

Original Research Article

Nasopharyngeal cancers in University of Port Harcourt teaching hospital: a five year review

Ibekwe Matilda Uju*

Department of ENT Surgery, University of Port Harcourt Teaching Hospital, Port Harcourt, Rivers State, Nigeria

Received: 18 April 2020

Accepted: 12 May 2020

***Correspondence:**

Dr. Ibekwe Matilda Uju,

E-mail: ibekwe_uju@yahoo.com

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ABSTRACT

Background: Nasopharyngeal cancer though an uncommon head and neck cancer, has high morbidity and mortality. It is a cancer that has peculiar geographic variations and hence has been studied by a lot of researchers globally. It however has not been studied as an entity in the South region. This study was done to determine the clinical and histologic presentations as well as the prevalence of this disease in Port Harcourt.

Methods: Hospital based retrospective review of all patients with confirmed diagnosis of nasopharyngeal cancer seen within the period of January 2014 to December 2018 at ENT Department University of Port Harcourt teaching hospital. The hospital records were the source of data. The demographics, clinical presentations, histology, investigations and outcome were all collated from the records and were analyzed with IBM SPSS version 25.

Results: Forty-one patients were studied with age range of 12-85 years. The mean age was 43 ± 15.1 years. Male to female ratio was 1.2:1. Age 40 to 49 years was the most affected. Nasopharyngeal carcinoma was the commonest cancer recorded 68.29% followed by non-Hodgkin's lymphoma 19.5%. Keratinizing squamous cell carcinoma was the commonest histologic type 43.9%. Commonest symptoms were neck swelling and nasal congestion 24.55%. Age distribution showed a statistical difference with histology of cancer. Mortality of 4.87 was recorded; the rest was lost to follow up.

Conclusions: Nasopharyngeal carcinoma is the commonest cancer in the nasopharynx. It is significantly related with age. Patients often present late and it has very high morbidity and mortality rate. Attention to early vague symptoms will enhance early diagnosis, treatment therefore prognosis.

Keywords: Nasopharynx, Cancer, Histology, Keratinizing

INTRODUCTION

The nasopharynx is seen as an obscure or hidden part of the head and neck anatomy which is not readily accessible therefore lesions in this area may advance unnoticed over a period of time. Nasopharyngeal malignancies are uncommon however they constitute 8.9% of the head and neck cancers and make up 2% of all cancers. Head and neck cancers generally are uncommon with an incidence of 5-50% of all malignancies globally.¹ while malignancies such as lymphomas and sarcomas, could be found in the nasopharynx, they remain very rare

in their occurrence. Lymphomas are the second commonest head and neck cancers after squamous cell cancer.² The nasopharynx being a part of the Waldeyer's ring is a site that can be affected by Non-Hodgkin lymphoma.³ while some studies on nasopharyngeal lymphomas found female preponderance, others found no gender difference and the 6th decade was the most affected with the B-cell variant of non-Hodgkin lymphoma being the commonly seen type.^{3,4} Sarcomas on the other hand are very rare. Comprises about 1% of head and neck cancers in adult rhabdomyosarcoma comprise less than 10% of all soft tissue sarcoma, but it is more

commonly seen in the head and neck region especially in children and teenagers.^{5,6} It is rare especially after 40 years and the commonly found type in the adult nasopharynx is the alveolar variant.⁷ Other malignancies such as adenocarcinomas often from salivary glands are rarely seen as primary malignant tumor of the nasopharynx. Nasopharyngeal carcinoma (NPC) by far is the commonest primary malignancy seen in the nasopharynx. It is so common here that it often is taken as the major cancer in the nasopharynx. It is the most studied cancer of this region such that when incidences of nasopharyngeal cancers are given, it actually is that of NPC. Studies have different incidences depending on the geography and population studied. It constitutes 0.6% of all global cancer burdens.⁸ NPC is an uncommon tumor worldwide but has a high incidence in the South East Asia especially Southern China, some parts of the Middle East and North Africa.⁹ Southern China has the highest incidence rate; 20-50/100,000 person per year.¹⁰ It has an incidence rate of 80,000 new cases with over 50,000 estimated deaths same year.¹⁰ The age standardized incidence rate (ASIR group) is taken to be less than 1 per 100,000 person-years irrespective of gender.¹¹ The ASIR in Europe is less than 2 cases per 100,000 in one year for men and less than one for women.¹² The highest incidence of NPC in Africa is found in Tunisia and Algeria.¹³ In Nigeria, an incidence of 2% in Ibadan and Ilorin and 1.7% in Jos was noted.¹⁴⁻¹⁶ It was deemed the commonest head and neck malignancy in Jos and Sokoto and second commonest in Port Harcourt.¹⁷⁻¹⁹

NPC is one malignancy with peculiar variations in aetiology and epidemiology. Nasopharyngeal carcinoma has viral, genetic, environmental and dietary factors implicated in its aetiology.¹⁰ Alcohol consumption, cigarette smoking and consumption of salt preserved fish and foods containing nitrosamines air pollutions, wood fire, occupational exposures were all implicated factors.²⁰ Epstein Barr virus (EBV) is strongly implicated as well with NPC incidence high in some areas known to be endemic with EBV.¹⁰ The mean age distribution of NPC in Nigeria ranges from 41.1 to 44.4 years.^{14,17} However, 48.7 years was recorded in Ilorin.¹⁵ In contrast, the mean age distribution in North America, Western Europe and China was a decade higher.¹³ It is documented that in the high risk areas for NPC, there is a bimodal age distribution; an initial peak in incidence in late adolescent and a later peak in the 5th or 6th decade.²¹ In low risk areas such as Nigeria most studies found a mono nodal distribution; the incidence is known to increase with increasing age.²¹ The malignancy has a gender predilection. It is commoner in males than females, some studies have a male to female ratio of 3.5:1, but globally the ratio is more consistently 2-3:1.^{13,22}

The histologic classification of this cancer was reviewed in 2005 by the world health organization into two major types; keratinizing squamous cell carcinoma and non-keratinizing carcinoma and then basaloid cell carcinoma. The non-keratinizing has subtypes; differentiated non-

keratinizing and undifferentiated non-keratinizing.²³ In the high-risk areas, the non-keratinizing especially undifferentiated type is commoner.²⁴

Most of these cancers of the nasopharynx have clinical presentation such as nasal obstruction, epistaxis, nasal congestion, hearing loss, aural fullness, headaches etc²⁵ some of the features are non-specific. This study therefore is to determine the prevalence and clinicohistologic pattern of this disease in UPTH in order to encourage possible change in attitude of the general population to common nasal symptoms such as catarrh so as to target earlier diagnosis and therefore better outcome.

METHODS

This was a retrospective study of all patients seen in the ENT department of the university teaching hospital with a diagnosis of nasopharyngeal cancer seen within the period of January 2014 and December 2018. Only those with confirmed histologic diagnosis were included in the study. Those without complete records were excluded. The clinic and ward registers were the source of data. Data collected included the patients' demographics, clinical presentation and the histopathological findings. These were analyzed using IBM SPSS version 25. All distribution was presented with descriptive statistics (frequency and percentages). The chi-square statistics was used to compare the distribution of the histology by gender and age-group at a 95% confidence interval and a p value less than 0.05 was considered significant.

RESULTS

There were 41 patients that satisfied the inclusion criteria and these were recruited and studied. The age range was from 12 to 85 years while the mean age was 43.2±15.1 years. The age range 40 to 49 years made up majority of the study population 16 (39%). There was a male preponderance with a male to female ratio of 1.2:1 (Table 1). Nasopharyngeal carcinoma was the main cancer seen in the study 68.29%, with the keratinizing squamous cell carcinoma being the commonest histologic type 18 (43.90%) followed by the non-keratinizing differentiated with 8 (19.51%). Non-Hodgkin lymphoma was the second commonest cancer with 8 (19.51%) cases. The least was rhabdo-myosarcoma with 12.20% (Table 2). The most frequent clinical features seen in these patients were neck swelling and nasal obstruction in 24.55% followed by poor hearing 16.36% and epistaxis in 9.09% (Table 3). Histologic distribution according to gender showed that the rhabdomyosarcoma and non-Hodgkin lymphoma were seen more in the males 13.64% and 22.73% respectively and the keratinizing squamous cell carcinoma occurred also more in males 50.0%. While, non-keratinizing both the differentiated and the undifferentiated was seen more in the females 10.53% and 26.32% respectively. However, there was no statistical significance correlation between gender and

histologic types of nasopharyngeal cancers p=0.421 (Table 4).

histologic types of cancers was statistically significant with p=0.043 (Table 5).

Table 1: Demographic distribution of patients (n=41).

Characteristic	Frequency	Percentage
Gender		
Female	19	46.3
Male	22	53.7
Age group (years)		
<20	2	4.9
20-29	5	12.2
30-39	9	22
40-49	16	39
50-59	3	7.3
60-69	3	7.3
70 and above	3	7.3
Mean age±SD	43.2±15.1 years	
Age range	12-85 years	

In age distribution of the histologic types, age group of 40 to 49 years recorded all the histologic types and the keratinizing squamous cell CA was the highest (43.8%). Non-Hodgkin's lymphoma was the only malignancy seen in the age group <20 years. Age distribution of the

Table 2: Distribution of histology.

Histology	Frequency	Percentage
Keratinizing squamous cell CA	18	43.90
Non keratinizing undifferentiated CA	2	4.88
Non keratinizing differentiated CA	8	19.51
Rhabdomyosarcoma	5	12.20
Non-Hodgkins lymphoma	8	19.51
Total	41	100.00

More than half of these patients 70%, presented with very advanced disease; stage 3 and stage 4. These patients due to lack of facility for radiation in our center were referred to the places with this facility. Two died from metastasis to the brain and lungs (4.87%). Most of these patients were lost to follow up. The mortality was recorded in two cases (4.87%).

Table 3: Distribution of clinical features.

Symptoms	Frequency	Percentage
Discharge in ears	1	0.91
Palatal bulge	1	0.91
Difficulty in breathing	1	0.91
Nasal mass	2	1.81
Cranial nerve neuropathy	3	2.73
Snoring	2	1.82
Headaches	2	1.82
Otalgia	2	1.82
Fever	2	1.82
Proptosis	3	2.73
Catarrh	3	2.73
Voice change	6	5.45
Epistaxis	10	9.09
Poor hearing	18	16.36
Neck swelling	27	24.55
Nasal obstruction	27	24.55
Total	110	100.00

*Multiple responses apply.

Table 4: Cross tabulation of histology and gender.

Histology	Male	Female	Chi-square (p value)
	N (%)	N (%)	
Non keratinizing undifferentiated CA	0 (0.0)	2 (10.53)	3.89 (0.421)
Rhabdomyosarcoma	3 (13.64)	2 (10.53)	
Non-Hodgkins lymphoma	5 (22.73)	3 (15.79)	
Non keratinizing differentiated CA	3 (13.64)	5 (26.32)	
Keratinizing squamous cell CA	11 (50.0)	7 (36.84)	
Total	22 (100.0)	19 (100.0)	

Table 5: Distribution of histology by age groups.

Histology	<20	20-29	30-39	40-49	50-59	60-69	70 and	Chi-square (p value)
	years	years	years	years	years	years	above	
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	
Non-keratinizing undifferentiated CA	0 (0.0)	0 (0.0)	1 (11.1)	1 (6.3)	0 (0.0)	0 (0.0)	0 (0.0)	37.07 (0.043)*
Keratinizing squamous cell CA	0 (0.0)	4 (80.0)	3 (33.3)	7 (43.8)	2 (66.7)	1 (33.3)	1 (33.3)	
Rhabdomyosarcoma	0 (0.0)	1 (20.0)	0 (0.0)	2 (12.5)	0 (0.0)	0 (0.0)	2 (66.7)	
Non-Hodgkins lymphoma	2 (100.0)	0 (0.0)	0 (0.0)	3 (18.8)	1 (33.3)	2 (66.7)	0 (0.0)	
Non keratinizing differentiated CA	0 (0.0)	0 (0.0)	5 (55.6)	3 (18.8)	0 (0.0)	0 (0.0)	0 (0.0)	
Total	2 (100.0)	5 (100.0)	9 (100.0)	16 (100.0)	3 (100.0)	3 (100.0)	3 (100.0)	

*Statistically significant (p<0.05).

DISCUSSION

There was a total of 2,427 patients seen within the period under study therefore the prevalence of nasopharyngeal cancer in the present study is 1.7%. This appears similar to the finding of some other researchers, but in contrast others had high prevalence; 21.46%, 11.3% and 16.8% from different parts of the country.^{16,19,26} The prevalence was in relation to other head and neck cancers. The mean age in this study was 43.2±15.1 years similar to the age of 41.1 to 44.4 years recorded by other researchers.^{14,17,22} The age range 40-49 was found to have the highest peak incidence of the cancers. This was also found by other researchers.^{15,22} This peak was followed by that of age 30 to 39 years, validating the literature finding that the incidence increases with age after age of 30 years and peaks at 40 to 60 years, then begins to declines.⁸ The implication is that it is the age that constitutes the work force that was affected therefore increasing disease burden on the society and affecting the socioeconomic output.²⁷ In contrast, a similar study in Ibadan, Lagos and Ghana had a bimodal age distribution which was not common in low risk areas such as Nigeria and Ghana.^{14,28,29} The low risk populations have mono nodal age distribution.¹⁰ The present study similar to others has a male preponderance. Globally a male to female ratio of 2-3:1 has been documented however; a lower ratio 1.2:1 was obtained in the present study similar to some other studies.^{17,22}

Nasopharyngeal cancer was the highest malignancy obtained in the study similar to the findings of da Tariah et al and Iseh et al.^{17,18} The commonest histologic type was keratinizing squamous cell carcinoma similar to the finding in Jos.¹⁷ In contrast several other studies in Nigeria found non keratinizing carcinoma as the commonest histologic type.^{14,15,22} This type however is known to be commonly found in high risk regions of the world and is closely associated with EBV and known to be more radiosensitive. On the other hand, the keratinizing squamous carcinoma found more in the present study has a strong association with cigarette

smoking however; this could not be ascertained presently since these factors were not studied. The other malignancies were non-Hodgkin's lymphoma which was the second highest cancer of the nasopharynx recorded, similar to the finding of other researchers.^{2,18} it was seen more in the males contrary to knowledge in literature where females were more affected.⁴ No plausible explanation could be proffered for this contrast. Rhabdomyosarcoma was seen in 12.20% similar to the finding in Jos where it was 10% however; it had a very low incidence in the study in Sokoto 3.3%.^{17,18} This is not surprising since this is a rare tumor in the nasopharynx especially in the adult.⁷

The cancers of the nasopharynx present with varying clinical features with majority being vague and nonspecific in early stage. The commonest clinical symptom in the present study was neck swelling which represents lymphadenopathy, a similar finding by several other researchers.^{15,17,18,22} Other major complaints were nasal congestion, epistaxis and poor hearing as found in similar studies.^{17,18} There are in addition, the less common symptoms such as headaches, fever, otalgia, double vision and catarrh which though may signal advanced disease, could easily be misleading to the less trained leading to delay in diagnosis and late presentation to needed specialist care. Moreover, the nasopharynx is not easily visualized by the untrained making late referrals inevitable and early diagnosis difficult.

Most of the patients presented with advanced disease hence had poor prognosis similar to the findings of Kitcher et al and Iseh et al.^{18,29}

The treatment outcomes of these patients were very unfavourable due to lack of facility to manage them effectively as documented by other researchers.³⁰ Majority could not afford to travel to the long distances required so as to have radiation therapy while those placed on adjuvant chemotherapy often could not afford the drugs since it was to be paid for through out of pocket expenses due to lack of health insurance. The recorded mortality was seen in 4.87% cases only that re-presented

several months after the initial diagnosis with metastasis and later died. High mortality in nasopharyngeal cancer is not uncommon; however, in some endemic areas such as China the mortality has improved due to early detection and advances in treatment.³¹ Most of the patients in the present study were lost to follow up.

Limitation

The sample size was small hence may be difficult to apply findings to the general population.

It was record based therefore the possibility of bias from the person that saw patients and recorded information initially could not be ruled out.

CONCLUSION

Nasopharyngeal malignancies are not so uncommon in our environment. The males are more affected. Nasopharyngeal carcinoma is the commonest cancer in the nasopharynx. It is significantly related with age. Patients often present late and it has very high morbidity and mortality rate. Attention to early vague symptoms will enhance early diagnosis, treatment therefore prognosis.

Recommendations

That the primary care givers to whom these patients present first get a basic training in simple ENT conditions and made to have high index of suspicion so as to do prompt referrals of these patients.

Public awareness created about common nasal and otologic symptoms so that the public is educated about symptoms such as catarrh, ear discharge that they should be taken seriously.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Uju IM. Nasopharyngeal cancers in University of Port Harcourt teaching hospital: a five year review. *Int J Otorhinolaryngol Head Neck Surg* 2020;6:1019-24.