than females with the mandible being the most predominant site. The most common oro-facial malignant lesions are carcinomas with the squamous cell carcinoma being the most common. The second most common oro-facial

lesions were the sarcomas. Osteosarcoma is the commonest sarcoma while Burkitt's lymphoma is the commonest lymphoma. The findings of this study are similar to the findings of other studies within and outside Nigeria with little differences.

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Table 1: Socio-demographic and Site distributions of patients

Factor	**All lesion**	**Carcinomas**
Number	57 (100%)	43 (75.4%)
Mean ± SD (years)	41.9 ± 21.0	48.7 ± 19.2
Age range (years)	3-80	14-80
M / F	29 (50.9%) / 28 (49.1%)	22 (51.2%) / 21 (48.8%)
	Sarcomas	**Lymphomas**
Number	10 (17.6%)	4 (7.0%)
Mean ± SD (years)	21.3 ± 10.2	20.0 ± 8.3
Age range (years)	3-35	14-32
M / F	4 (40%) / 6 (60%)	3 (75%) / 1 (25 %)
Site	**Frequency**	
Cheek	9 (15.8%)	
Floor of the mouth	2 (3.5%)	
Lower lip	2 (3.5%)	
Mandible	22 (38.6%)	
Maxilla	11 (19.3%)	
Parotid	3 (5.3%)	
Palate	8 (14.0%)	
Total	**57 (100%)**	

Table 2: Distribution of patients by Age groups and Histological types

Age group	**Carcinomas**	**Sarcomas**	**Lymphomas**	**Total**
0-9	0	1	0	1 (1.8%)
10-19	5	4	3	12 (21%)
20-29	3	1	0	4 (7%)
30-39	6	4	1	11 (19.3%)
40-49	6	0	0	6 (10.5%)
50-59	7	0	0	7 (12.3%)
60-69	7	0	0	7 (12.3%)

70-79	8	0	0	8 (14%)
80-89	1	0	0	1 (1.8%)
Total	**43 (75.4%)**	**10 (17.6%)**	**4 (7%)**	**57 (100%)**

P value is 0.04

Table 3: Patients Distribution by Histological Diagnosis

Histological Diagnosis	Frequency
Carcinomas	
Squamous cell carcinoma	24 (42.1%)
Mucoepodermoid carcinoma	8 (14.0%)
Adenocystic carcinoma	4 (7.0%)
Polymorphous low grade adenocarcinoma	2 (3.5%)
Terminal duct carcinoma	2 (3.5%)
Carcinoma ex-pleomorphic adenoma	1 (1.8%)
Ameloblastic carcinoma	2 (3.5%)
Total	43 (75.4%)
Sarcomas	
Osteogenic sarcoma	6 (10.5%)
Rhadomyosarcoma	2 (3.5%)
Fibrosarcoma	1 (1.8%)
Liposarcoma	1 (1.8%)
Total	10 (17.6%)
Lymphoma	
Burkitt's lymphoma	3 (5.2%)
Hodgkin's lymphoma	1 (1.8%)
Total	4 (7.0%)
Grand Total	57 (100%)

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