Original Article

Pattern of Metastasis of Head and Neck Cancer in Nigeria: A 10 Year Review

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Abstract

Introduction: Head and neck cancer is a common and aggressive malignancy with a high morbidity and mortality profile that occur in several anatomical sites in the head and neck region. They constitute the tenth most common cancer in the world. Metastatic head and neck cancers are associated with severe morbidities and its treatment is mainly palliative. This study examined the patterns of metastases of head and neck cancer in patients in a tertiary hospital in Nigeria. **Method:** The data extraction form was used to obtain information from the Radiotherapy treatments records and the case notes of patients with histological diagnosis of Head and Neck Cancers between 2002 and 2011 at the Radiotherapy department, University College Hospital, Ibadan. Analyses was done using statistical Package for Social Sciences (SPSS) Version 20.0. **Results:** A total of 481 patients were seen in this study. The age of the patients ranged from 11 years to 80 years with mean age of 42 years. The male to female ratio was 2:1. The peak age of incidence was between 40-49 years. Most patients presented with stage III and IV. Nasopharyngeal carcinoma had the highest proportion of occurrence 205 (42.6%) followed by paranasal sinuses. Lung had the commonest site of metastasis followed by bones. **Conclusion:** More than half of the patients presented late with the commonest cancer being nasopharyngeal carcinoma. Lung was the commonest site of distant metastasis with nasopharyngeal carcinoma having the highest proportion of metastasis to the lungs at two years follow up.

Keywords: *Carcinoma, head and neck cancer, pattern of metastases*

Introduction

Head and neck cancers are primary malignant neoplasms that occur in several anatomical sites in the head and neck region.[1] They include malignant neoplasms of the oral cavity, nasal cavities, paranasal sinuses, nasopharynx, hypopharynx, oropharynx and salivary glands.[2] Head and neck cancer is the 10th most common cancer in the world.[3] In an analysis of published literature on head and neck cancer in Nigeria, it was noted that the peak occurrence of head and neck cancer ranged from the third to sixth decades of life.[4] Most Nigerian studies displayed a male predominance, with the reported male to female ratios ranging from 2 to 1.[4]

Head and neck cancer is strongly associated with, alcohol consumption, Ultraviolet light, particular chemicals used in certain workplaces, and certain strains of viruses, such as human papillomavirus.[5] Several assorted histological types of tumours are found in the head and neck region. Between 70% to 90% of head and neck cancers are epithelial in origin, and squamous cell carcinoma constitutes 66.7% of them.[6] These cancers are conventionally grouped together because they share anatomical contiguity, natural history, epidemiology, risk factors, morphology and control measures.[7]

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The prospects of head and neck cancer depends on histological type, degree of histological differentiation of the tumour cells, clinical staging, primary site of tumour, age of patient, co-morbid conditions and neuro-vascular invasion.[8] The treatment of metastatic head and neck cancers is mainly palliative. Currently the gold standard management of metastatic head and neck cancer is chemo radiation therapy. Targeted therapies combined with radiation has shown improvement in patients overall survival.

The purpose of this study therefore is to determine the pattern of head and neck cancer metastases in Nigeria.

Materials and Methods

Study Area

The study was carried out in the Radiotherapy department, University College Hospital, Ibadan, Oyo state, Nigeria. The department was established in 1987, and is still a referral center of the South western region of Nigeria, the nation at large and beyond.

Study population

Four hundred and eighty one patients with head and neck cancer were treated at the radiotherapy department between the years early 2002 and late 2011.

Study design

This was a retrospective study.

Data collection

All available radiotherapy treatment records and case files of head and neck cancer cases attended to between 2002 and 2011 were retrieved and analyzed by the researcher.

Pathological features like site of the disease, the stage at presentation, the lymph node status, the histological cell type, the histological grade of the disease. The site(s) of metastasis at presentation were determined from records of clinical examination and radiological tests during pretreatment evaluation. The Outcome of treatment was determined in terms of absence or presence of distant metastasis and the disease free interval in terms of loco-regional recurrence free interval or distant metastasis free interval after oncology treatment. The end point of observation or follow up was distant metastases

Data management

The data obtained was analyzed using the Statistical Package for Social Sciences (SSPS) version 20.0 to determine the effect of head and Neck cancer metastasis of Radiotherapy Clinic Ibadan.

Ethical Considerations

Ethical clearance to conduct the study was sought from the Joint Ethical Review Committee of the University of Ibadan/University College Hospital, Ibadan.

Results

A total of four hundred and eighty one patients (481) with histologically diagnosed squamous cell carcinoma of head and neck cancers were seen and analyzed in this study within the study period. An average of 48 cases were seen per year, with the highest number recorded in 2004 [Figure 1]. The age range of patients was 11years to 80years with mean age of 41.6±2.4.A higher proportion (22.5%) of patients was in the age group 40-49years. [Figure 2].There was a male to female ratio of 2:1. A higher number of patients was in the age group of 40-49 years, while the least was found in age group of 80-89 years [Figure 3). The total number of males were 319(66.3%) against 162(33.7%) females. A higher proportion 101(21.0%)) of patients were civil servants while the least number 16(3.3%) were clergies. Identified the risk factors were scanty, 58(12.1%) of patients consumed alcohol while 26(5.4%) smoked tobacco and 5 (1.2%) had chemical exposure. A total of 367(76.3%) had unspecified risk factors [Table 1].

The most common affected anatomical site in head and neck was nasopharynx with frequency of 226(42%), followed by paranasal sinuses 17.7% and the least was hypopharynx (3.1%) [Figure 4]. Neck mass was the commonest presenting symptoms observed in 310(64.4%) patients, followed by headache in 280(58.2%) patients and Epistaxis in 240(49.9%) patients. [Table 2]. Swelling and pain at the primary site are the most common presentations of oral cavity tumours (30 (21.4%)) and (45 (25%)) respectively, while neck mass, headache and epistaxis are the most common presentations in Nasopharyngeal carcinoma (80 (25.8%)), (70 (25.0%)) and (65 (27.1%)) respectively [Table 3].

Most patients had advanced disease at presentation with Stage III been the commonest 243(50.5%), followed by stage IV 178 (37.0%) and the least was seen in stage I 12 (2.5%). [Figure 5]

Moderately differentiated Keratinized SCC had the highest proportion 121(25.2%) in the histology grade, followed by well differentiated keratinized 112(23.3%) and undifferentiated 106(22.0%) while poorly differentiated had the least 65(13.5%) [Figure 6]. Highest metastases were observed in patients with undifferentiated SCC with a frequency of 80(75.5%) followed by non-keratinizing SCC 55(71.4%) and the poorly differentiated SCC 44(67.7%) while the well differentiated SCC had the least metastasis 25.6%. There

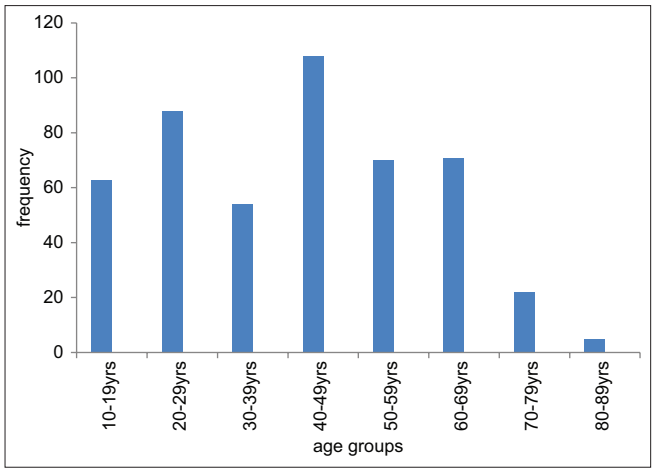

Figure 1: Bar chart of age distribution of patients. The age range of patients was 11 to 80 years with mean age of 41.6 years. The peak age group was 40-49years accounting for 22.5% of the patients

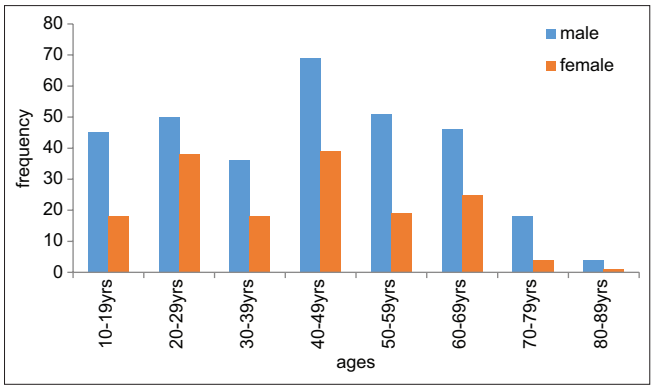

Figure 2: Age and Sex distribution of the 481 patients seen with head and neck cancer. There was a maletofemale ratio of 2:1. A higher number of patients were in the age group of 40–49 years, while the least was found in the age group of 80–89 years

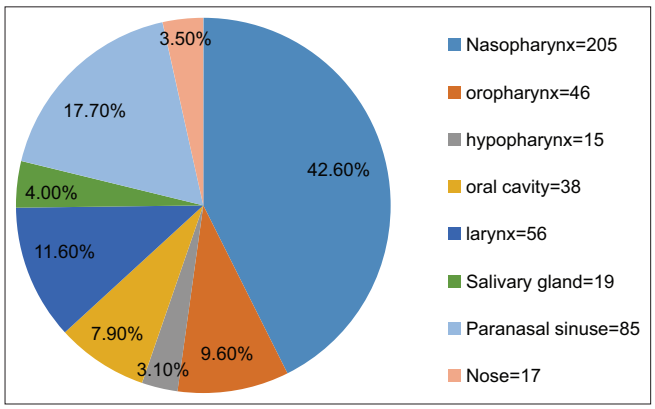

Figure 3: Pie chart representation of anatomical sites affected. Nasopharynx has the highest frequency and constituted 42.60% (205) of anatomically affected site, followed by paranasal sinuses 17.7% and the least is hypopharynx (3.1%)

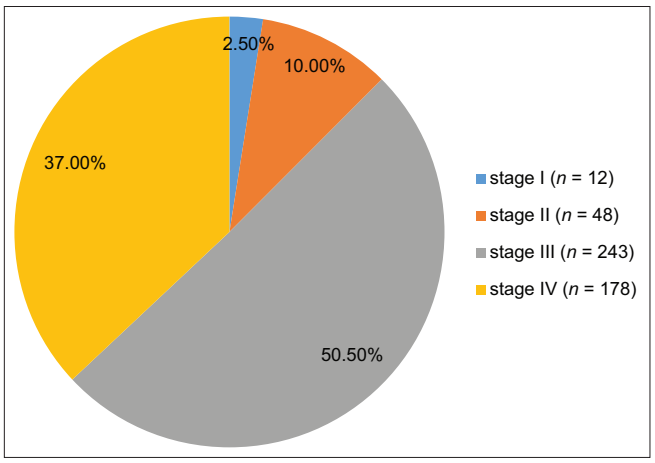

Figure 4: Pie chart depicting stages at presentation. Stage III was the commonest stage seen 243(50.5%), followed by stage IV 178(37.0%) and the least was seen in stage I 12(2.5%)

is a significant association between grade and metastasis (p=0.02) [Table 4].

Level 2 cervical region had the highest proportion of cervical lymph node involvement 60(33.7%) followed by level 3 cervical region, 51(28.6%) [Table 5].The predominant site of distant metastasis was Lung with a proportion of 89 (49.0%) followed by bone 67(37.0%) and liver 20 (11.0%) with kidney being the least 2(1.1%) [Figure 6].

Ipsilateral nodal distributions were observed most in nasopharyngeal carcinoma with a proportion of 143(80%) followed by hypopharyngeal carcinoma 9(70%) while the nasal and paranasal sinus carcinoma had the least proportion 2(10%) and 8(10%) respectively. Also, Nasopharyngeal carcinoma had the highest proportion of bilateral cervical nodal distribution 90(50%) followed by oropharyngeal carcinoma 8(20%). No bilateral nodal distribution was seen in salivary gland, nasal and paranasal sinus carcinoma. There is a statistically significant association between anatomically affected site and cervical node distribution. (p=0.01) [Table 6]. At two years follow up, nasopharyngeal carcinoma had the highest frequency of metastasis to the lungs 47(37.9%), bone 34(40.5%), brain 5(62.5%), liver 12(57.2%) [Tables 7–10]. Nasal cavity has the highest proportion of local infiltration 140 (29.1%) followed by the Orbital cavity 105 (21.6%) and the least frequency was observed in the base of the skull and cervical bone 40(8.3%) [Table 11].

A total of 319(66.3%) patients were males while 162(33.7%) were females. A higher proportion 101(21.0%)) of patients were civil servants while the least number 16(3.3%) were clergy. 58(12.1%) of patients consumed alcohol while 26(5.4%) smoked tobacco. A total of 367(76.3%) neither smoke nor take alcohol.

Neck mass was the most common presenting symptom observed in 310 (64.4%) patients, followed by headache

Table 1: Distribution of patient characteristics of 481 patients seen with squamous cell carcinoma of the head and neck

Patient characteristics	Variables	Frequency	Percentage
Sex	Male	319	66.3%
	Female	162	33.7%
Education	Primary	37	12.7%
	Secondary	152	52.2%
	Tertiary	94	32.3%
	No formal education	8	2.7%
Occupation	Civil servant	101	21.0%
	Self employed	74	15.4%
	Factory workers	50	10.4%
	Unemployed	79	16.4%
	Traders	60	12.5%
	Clergy	16	3.3%
	Farming	55	11.4%
	Students	46	9.6%
Social habits	Alcohol	58	12.1%
	Cigarette smoking	26	5.4%
	Chemical exposure	5	1.2%
	Alcohol and cigarette	24	5.0%
	Unspecified	367	76.3%

in 280 (58.2%) and epistaxis in 240 (49.9%) patients respectively

Undifferentiated SCC has the highest metastasis (80 (75.5%)), followed by nonkeratinizing SCC (55 (71.4%)) and the poorly differentiated SCC (44 (67.7%)), while the welldifferentiated SCC had the least metastasis (25.6%). There is a statistically significant association between grade and metastasis (P=0.02)

The frequency and the pattern of lymph node metastases in patients represented in Table 5 showed that the level 2 cervical region had the highest proportion (60 (33.7%)) of cervical lymph node involvement, followed by level 3 (120 (28.6%)), while axillary node had the least (3 (0.6%))

Nasopharyngeal carcinoma had the highest proportion (143 (80%)) of ipsilateral nodal distribution, followed by hypopharynx (9 (70%)), while nasal and paranasal sinus carcinoma had the least proportion (2 (10%) and 8 (10%)), respectively. Also, nasopharyngeal carcinoma had the highest proportion of bilateral cervical nodal distribution (90 (50%)), followed by oropharyngeal carcinoma (8 (20%)). No bilateral nodal distribution was seen in the salivary gland and nasal and paranasal sinus carcinoma. There is a statistically significant association between the anatomically affected site and cervical node distribution (P=0.01)

Table 2: Distribution of Clinical features of patients seen

Clinical features	Frequency	Percentage
Swelling at primary site	140	29.1
Tumour pain	180	37.4
Sore throat	120	24.9
Neck mass	310	64.4
Bleeding	120	24.9
Ulceration	170	35.3
Headache	280	58.2
Visual loss	130	27.0
Visual impairment	100	20.8
Proptosis	95	19.8
Hearing loss	80	16.6
Ear Pain	120	24.9
Ear Discharge	80	16.6
Tinnitus	101	20.9
Nasal congestion	120	24.9
Epistaxis	240	49.9
Difficulty in breathing	126	26.2
Difficulty in swallowing	70	14.6
Hoarsness of voice	80	16.6
Trismus	86	17.8
Cranial nerve deficit	50	10.4
Ill-fitting dentures	30	6.2
Halitosis	110	22.9

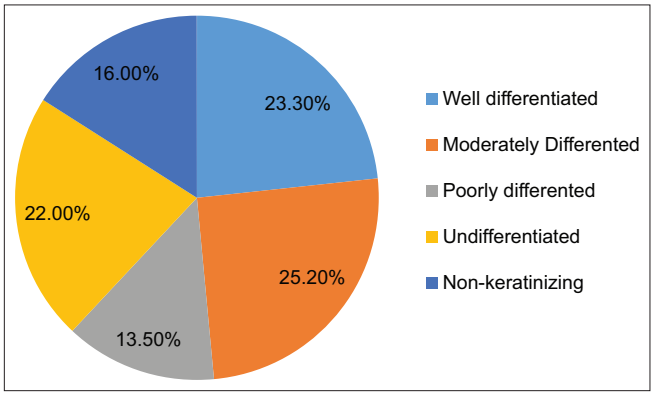

Figure 5: Pie chart depicting Histological Grade. Moderately differentiated Keratinized SCC had the highest proportion 121(25.2%), followed by well differentiated keratinized 112(23.3%) and undifferentiated 106(22.0%) while poorly differentiated had the least 65(13.5%)

Nasopharyngeal carcinoma had the highest frequency of lung metastasis 47(37.9%), followed by Oropharyngeal carcinoma 20(16.1%) and the least was from nasal cavity 5(4%).

Nasopharngeal carcinoma had the highest frequency 34(40.5%) of metastasis to the Bone, followed by paranasal sinuses 16(19.1%) and the least was in nasal cavity 1(1.2%)

Nasopharyngeal carcinoma had the highest frequency 5(62.5%) of metastasis to the brain, followed by salivary gland 2(25.0%) and paranasal sinuses 1(12.5%).

Table 3: Distribution of clinical presentation according to anatomical affected sites

Clinical features	Nasopharynx	Paranasal sinuses	Larynx	Oropharynx	Oral cavity	Salivary gland	Others
Swelling at primary site	10 (7.1%)	29 (20.7%)	18 (12.9%)	24 (17.1%)	30 (21.4%)	16 (11.4%)	13 (9.4%)
Tumour pain	6 (3.3%)	14 (7.8%)	20 (11.1%)	40 (22.2%)	45 (25%)	30 (16.7%)	25 (13.9%)
Sore throat	8 (6.7%)	4 (3.3%)	20 (16.7%)	30 (25%)	25 (20.8%)	15 (12.5%)	18 (15%)
Neck mass	80 (25.8%)	10 (3.2%)	23 (7.4%)	64 (20.6%)	36 (11.6%)	51 (16.5%)	46 (14.8%)
Bleeding	20 (16.7%)	9 (7.5%)	4 (3.3%)	20 (16.7%)	31 (25.8%)	14 (11.7%)	22 (18.3)
Ulceration	6 (3.5%)	20 (11.8%)	12 (7.0%)	35 (20.6%)	42 (24.7%)	28 (16.5%)	27 (15.9%)
Headache	70 (25.0%)	54 (19.3%)	40 (14.3%)	35 (12.5%)	26 (9.3%)	10 (3.6%)	45 (16.1%)
Visual loss	32 (24.6%)	28 (21.5%)	9 (6.9%)	15 (11.5%)	20 (15.4%)	4 (3.1%)	22 (16.9%)
Visual impairment	25 (25.0%)	20 (20.0%)	10 (10.0%)	8 (8.0%)	15 (15.0%)	3 (3.0%)	19 (19.0%)
Proptosis	20 (21.1%)	25 (26.3%)	2 (2.1%)	15 (15.8%)	10 (10.5%)	6 (6.3%)	17 (17.9%)
Hearing loss	18 (22.5%)	15 (18.75%)	2 (2.5%)	12 (15.0%)	7 (8.75%)	5 (6.25%)	21 (26.25%)
Ear Pain	30 (25.0%)	19 (15.8%)	8 (6.7%)	15 (12.5%)	4 (3.3%)	24 (20.0%)	20 (16.7%)
Ear Discharge	19 (23.8%)	10 (12.5%)	7 (8.75%)	14 (17.4%)	3 (3.75%)	6 (7.5%)	21 (26.3)
Tinnitus	25 (24.8%)	20 (19.8%)	3 (3.0%)	6 (5.9%)	10 (9.9%)	14 (13.8%)	23 (22.8%)
Nasal congestion	27 (22.5%)	31 (25.8%)	5 (4.2%)	15 (12.5%)	21 (17.5%)	10 (8.3%)	11 (9.2%)
Epistaxis	65 (27.1%)	54 (22.5%)	21 (8.8%)	30 (12.5%)	43 (17.9%)	9 (3.8%)	18 (7.5%)
Difficulty in breathing	28 (22.2%)	16 (12.7%)	32 (25.4%)	10 (7.9%)	22 (17.4%)	6 (4.8%)	12 (9.5%)
Difficulty in swallowing	5 (7.1%)	11 (15.7%)	3 (4.3%)	18 (25.7%)	15 (21.4%)	8 (11.4%)	10 (14.3%)
Hoarsness of voice	10 (12.5%)	12 (15.0%)	20 (25.0%)	16 (20.0%)	6 (7.5%)	3 (3.8%)	13 (16.2%)
Trismus	19 (22.1%)	21 (24.4%)	13 (15.1%)	10 (11.6%)	6 (7.0%)	2 (2.3%)	15 (17.4%)
Cranial nerve deficit	11 (22.0%)	10 (20.0%)	5 (10.0%)	3 (6.0%)	2 (4.0%)	7 (14.0%)	12 (24.0%)
Ill-fitting dentures	2 (6.7%)	5 (16.7%)	3 (10.0%)	4 (13.3%)	7 (23.3%)	1 (3.3%)	8 (26.7%)
Halitosis	3 (2.7%)	19 (17.3%)	10 (9.1%)	15 (13.6%)	26 (23.6%)	8 (7.3%)	29 (26.4%)

Table 4: Grade and frequency of metastasis

Grade	Frequency (%)	Metastasis		*P*
		Developed Metastasis (%)	Without Metastasis (%)	
Well differentiated	112 (23.3%)	29 (25.6%)	83 (74.4%)	0.02
Moderately Differentiated	121 (25.2%)	63 (51.8%)	58 (48.2%)	
Poorly differentiated	65 (13.5%)	44 (67.7%)	21 (32.3%)	
Undifferentiated	106 (22.0%)	80 (75.5%)	26 (24.5%)	
Non keratinizing	77 (16.0%)	55 (71.4%)	22 (28.6%)	
Total	481	268	213	

Table 5: Overall Frequency of nodal level distribution at the time of presentation

Metastatic site	Frequency	Percentage
Lymph node		
Cervical Level 1	83	19.7%
Cervical Level 2	142	33.7%
Cervical Level 3	120	28.6%
Cervical Level 4	52	12.4%
Cervical Level 5	21	5.0%
Axillary	3	0.6%

There was no record of metastasis from the other anatomical affected site.

Nasopharngeal carcinoma had the highest frequency 12(57.2%) of metastasis to the liver, followed by Oropharynx 4(19.0%).There was no record of metastasis from the larynx, salivary gland, and Nasal cavity.

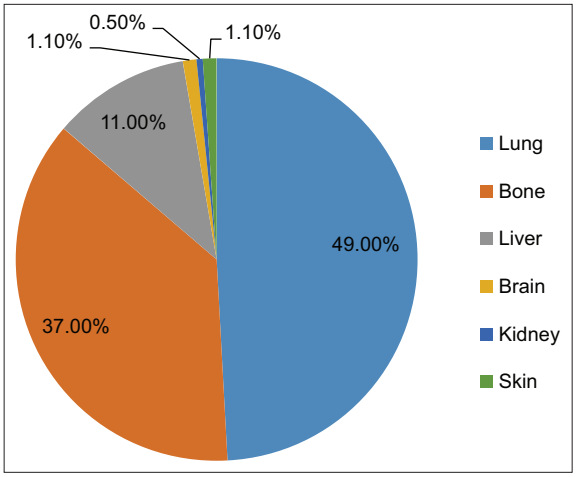

Figure 6: Pie chart depicting percentage distribution of organs of distant Metastases. Lung had the highest proportion 89 (49.0%) of distant metastasis followed by bone 67(37.0%) and liver 20 (11.0%) with kidney being the least 2(1.1%)

Table 6: Anatomical distribution of lymph node

Anatomical affected site	Number of patients	Cervical nodal distribution	
		Ipsilateral	Bilateral
Nasopharynx	179	143 (80%)	90 (50%)
Oropharynx	40	24 (60%)	8 (20%)
Hypopharynx	13	9 (70%)	10 (15%)
Oral cavity	33	10 (30%)	2 (5%)
Larynx	49	27 (55%)	8 (16%)
Salivary gland	18	2 (12%)	-
Paranasal sinus	74	8 (10%)	-
Nasal cavity	15	2 (10%)	-

Table 7: Frequency and pattern of metastases to the Lungs at 2-follow up

Anatomical sites (primary tumour)	Frequency	Percentages
Nasopharynx	47	37.9
Oropharynx	20	16.1
Hypopharynx	6	4.8
Oral cavity	15	12.1
Larynx	12	9.7
Salivary gland	10	8.0
Paranasal Sinuses	9	7.3
Nasal cavity	5	4.0

Table 8: Frequency and pattern of metastases to the Bone at 2 - years follow up

Anatomical sites (primary tumour)	Frequency	Percentages
Nasopharynx	34	40.5
Oropharynx	9	10.7
Hypopharynx	5	5.9
Oral cavity	7	8.3
Larynx	9	10.7
Salivary gland	3	3.6
Paranasal Sinuses	16	19.1
Nasal cavity	1	1.2

Table 9: Frequency and pattern of metastases to the Brain at 2-years follow up

Anatomical sites (primary tumour)	Frequency	Percentages
Nasopharynx	5	62.5
Oropharynx	0	0.0
Hypopharynx	0	0.0
Oral cavity	0	0.0
Larynx	0	0.0
Salivary gland	2	25.0
Paranasal Sinuses	1	12.5
Nasal cavity	0	0.0

Table 10: Frequency and pattern of metastases to the Liver at follow up

Anatomical sites (primary tumour)	Frequency	Percentages
Nasopharynx	12	57.2
Oropharynx	4	19.0
Hypopharynx	3	14.2
Oral cavity	1	4.8
Larynx	0	0.0
Salivary gland	0	0.0
Paranasal Sinuses	1	4.8
Nasal cavity	0	0.0

Table 11: Frequency of local infiltration to Adjacent Organs at presentation

Metastatic site	Frequency	Percentages
Orbital cavity	105	21.8
Ear	83	17.3
Nasal cavity	140	29.1
Orbital cavity	60	12.5
Base of the Skull & Cervical bones	40	8.3

Nasal cavity had the highest proportion 140 (29.1%) of local infiltration followed by the Orbital cavity 105 (21.8%) and the least frequency is observed in the base of the skull and cervical bone 40(8.3%).

Discussion

In this study, we assessed the pattern of metastases of head and neck cancer with regards to stages at presentation, histological grade, grade and frequency of metastasis, organ of distant metastasis, anatomical distribution of lymph node and pattern of metastases to various organs of the body at 2 years follow up. In this study, it was observed that the ratio of male to female was 2:1. This is in contrast with the findings of George *et al.* 2017, who reported male to female ratio of 3:1[9] and also in contrast to 4:1 recorded in India by Sarbani *et al*, 2016[10] but in agreement with the previous works done in Nigeria.[11-13] The reason for the male predominance in these studies could be attributed to the fact that some of the habits that have been associated with the occurrence of head and neck cancer, such as smoking and use of alcoholic beverages, are strongly associated with male gender.[4,14] This study reveals that Head and Neck Cancers (HNCs) are more common in adults than children. This is in agreement with another work done by da Lilly-Tariah *et al*, 2009[4] within the same country, on head and neck cancers.

The role of alcohol and cigarette smoking in carcinogenesis of head and neck cancers has well been documented.[4,15-17] In this present study, social habit like alcohol consumption and cigarette smoking accounted for 12.1% and 5.4% of patients respectively. Using alcohol and tobacco together has been showed to pose a higher risk of developing HNCs.[15,18]

This study documented nasopharynx (42.6%) as the highest anatomical site of HNCs affected followed by

paranasal sinus (17.7%) and laryngeal (11.6%) as the second and third respectively. This is in consonance with other studies done in the country[4,13,19] and the same order was reported by da Lilly-Tariah *et al*, 2009[4] with regards to the second and third most common anatomical site of HNCs affected. Our findings was in contrast with the works of Amusa *et al* 2004[20] and Ologe *et al* 2005[6] as both reported oral cavity as the commonest anatomical site of HNCs affected.

In this study, we found that neck mass (64.4%) was the commonest initial presenting complaint followed by headache (58.2%) and epistaxis (49.9%) as second and third respectively. Our finding is in contrast with a previous studies that reported hoarseness and throat pain as the first and second most common primary symptom at initial presentation.[17,21,22] Most of the patients in this study presented with stage III (50.5%) followed by stage IV (37%). This is in agreement with previous studies done in Nigeria where late presentation was a common feature in different parts of the country.[11,21-23] This is also in line with the studies done in Kenya by Onyango & Macharia 2006[24] and Yemen by Abdul-Hamid *et al* 2010[25] and in Ghana by Donkor & Boateng 2000[26] who reported stages III and IV as the commonest stage at presentation. Late presentation in this study could be attributed to poor knowledge of HNC symptoms, wrong diagnosis, poverty, as well as patients seeking for native treatments.[11]

The moderately differentiated squamous cell carcinoma (SCC) (25.2%) had the highest frequency in this study followed by well differentiated SCC (23.3%) while poorly differentiated SCC (13.5%) was the least histological grade. This is in line with previous a report.[2] but in contrast with previous studies where poorly differentiated SCC was reported as the second most histological grade after moderately differentiated SCC.[27-29] The high level of moderately differentiated SCC may be pointed to viral infection as a predisposing factor.[28,30] This study also revealed that patients with undifferentiated SCC (75.5%) had the highest frequency of metastasis. Lung (49%) was seen to have the highest frequency of distant metastasis in this study followed by bone (37%) and liver (11%) as the second and third respectively. This is in agreement with the previous studies,[31,32] but in contrast with another study which reported that bone was the most common site of distant metastases in nasopharyngeal carcinoma followed by the lungs and liver.[33]

The most common site of lymph node metastases detected clinically as well as histo-pathologically in this study was at level II cervical region, followed by level III. This is in keeping with previous study.[34] Both ipsilateral and bilateral cervical lymphatic nodal distribution were observed in this study. Nasopharyngeal Carcinoma had the highest proportion of both ipsilateral and bilateral nodal distribution followed by the oroparnygeal carcinoma and hypopharyngeal carcinoma respectively. This may be due to the well-developed network of lymphatics in these organs.[35] Nasal and paranasal sinus carcinoma had the least of ipislateral cervical nodal distribution with no associated bilateral nodal distribution in this study. This may be due to the paucity of lympatics in the region.[36] There is an orderly pattern of lymph node involvement from upper to lower neck in a surgically or radio-therapeutical uninterrupted neck.[30] In this study, nasopharyngeal carcinoma had the highest frequency of spread to the lungs, bone, brain and liver. Brain had the lowest frequency of metastases among the distant organs affected by the head and neck cancer. This is in keeping with other studies in the head and neck cancer metastases.[37-39] In addition to distant metastases observed in head and neck carcinoma, local infiltrations to adjacent organs were also observed. The orbital cavity had the highest frequency of local infiltration, followed by the ear and nasal cavity respectively.

Conclusion

The result of this study showed that head and neck cancer in our environment has male predominance, with the peak age in the fifth decade of life and average yearly incidence of 48 per year. No definitive risk factor was identified. The study showed multiple metastatic sites with lungs being the commonest site of distant metastases followed by bone .Greater than two third of patient with head and neck cancer presented with advanced stage (Stage III and IV). These patients had loco-regional cervical adenopathy with higher frequencies in level II and III. Within the head and neck region, the orbit (eye) was the tissue of highest local infiltration, followed by the ear.

Nasopharynx was the most common anatomical affected site, with moderately differentiated squamous cell carcinoma being the commonest histological type. Neck mass was the commonest presenting symptom.

Recommendation

Metastatic head and neck cancer is associated with significant morbidity and mortality, therefore more awareness of head and neck cancer should be created by the government and health care providers on the need for patients to present to specialist once a swelling or other symptom persist for more than two weeks.

The General practitioners and other related health workers should endeavour to make referrals to teaching hospitals especially in cases of head and neck cancer as

early diagnosis increases the survival rate. Government should provide more radiotherapy centers as most head and neck cancers respond to radiotherapy. Also more specialists in head and neck cancers should be trained.

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Conflicts of interest

There are no conflicts of interest.

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