

ORIGINAL ARTICLE

Pattern of oral cancers in the North Central zone of Nigeria

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Summary

Objective: To document the pattern of oral cancers (ICD-O: C00-C06) diagnosed histologically at the Jos University Teaching Hospital, Jos between January 1987 and December 2002. **Methods:** Information on socio-demographic characteristics of patients and details of cancer occurrence and management were retrieved from the files and histopathology records of patients seen at the hospitals. **Results:** A total of 54 cases of oral cancers were reported, with a M-F ratio of 2.4:1 and with childhood cancers constituting 5.7%. There was a higher occurrence of oral cancers in patients aged 40 years and below, relative to reported findings in developed countries ($p < 0.05$). Carcinomas were the predominant cancers (80.5%), while the AIDS-related cancers, kaposi sarcoma and non-hodgkin's lymphoma, constituted 7.4% of oral cancers. Oral cancers were commonly reported in the tongue (33.3%), palate (27.8%) and lip (16.7%), with squamous cell carcinoma predominating in all reported sites. All the staged cancers were seen in the stage IV of the disease, while the mean duration of symptoms was least with tongue cancers (13 ± 13.3 months) and longest with lip cancers (23 ± 22.9 months). **Conclusions:** Routine screening for oral cancer and the counseling of patients with high-risk habits, by dentists is recommended to improve the prognosis of the disease.

Key words: Oral cancer, tumour, Nigeria

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INTRODUCTION

A recent report on cancers showed that cancers of the oral cavity, pharynx and salivary glands are responsible for an estimated 390,000 (3.9% of total) new cases of cancer worldwide in 2000¹.

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In Africa, the frequency of these cancers is lower, with an estimated 19,500 new cases in 2000, representing 3.1% of new cancers. The report also showed a great deal of geographical variations in the incidence of oral cancers. High incidences were reported in regions where it is related to factors like *tobacco* in the Indian

subcontinent, Papua New Guinea and Sudan, and *alcohol* in France, Switzerland and Eastern Europe ¹. Acquired Immune Deficiency Syndrome (AIDS)-related cancers of the oral cavity (kaposi sarcoma and non-hodgkin's lymphoma) with prevalence ranging between 0-12 % have also been reported in various studies in Africa since the advent of the disease world-wide ². The relative distribution of sites within the oral cavity also showed considerable differences. Lip carcinoma was associated with whites in areas of high UV radiation; carcinoma of the gums, floor of the mouth and vestibule in tobacco chewers, snuff dippers and toomback users ^{1,3,4}. Odukoya and others, in a study demonstrated the role of kolanuts in promoting the cigarette smoking-induced keratinization of human palatal mucosa ⁵.

Different studies on oral cancers in Nigeria have reported a relatively low incidence of the condition. This observation has been variously attributed to the low dentist: population ratio, poor and inadequate hospital services and a poor (and almost non-existent) cancer registry records obtainable in Nigeria ^{6,7}. The inception of such services in 1987 at the Jos University Teaching Hospital, Jos serving the North Central zone is expected to improve the reporting of oral cancers from this zone. The zone also recorded the highest rate of HIV sero-positivity (9.86%) in Nigeria in a national survey between 1989 and 1990 ⁸. This study was carried out to document baseline information on the epidemiological pattern of oral cancers (ICD-O: C00-C06) in this multi-ethnic region of Nigeria.

MATERIALS AND METHODS

The ethical clearance required to access data for the study was obtained from the Chief Medical Director of the hospital.

Socio-demographic information and history of patient management (age, sex, occupation, ethnic group, history of habits; history of symptoms, dates of referral and first appointment, pre-treatment and histological TNM staging of lesion, clinical and histological diagnoses, dates of biopsy and dates of biopsy report; definitive treatments and date of discharge) according to the pattern developed for the Minimum Cancer Dataset⁹ by the British Association of Head and Neck Oncologists (BAHNO) were retrieved from pathology records and medical records of patients diagnosed histologically of cancers of the oral cavity (M-8000/3) at the Jos University Teaching Hospital, Jos for the period between the start of histopathology services in January 1987 till December 2002.

The oral cavity, for the purpose of this study, includes the lip (excluding the skin), tongue, gingiva, floor of the mouth, buccal mucosa, alveolus of maxilla and mandible, unspecified "mouth"/ "oral cavity" and the palate, as classified by the International Classification of Diseases for Oncology (ICD-O: C00-C06) 3rd Edition ¹⁰.

The information was analyzed statistically using the SPSS statistical package (Version 11+) and Epi Info Version 6.0. Relationships between nominal variables were calculated using the Chi square (Fischer's Exact) Test. The Kolmogorov-Smirnov Test was used to test association between various habits and oral cancers. A p-value of 0.05 or less was considered significant.

RESULTS

A total of 54 cancer cases (7.6% of head and neck cancers) were reported, of which carcinomas, sarcomas and lymphomas constituted 81.5%, 16.7% and 1.8% of the cases respectively. Childhood cancers

constituted 5.7% of the oral cancers in the series.

Site Distribution

The intra-oral site commonly affected were the tongue (33.3%), palate (27.8%) and the lip (16.7%).

Table 1. Site Distribution of Oral Cancers

Cancers	ICD-O Codes	Sites								TOTAL (%)
		Tongue	Palate	Lip	Unspecified Mouth	Gingiva	FOM	Buccal Mucosa	Alve-olus	
Squamous Cell Carcinoma	M-8070/3	16	6	8	3	2	3	0	0	37 (70.4)
Adenoidcystic Carcinoma	M-8200/3	0	2	1	0	0	0	0	0	3 (5.5)
Mucoepidermoid Carcinoma	M-8430/3	0	0	0	1	0	0	0	0	1 (1.9)
Undifferentiated Carcinoma	M-8020	0	1	0	0	0	0	0	0	1 (1.9)
Malignant Melanoma	M-8720	0	0	0	0	0	0	1	0	1 (1.9)
Rhabdomyosarcoma NOS	M-8900/3	0	1	0	0	0	0	0	0	1 (1.9)
Alveolar Rhabdomyosarcoma	M-8920/3	0	2	0	0	0	0	0	0	2 (3.7)
Pleomorphic Rhabdomyosarcoma	M-8901/3	0	1	0	0	0	0	0	0	1 (1.9)
Embryonal Rhabdomyosarcoma	M-8910/3	1	1	0	0	0	0	0	0	2 (3.7)
Kaposi sarcoma	M-9140/3	1	1	0	0	1	0	0	0	3 (5.5)
Non-hodgkin's Lymphoma	M-9591/3	0	0	0	1	0	0	0	0	1 (1.9)
TOTAL (%)		18 (33.3)	15 (27.8)	9 (16.7)	5 (9.2)	3 (5.5)	3 (5.5)	1 (1.9)	0 (0)	54

Squamous cell carcinoma (n=37) was most commonly reported in the tongue 16 (43.2%), lip 8 (21.6%) and palate 6 (13.5%), while sarcomas were commonly reported in the palate (Table 1).

Histological Types

Carcinomas constituted 81.5% of oral cancers in this series. (Table 2).

Age and Gender Distribution

Table 3 shows the gender and age distribution for all sites. Cancers of the palate and floor of the mouth showed the

least age of occurrence (mean= 33.8 ± 19.6 years), with cancers of other sites occurring in the 5th and 6th decades of life. 92.6% of oral cancers were reported in patients aged 15 years and above, while only 5.6% were reported in patients aged 0 to 14 years (p<0.005).

HIV Status and AIDS-related Cancers

AIDS-related cancers (ARCs) identified in Africa are kaposi sarcoma and non-hodgkin's lymphoma².

Table 2. Age distribution of the histological types of oral cancers

Histological Types	Age Groups (Years) and Gender						TOTAL
	0-14		15-75+		Unspecified		
	M	F	M	F	M	F	

Carcinomas	2	0	30	11	0	1	44
Sarcomas	0	1	5	3	0	0	9
Lymphomas	0	0	1	0	0	0	1
TOTAL	2	1	36	14	0	1	54

$X^2=0.040$, $df=1$, $p=0.842$ (The category "Unspecified" was not included in the analysis and all histological types were merged due to the small numbers in these categories).

Table 3. Mean ages of occurrence of cancers

Site	Mean Age of Occurrence (Years)		
	Males	Females	All Gender
Tongue	56.1 ± 17.5	48.4 ± 17.9	53.9 ± 17.5
Palate	38.3 ± 19.5	23.5 ± 17.9	33.8 ± 19.6
Lip	44.8 ± 26.5	38 ± 2.8	43.1 ± 22.7
Gingiva	47.5 ± 10.6	-----	47.5 ± 10.6
Buccal Mucosa	-----	52 ± 0.0	52 ± 0.0
Floor of Mouth	38.3 ± 19.5	23.5 ± 17.9	33.8 ± 19.6
Unspecified Mouth	54 ± 22.6	50.5 ± 0.7	52.3 ± 13.2
<i>Kaposi Sarcoma</i>	55 ± 0.0	29.5 ± 0.7	38 ± 14.7

Four AIDS-related cancers, Kaposi sarcoma (75%) and non-hogkin's lymphoma (25%) were reported. These constitute 7.4% of oral cancers and a yearly rate of 0.46%. Kaposi sarcoma was reported in the 4th decade of life, with a mean age of occurrence of 38 ± 14.7 years (males=55 ± SD years; females = 29.5 ± 0.7 years).

Duration of Symptoms

Cancers of the tongue were reported earliest, in comparison with patients with lip cancers who waited longest before reporting for treatment (Table 4).

Table 4. Duration of symptoms for different intra-oral sites and cancer-types.

Sites (n)	Duration of Symptoms (Months)
Tongue (4)	13 ± 13.3
Palate (5)	13.4 ± 10.5
Lip (3)	23.0 ± 22.9
Gingiva (1)	0.5 ± 0.0
Buccal Mucosa (1)	0.1 ± 0.0
Types (n)	
Carcinoma (12)	15.7 ± 14.9
Squamous Cell Carcinoma (8)	16.8 ± 16.7
Salivary Gland Carcinoma (2)	24.0 ± 0.0
Sarcoma (3)	4.4 ± 6.6
Kaposi Sarcoma (2)	6.3 ± 8.1

Patients diagnosed with sarcomas presented earlier than carcinoma patients, while cases of Squamous cell carcinoma

stayed longest before presentation to the hospital.

Table 5. Treatment Modalities for Different Oral Cancers (n=17)

Type of Therapy (%)	Treatment	Number (%)
Monotherapy (23.5)	Primary Surgery	1 (5.9)
	Primary Radiotherapy	2 (11.7)
	Primary Chemotherapy	1 (5.9)
	Combination Therapy (5.9%)	Surgery + radiotherapy
None (70.6)	Surgery + Chemotherapy	0 (0.0)
	Radiotherapy + Chemotherapy	0 (0.0)
	Surgery + Radiotherapy + Chemotherapy	0 (0.0)
	No Treatment Recorded	12 (70.6)

Treatment

The records indicate that the majority (70.6%) of the patients did not have prescribed treatments following diagnosis (Table 5).

DISCUSSION

The results of this study cannot be compared with findings in the previous study conducted in Jos because of the non-standardization of the inclusion and exclusion criteria for cancers in that study¹¹.

The prevalence of cancers of the tongue is about 2-4 times higher ($p=0.0047$) than the 8.3% and 14.6% reported in Maiduguri and Zaria respectively, while the prevalence of palatal cancers is lower than the 32.2% and 39.6% ($p>0.05$) observed in Zaria and Maiduguri respectively¹². Alcohol and smoking have been associated with carcinomas of the tongue and palate respectively¹. The common occurrence of the habit of chewing kola nuts among oral cancer patients in the north east and north west of Nigeria had earlier been reported. A co-carcinogenic role of kolanuts in tobacco smokers has been suggested^{5,13}.

Alcohol has been shown to reduce the antioxidant capacity of abusers¹⁴. Alcoholic beverages commonly consumed in the area of the study are processed locally from guinea corn and millet, during which there is a substantial loss of the "trace amounts" of essential anti-carcinogenic nutrients like β -carotene, vitamins A, C & E, which have protective roles in carcinogenesis^{14,15,16}.

Cancers in "unspecified mouth" constituted 9.3% of oral cancers. This high level could be attributed to the extension of the lesion in its advanced stage before reporting to the hospital⁷. The non-availability of the dental or maxillofacial specialty in the hospital could also contribute to the high level of inaccuracy in the identification of affected cancer sites.

Relative to cancers of other sites, palatal cancers showed the least age of occurrence in this study. This could be attributed to the biological characteristics of the prevalent

rhabdomyosarcomas in this site¹⁷. The prevalence of oral cancers in patients aged 40 years and below is significantly higher ($p<0.05$) than reported in the USA¹³. The AIDS-related oral cancers observed in this study, kaposi sarcoma and non-hodgkin's lymphoma, agrees with previously reported African studies².

In a prospective study of oral manifestations of HIV/AIDS in Jos, nine cases of kaposi sarcoma were recorded in seven months in 2003, showing an approximately 8-fold increase in the occurrence of AIDS-related cancers over the previous years¹⁸. This is an indication of the high and rising prevalence of confirmed HIV cases in the North Central zone, with an increasing transformation into full-blown AIDS and its associated oral manifestations⁸. The advent of this disease, with its characteristic role in immunodeficiency, may enhance the progression of carcinogenesis in patients.

The early reporting of the cancers of the tongue, along with the late stage at presentation, could be attributed to the loss of function and pain associated with the spread, fixation and neural involvement of cancers of this site. The delayed reporting and advanced stage at presentation is as reported for previous studies in Nigeria, but contrasts with the 10-15% or less of patients with cervical metastasis at presentation reported in the USA^{4,7,13,19}. The late presentation, coupled with the observation that majority (70.6%) of the patients did not have prescribed treatments could be attributed to the delay in diagnosis arising from the non-availability of dentists who would perform routine oral cancer screening of patients seen in the hospital, poor access to hospitals and the primary recourse to traditional medicine^{20,21}.

CONCLUSIONS

There is a need for dentists to conduct routine oral cancer screening of each patient and to counsel patients with high-risk habits, in order to improve the prognosis of the disease.

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