

Trends of oral cancer in University College Hospital, Ibadan, Nigeria

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Abstract

Objective: The aim of this study was to describe the trend and recent pattern of oral cancer in the University College Hospital, Ibadan, Nigeria.

Method: A retrospective analysis of all cases of oral cancer (excluding lymphoid cancers) documented in the records of the Departments of Oral and Maxillofacial Surgery and Pathology, University College Hospital (UCH), Ibadan, from the year 1983 to 2007 was done. The analysis of the data collected was compared with three earlier studies in this same centre and the published literature in general.

Result: Over the 25-year-period a total 450 cases of oral cancer were recorded. More than half of the cases were squamous cell carcinomas (SCC) and 58.0% of these occurred in the palate which was the commonest site. Compared with previous studies, the male to female ratio of 1.4:1 revealed a higher number of females, and more patients were recorded in the first and tenth decades of life.

Conclusion: The trends in oral cancer prevalence in UCH, Ibadan, show that oral SCC, still occurs commonly in the palate in our environment, and constituted the bulk of oral cancer. In addition, more females and patients within the extremes of age are being increasingly affected. There is before a need for more investigations into the possible aetiological factors in our environment in order to offer a preventive approach to the management of the disease.

Key words: Oral cavity, sarcomas, squamous cell carcinoma, Ibadan

Introduction

The American Joint Committee on cancer defined the oral cavity as the region extending from the mucocutaneous border of the lips to the junction of the hard and soft palate superiorly and inferiorly to the line of the circumvalate papillae of the tongue⁽¹⁾. This area constitutes the lips, the buccal mucosa, the alveolar gingivae, the oral tongue, the floor of the mouth (FOM), the hard palate and the retromolar region.

Cancer arising within the oral cavity constitutes the 6th most common cancer world wide^(2,3). There is a wide variation in the incidence of oral cancer internationally with about 3% of all cancers in the United States to as high as 40% in India and South-East Asia⁽²⁻⁵⁾.

The universal burden of oral cancer is further enhanced by its poor 5 year survival rate of approximately 40%⁽²⁾. It is thus important to understand the extent and trend of this burden so as to facilitate the planning and provision of evidence-based healthcare services. This may in turn help improve the dismal survival rate.

Our centre is a tertiary health care institution which also serves as a referral centre for the south eastern/western regions of Nigeria with a teeming population of about 51 million people out of 140 million of the entire Nigerian population⁽⁶⁾. This study was embarked on to describe the recent pattern as well as the trend of oral cancer in our local society.

Materials and method

A retrospective analysis of all cases of oral cancer (excluding lymphoid cancers) documented in the records of the departments of oral and maxillofacial surgery and pathology, University College Hospital, Ibadan, from the year 1983 to 2007 was done. The biodata of patients, histological diagnosis and the following sites described by the WHO International Classification of Disease version 10 were included in the study: the lip (ICD-10, C00), the tongue (ICD-10, C01, C02), gum (ICD-10, C03), floor of the mouth (ICD-10, C04), and palate (ICD-10, C05)⁽⁷⁾. The relative frequency of oral cancer to all cancers, age and gender distribution, histological diagnosis and anatomical sites were done and analysis of age and gender within the various histological diagnosis and anatomical sites was also carried out using SPSS[®] Statistics ver. 17.0. The analysis of the data collected was compared with three earlier studies in this same centre.

Result

Over the 25-year-period (1983 – 2007) a total of 450 cases of oral cancer were recorded. During this period 1,568 head and neck cancers (excluding orbital and thyroid cancers) were recorded in our hospital. Thus oral cancers constituted about 28.7% of all head and neck cancers.

Age and Gender distribution

There were 266 males and 184 females with a male to female ratio of 1.4:1. The mean age was 52.8 years (SD+/- 16.6). The cases gradually rose from 2 years of age and peaked at the 6th decade of life before a descent with the age of 99 years at the other extreme. The 5th and 6th decades of life accounted for more than half of the total number of cases (59.5%) in almost equal proportions. The age was not specified for a single case. The male to female ratio for squamous cell carcinoma (SCC) was also 1.4:1. The age ranged from 10 to 99 years with a mean age of 55.05 years (+/- 15.34). The age and gender distribution for SCC illustrated in **Table 1** below was similar to that of oral cancer in general.

Age and histological diagnosis

SCC accounted for 66.4% of all the oral cancer cases reviewed. Adenoid cystic carcinoma was a distant second most occurring lesion with 41 cases (9.1%). Majority (83.0%) of the SCC occurred above 40 years of age while 73.0% of the sarcomas occurred less than or equal to 40 years of age. The age distribution within the histological types is as shown in **Table 2** below.

Table 1: Age and Gender distribution for SCC cases

Age (Years)	Gender		Total	(%)
	Male	Female		
0-10	1	1	2	(0.7)
11-20	3	2	5	(1.7)
21-30	6	7	13	(4.3)
31-40	19	12	31	(10.4)
41-50	42	22	64	(21.4)
51-60	48	37	85	(28.4)
61-70	38	24	62	(20.7)
71-80	13	14	27	(9.0)
81-90	5	2	7	(9.0)
91-100	1	2	3	(1.0)
Total	176	123	299	(100.0)

Sites and histological diagnosis:

The palate was the commonest site for oral cancers accounting for 37.6% of the total site occurrence. Fifty eight percent of the SCC occurred in the palate. Table 3 illustrates the distribution of sites and histological types.

Discussion

The percentage of oral cancer relative to head and neck cancers obtained in this study (28.7%) is similar to the figures that have been recorded in previous Nigerian studies which ranged from 5.5% to 36.8%⁽¹¹⁻¹⁵⁾. In the experience of previous authors, SCC has been the most common type of oral cancer with a relative percentage of 57.6% to 90.0%^(3,4,8,16-19). In this study oral SCC accounted for 66.4% of all oral cancers. This therefore accounts for more than half the oral cancer cases but not as high as the figures reported in some other studies¹⁶⁻¹⁹. Also, the age, gender and site distribution of oral SCC mirrored the distribution of oral cancer in general (**Tables 1, 2 and 3**).

The male to female distribution for both SCC and oral cancer (1.4:1) in this study is at the lower end of what has been documented in literature. Oji and Chukwunke⁽³⁾ in Enugu, Nigeria, Chidzonga and Mahomva⁽¹⁶⁾ in Zimbabwe and Sugeran and Savage⁽²⁰⁾ in Australia reported 1.5:1, 2:1 and 1.7:1 respectively. Some reports, like those of Arotiba et al⁽²¹⁾ in Lagos, Nigeria and Gervasio et al⁽²²⁾ in Brazil, recorded much higher male to female ratios of 5.2:1 and 4.8:1 respectively. Ogden and Wight⁽²³⁾ explained this higher incidence in men with the fact that oral cancer is associated with smoking and chronic alcohol ingestion which are habits commonly found in men. Kayembe and Kalengayi⁽⁴⁾ in Congo (Zaire) also speculated that this male preponderance in oral cancer may be attributable to the protection of females by hormonal secretion. On the contrary, Kayembe and Kalengayi⁽⁴⁾ reported a reverse of this ratio with a higher incidence of oral cancer in females but they were not able to suggest a possible explanation for this. Van Wyk et al⁽²⁴⁾ also found a female predominance in South African Indians with a male to female ratio of 1:1.6. They attributed this to the fact that areca nut chewing was

Table 2: Age and histological diagnosis of oral cancers

Histological types	Age in years										Total(%)
	0-10	11-20	21-30	30-40	41-50	51-60	61-70	71-80	81-90	91-100	
Squamous cell carcinoma	2	5	13	31	64	85	62	27	7	3	299(66.6)
Adenoid cystic carcinoma	0	1	2	4	15	11	4	4	0	0	41(9.1)
Adenocarcinoma	0	0	6	2	10	1	3	1	1	1	25(5.6)
Mucoepidermoid carcinoma	1	3	1	3	5	4	2	0	0	0	19(4.2)
Sarcoma	0	4	2	2	3	0	0	0	0	0	11(2.4)
Acinic cell carcinoma	0	0	0	0	0	4	0	0	0	0	4(0.9)
Basal cell carcinoma	0	0	0	0	2	2	0	0	0	0	4(0.9)
Neoplasm NOS	0	1	6	5	8	4	9	4	0	1	38(8.5)
Others*	1	1	0	1	0	1	1	0	2	1	8(2.0)
Total	4	15	30	48	107	112	81	36	9	6	449(100.0)**

[†]Verucous carcinoma (4), Papillary carcinoma (2) Malignant teratoma (1), Haemangiopericytoma (1).

*For one case the age was not stated.

Table 3: Sites and histological diagnosis of oral cancer

Histological types	Palate	FOM	Tongue	Lip	Cheek	Gingiva	Retm#	Total(%)
Squamous cell carcinoma	98	90	70	16	10	13	2	299(66.4)
Adenoid cystic carcinoma	30	7	1	1	1	1	0	41(9.1)
Adenocarcinoma	15	4	3	3	1	0	0	26(5.8)
Mucoepidermoid carcinoma	7	3	3	1	3	2	0	19(4.2)
Sarcoma	3	4	0	1	0	2	1	11(2.4)
Acinic cell carcinoma	1	3	0	0	0	0	0	4(0.9)
Basal cell carcinoma	0	1	0	3	0	0	0	4(0.9)
Neoplasm NOS	15	6	7	7	3	0	0	38(8.4)
Others*	0	4	1	1	2	0	0	8(1.8)
Total	169	122	90	33	20	18	3	450(100.0)

*Verucous carcinoma (4), Papillary carcinoma (2) Malignant teratoma (1), Haemangiopericytoma (1).

*Retromolar area. FOM - floor of the mouth, NOS - not otherwise specified.

Table 4: Comparison of present series with previous studies from UCH, Ibadan

Author	Daramola et al ⁸	Lawoyin et al ⁹	Arotibo et al ¹⁰	Present series
Period of study	1960-1975	1960-1985	1976-1995	1983-2007
Number of Cases	153	90	246	450
Relative percentage of SCC	76.5%	23.6%	43.0%	66.6%
Mean age	48yrs	-	53.7yrs	55.0yrs
Age range	13-82yrs	19-80yrs	19-80yrs	10-99yrs
Peak decade	6th	-	6th	6th
M:F	1.7:1	1.6:1	1.5:1	1.4:1
Commonest site	Tongue	Palate	Palate	Palate

more common in South African Indian women than their men.

In previous studies from this centre a steady decline is observed in the male to female ratio (**Table 4**), a trend which has also been observed by some other authors^(25,26). This trend has been explained by the fact that there is an increasing use of tobacco and alcohol consumption by women^(25,26). This may not explain our finding as smoking and alcohol consumption have not been shown to have a significant association with oral cancer in our environment^(3,8). On the other hand this 'closing of gap' may be a reflection of more females being able to present themselves to the clinic for treatment or that more females are being diagnosed of oral cancer secondary to a yet unidentified habit or aetiological factor. Therefore there is need for further research on the role of other possible aetiological risk factors or habits other than smoking and

chronic alcohol ingestion.

In our environment, the first decade of life is rarely represented in the occurrence of oral cancer. Our series documented four cases, among which two were SCC (**Table 2**). Lawoyin et al⁽⁹⁾ and Arotiba et al⁽¹⁰⁾ in previous series did not find a single case in this age group. Daramola et al⁽⁸⁾ reported just one case of oral cancer in this age group out of a total of 153 cases over a 15 year period. It seems this finding is not as rare in other centres as Effiom et al⁽¹³⁾ in Lagos, (Nigeria), Otoh et al⁽¹⁵⁾ in Jos, Chidzonga et al⁽¹⁶⁾ in Zimbabwe and Kayembe and Kalengayi⁽⁴⁾ in Congo reported a few cases in children. More commonly, the 6th decade of life has remained the most affected age group over the years in our centre and our percentage of cases for patients above 40 years of age (83.0%) can be comparable to the report of other authors. Ajayi et al⁽²⁷⁾ and Chidzonga et al⁽¹⁶⁾ reported 75.0% and 70.8% respectively in their studies.



These percentages are relatively lower than the values recorded in developed countries which may be as a result of the lower life expectancy of 47 years among our people^(27,28).

The age range in this series is wider compared with previous studies in this centre (**Table 4**). This could mean the younger and older patients are being affected, possibly due to a compromising nutritional and/or immunological factor.

There is a variation in the commonest site of SCC occurrence in literature. Palate was the commonest site in some studies (which is also the case in our study as shown in **Table 3**). The mandibular gingiva was favoured by some authors such as Effiom et al⁽¹³⁾, Chidzonga et al⁽¹⁶⁾ and Arotiba et al⁽²¹⁾ while the tongue had the highest number of cases in reports by Andisheh-Tadbir et al⁽¹⁸⁾ and Worall⁽²⁾. A few other studies like those of Adekeye et al⁽¹⁷⁾ and Oji and Chukwunke⁽³⁾ cited 'other unspecified parts of the mouth' (ICD-10, C06) as the commonest site for oral cancer. In the set of studies from our centre, the palate was the most favoured site except for the earliest series by Daramola et al⁽⁸⁾ who stated the tongue as the commonest site but also acknowledged that the incidence in the palate was relatively high. Some authors have postulated that the involvement of the palate in some studies can be attributed to the possibility of maxillary antral SCC eroding through the palate and not a real increase in the incidence of a primary palatal lesion^(8,10). This is supported by the fact that a significant number of patients with oral cancer in our environment present late thus allowing for this possible palatal erosion of antral SCC to take place^(3,8,10).

Conclusion

Trends in oral cancer prevalence show that oral SCC, which occurs commonly in the palate in our environment, still constitutes the bulk of oral cancer. Also, more females and the extremes of age are being increasingly affected. There is therefore a need for more investigations into the possible aetiological factors in our environment in order to be able to offer a preventive approach to the management of the disease.

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