

TOPOGRAPHIC PATTERN DISTRIBUTION OF HEAD AND NECK SQUAMOUS CELL CARCINOMA IN BENIN-CITY, NIGERIA: HOW COMMON ARE THESE LESIONS?

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ABSTRACT

Studies have it that squamous cell carcinoma (SCC) of the head and neck has contributed hugely to the burden of cancer globally. In the United States of America head and neck SCC constituted vast majority (5-8%) of all cancer diagnosis.

The objective of this study is to make a broad description of Head and neck cancer (HNC) frequency and Histological patterns in Benin-City, Nigeria and to compare these findings with other similar research works elsewhere.

A review of histopathology diagnosis of all SCC of the HNC encountered at University of Benin Teaching Hospital (UBTH) between January 2008 and December 2012. All specimens were fixed in 10% formalin solution, processed with Histokinette automated tissue processor, paraffin embedded, and sectioned at 3-5 microns with microtome machine before staining with haematoxylin and eosin.

The Histopathological diagnoses were analyzed with respect to age, sex, anatomical sites and histological patterns. A total of 216 cases constituting 83.4% of all head and neck malignancies were carcinomas. Of this 216 head and neck carcinomas, squamous cell carcinoma constituted 144 cases representing 66.7% of all head and neck carcinomas. The male to female ratio of SCC was 2:1. And the mean age was 56 years \pm 4.8 SD. The most common site of distribution of SCC of the head and neck was the larynx constituting 43% of all head and neck SCC.

In conclusion SCC constituted the most common head and neck cancer with majority of cases encountered in males with a peak incidence seen in the 7th decades. Again the larynx and the nasopharynx are the most common anatomic head and neck sites of all SCC cases as this is similar to other studies globally.

INTRODUCTION

Series of studies have reported that squamous cell carcinoma of the head and neck constituted the most commonly encountered head and neck cancer

globally.¹ This has contributed hugely to the burden of cancer globally especially in developing countries including Nigeria.² Nevertheless, it has been reported that the prevalence of head and neck SCC have shown ethnical and geographic variations globally.

KEYWORDS: • *Head and Neck, Squamous cell carcinoma, Histopathology, Benin-City*

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However it is documented that the largest volume of diagnosis of head and neck SCC is from southern Asian population.^{2,3} In the United States of America head and neck SCC constituted vast majority of the 5-8% of all cancer diagnosis.^{4,5} Again in parts of the middle-east SCC constituted about 10% and 11% of all cancer diagnosed in Iraq and Saudi Arabia

respectively.^{6,7} Report from various parts of Nigeria show that the among the SCC of the head and neck, nasopharynx and larynx are most common anatomic sites reported.^{7,8} Furthermore it has been reported that head and neck SCC is found to be far more common in males when compared to their female counterpart.⁸ The major risk factors of head and neck SCC include tobacco smoking and chewing, alcohol consumption, ultra-violet radiation and viral infection especially (Epstein-Barr virus and human papilloma virus).^{9,10}

The main aim of this study is to make a documentation of all head and neck SCC including the anatomic sites and patterns in Benin City, Nigeria and to compare these findings with other similar research works elsewhere. This study is first of its kind in our environment data derived from this study would help in defining the burden of HNC and in the management of patients with these lesions and moreover serve as baseline data for further research.

MATERIALS AND METHOD

Source of Data: All cases were retrospective review of histopathology records of all squamous cell carcinoma (SCC) of the head and neck diagnosed at University of Benin Teaching Hospital (UBTH) between January 2008 and December 2012. UBTH is a main referral Centre for histopathology services from government and privately owned hospitals in the South-South states of Nigeria and its environs.

Methods of data collection: Conventionally, all specimens sent for histology were fixed in 10% formalin solution, processed with Histokinette automated tissue processor, paraffin embedded, and sectioned at 3-5 microns using the microtome machine before staining with haematoxylin and eosin.

Special stains including Periodic Acid Schiff, reticulin stains were used to enhance diagnosis where necessary.

Data analysis: The Histopathological diagnoses were analyzed with respect to age, sex, anatomic sites and histological patterns. Patients with recurrent or metastatic malignancies, incomplete demographic data or unverifiable histological diagnosis were excluded from the study. Data obtained were entered in Microsoft excel, transferred, coded and expressed as percentage for categorical variables and the mean \pm standard deviation (SD) for continuous variables using the statistical packaging for social sciences (SPSS) version 17 statistical package (SPSS) incorporated, Chicago, Illinois, USA.

RESULTS

Demographic analysis

In this study the total number of head and neck malignancies was 259 cases. Among these, 216 cases constituting 83.4% were carcinomas of the head and neck. Of this 216 head and neck carcinomas, squamous cell carcinoma constituted 144 cases representing 66.7% of all head and neck carcinomas. Over this 5 years period an average of 29 cases of head and neck squamous cell carcinoma were encountered yearly. A total of 110 males and 54 females were involved giving a male to female ratio of 2:1. The peak age incidence of head and neck SCC was seen in the 6th and 7th decades of life.

Figure 1 shows the trends of head and neck SCC. There was a gradual rise in the trend from the 3rd to the 4th decades. Thereafter this was followed by a sharp rise between the 4th to 6th decades with a sharp decline after the 7th decade. The mean age was 56 years \pm 4.8 SD.

Topographic sites of SCC

The most common site of distribution of SCC of the head and neck was the larynx. This accounted for 62 cases of all head and neck SCC. This thus constituted 43% of all head and neck SCC. This was closely followed by the 41 cases of nasopharyngeal SCC accounting for 28.5% of all head and neck SCC. A significant number of the head and neck SCC was also seen in the eyes and the scalp accounting for 16 (11.1%) and 10 (6.9%) respectively. Other anatomical location of the head and neck SCC were the nasal/paranasal sinuses accounting for 4(2.8%), hypopharynx 4(2.8%) and oropharynx 3(2.1%). Other anatomic sites of head and neck SCC were documented in table 2.

DISCUSSION

In this study epithelial carcinoma constituted vast majority of head and neck cancers. This thus accounted for 83.3% of all NHC. This finding is strongly supported by reports of Ologe et al⁹ where epithelial carcinoma were the most commonly seen HNC. Series of similar studies in the united States of America, Colombia, Indian and Kenya have also corroborated this reports.^{11, 12, 13} Fascinatingly among all the reportable epithelial cancers, SCC with varying degrees of differentiation constituted the most commonly histologically diagnosed patterns seen in this environment. Consequently this represented 66.7% of all HNC. This finding is similar to series of global reports where SCC constituted the most commonly encountered HNC world-wide.^{9,11,12,13,14,15} Though SCC was more commonly encountered cancer in the head and neck region, our finding of 66.7% was slightly lower than the serial reports of 80%-90% documented in other parts of the world.^{9,15,16}

Again, in this study the ratio of occurrence of SCC in male and females was found to be 2.1:1.0. Furthermore this is similar to other studies where head and neck SCC were found to be more common in males. Reports by Al-Nakshabandi et al documented a slight increase of male to female ratio 2.6:1.0. The reason for this variation may partly be due to the different geographic, ethnic variations and traditional practices.

In this study the most common anatomic sites of head and neck SCC was the larynx. This thus constituted 43.1% of all the head and neck anatomic locations. This is similar to studies done by other researcher.^{17,18} However this finding is slightly lower than the 56.1% documented in Bashrah.¹⁷ Reports by Kultumaz et al showed a relatively higher value of 71% of SCC in Turkey. Nevertheless a similar report documented a relatively lower value especially in Yemen where head and neck SCC constituted only 8% of all head and neck cancers. Reports from Yemen revealed that oral cavity SCC was the most common topographic site of all head and neck cancers.³ The reason for this discrepancy may not be unconnected with geographic, ethnic and environmental factor variation.³ In this report we found that the nasopharynx was the 2nd most common anatomic sites of head and neck SCC constituting 28.5% of all HNC. This is similar to reports from Yemen where it is the 2nd most common anatomic site of head and neck SCC. However our figures are relatively lower than the 42% documented in Yemen. Nevertheless our findings is quite contrary to reports of Al-Nakshabandi et al¹⁷ where oral SCC was the 2nd most common site of head and neck SCC, constituting 30.2% of all cases. Again in their study it was documented

that the nasopharynx was the 3rd most common site with only 8.9% of all head and neck malignancies found at this site. Furthermore studies of other researchers have documented a wide bias with the prevalence of head and neck SCC with very high incidence in south-east Asia and low prevalence in Caucasian series.¹⁹ In a study done by Badheed et al the nasopharynx accounted for the most common anatomic site of all head and neck cancer including SCC accounting for 42.6% of all head and neck anatomic sites. In most north African countries the nasopharynx is a common anatomic location of head and neck SCC with high predilection for young age groups

Studies have it that smoking of cigarette is the most common risk factors constituting about 14-fold increase in developing nasopharyngeal SCC. Epstein barr virus (EBV) has been highly implicated as a major risk factor with high endemicity in Southern Asia countries of Hong Kong, Singapore and the North African and

countries around the Mediterranean basin.¹⁹ Other common anatomic sites of head and neck SCC include the eyes and scalp constituting 11.1% and 6.9% respectively. In this study there was a low prevalence of nasal cavity and paranasal sinuses SCC. This similar low prevalence have also been reported in series of studies globally.

In this study the peak age incidence of all head and neck SCC was seen in the 7th decades. This is in contrast to other studies from Turkey and Yemen where where the peak age incidence was seen in the 6th decades of life.

In conclusion SCC constituted the most common head and neck cancer with majority of cases encountered in males and a peak incidence seen in the 7th decades of life. Again the larynx and the nasopharynx are the most common anatomic head and neck sites of all SCC cases as this is similar to other studies globally.

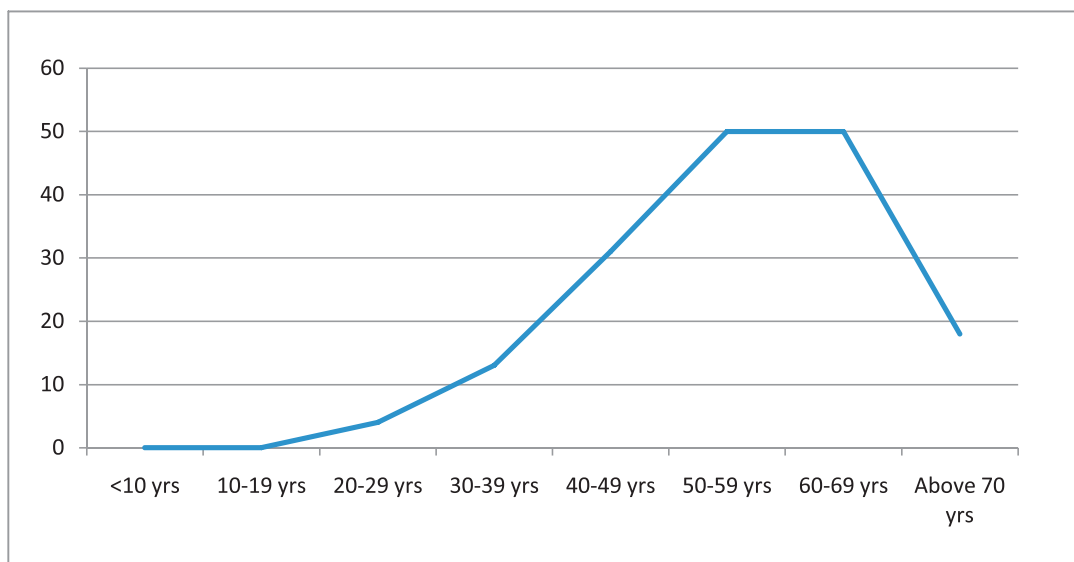
Table 1: Topographic sites and sex of squamous cell carcinoma of the Head and Neck

Anatomic Site	Sex		Total (%age)
	Male	Female	
Eyes	8	8	16
Hypopharynx	3	1	4
Larynx	41	21	62
Lips	2	-	2
Maxillary	1	-	1
Nasal/paranal sinuses	3	1	4
Nasopharyngeal	30	11	41
Oropharynx	2	1	3
Palate	1	-	1
Scalp	7	3	10
Total	98	46	144

Table 2: Topographic Site and Sex Distribution of squamous cell carcinoma of the Head and Neck

Anatomic Sites	<10 yrs	11-20 yrs	21-30 yrs	31-40 Yrs	41-50 yrs	51-60 yrs	61- 70 yrs	Above 70 yrs	Total (%age)
Eyes	-	-	1	2	4	5	2	2	16
Hypopharynx	-	-	-	-	1	2	-	1	4
Larynx	-	-	-	1	12	20	23	7	62
Lips	-	-	-	-	2	-	-	-	2
Maxillary	-	-	-	-	-	1	-	-	1
Nasal/para	-	-	-	-	2	-	1	1	4
Nasopharynx	-	-	-	4	6	12	16	3	41
Oropharynx	-	-	-	-	1	-	2	-	3
Palate	-	-	-	-	-	1	-	-	1
Scalp	-	-	1	-	2	-	3	4	10

Figure 1: Frequency and trend pattern of squamous cell carcinoma of the Head and Neck



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