

## MALIGNANT NEOPLASMS OF THE EAR, NOSE AND THROAT IN NORTH EASTERN NIGERIA.

\*B.MAHMAD, \*\*U.H. PINDIGA.

\*Dept. of Otorhinolaryngology, \*\*Dept. of Histopathology University of Maiduguri Teaching Hospital., P.M.B 1414 Maiduguri, Nigeria.

**CORRESPONDENCE- DR. B.MAHMAD.**

### ABSTRACT

**OBJECTIVE:** To determine the prevalence and pattern of Ear, Nose and Throat (ENT) malignancies in north eastern Nigeria.

**METHOD:** A retrospective study of 77 patients with histological diagnosed malignant neoplasm of the ENT seen at University of Maiduguri Teaching Hospital (UMTH) over 12 years period (1990-2001).

**RESULTS:** ENT cancers constituted 4.3% of all cancers in the study period. The peak incidence was between 3<sup>rd</sup> and 4<sup>th</sup> decade with male preponderance. The commonest site involved was the nasopharynx constituting 46.8% and the least affected site was the Ear in 2.7% patients. Squamous cell carcinoma accounted for 83.1% of all histologic types being the commonest. Non-Hodgkin's lymphoma were seen in 6.5% of patients. Malignant midline reticulosis and melanoma were seen in 3.9% of patients each.

**CONCLUSION:** Cancers of the ENT were thought to be rare in this part of the country compared with other parts of the world. The few cases seen in this study are the tip of the Iceberg. The apparent low figure in this region could be due to high cost of hospitalization, distant location of health facilities and absence of radiotherapy unit in our centre.

**KEY WORDS:** ENT cancers, nasopharyngeal carcinoma, malignant midline reticulosis, and north eastern Nigeria.

### INTRODUCTION.

Cancers of the head and neck region constitute about 5% of all malignancies world wide<sup>1</sup>. Their functional deficits and cosmetic deformities associated with the disease make them relatively important. The ear, nose and throat being located in this part of the body, serves as a complex functional unit making a disease of one region to affect the other. Therefore, several sensory functions may be lost by the disease or as a result of the treatment leading to significant morbidity. In certain regions of the world, particular cancers are common such as Nasopharyngeal carcinoma in China therefore the pattern of occurrence varies between races and geographic region for various sites. Tobacco and alcohol exposures are major determinant risk factors include poor oral hygiene, occupation, viral infection, culture and environment<sup>1, 2, 4</sup>. Protective roles of dietary carotenoids, fruits and vegetable have been shown<sup>2, 4</sup>.

The incidence of laryngeal cancer is more evenly spread worldwide than that of many head

and neck sites. It is about 5 times common as in some parts of Spain than in England and Wales<sup>5</sup>. Cancers of the nose and paranasal sinuses constitute about 10% of the head and neck cancers in the UK, it is about double this in the Arabs, the Japanese and the Africans<sup>6</sup>. The ease with which cancers spread from one region to another within the nasal and paranasal cavities demands consideration of this region as an oncoanatomic unit<sup>1</sup>. Histologically, 50% of cancer of this oncoanatomic unit are squamous cell carcinoma while anaplastic, lymphomas and adenocarcinomas constitute 15%, 10% and 4% respectively (6). Cancer in this area progresses insidiously masquerading as chronic sinusitis<sup>1</sup>.

Studies in Nigeria also showed that nasopharyngeal carcinoma is the commonest malignancy of the ENT in this environment (8-10). The University of Maiduguri Teaching Hospital is a referral centre for the northeastern region where the present study was carried out. There was no such study of the ENT malignancies in this part of the country, therefore, this study

intends to determine the pattern of occurrence of the ear, nose and throat malignancies excluding the salivary gland and thyroid malignancies.

**MATERIALS AND METHODS.**

Seventy-seven patients with histologically diagnosed malignant tumours from the ear, nose and throat were seen through the ear, nose throat clinic and the emergency unit of the University of Maiduguri teaching hospital. The study was retrospective from January 1990 to December 2001. Biopsies were obtained under local or general anaesthesia and specimen submitted in 10% formalin for histopathological evaluation.

The clinical summary such as age, sex and location of cancer as well as surgical pathology data regarding histological diagnosis were obtained from the records of the histopathology department. The patients' histologic slides were reviewed and the tumours classified according to their line of differentiation. Data were presented in tables.

**RESULTS.**

Seventy-seven patients with malignant neoplasm of the ear, nose and throat (ENT) were histologically diagnosed from the UMTH Maiduguri over a period of twelve years.

A total of 1,806 malignancies were diagnosed during this period. Fifty-two were males and 25 females giving a ratio of 2.1:1. The peak age incidence was between 3<sup>rd</sup> and 4<sup>th</sup> decades constituting a total of 49.2% as shown in table 1. The commonest site of involvement by malignant neoplasm of the ENT was the nasopharynx which accounted for 46.8% of all cases. This was followed by the nasal cavity with 29.9%. The least affected site was the ear with only 2.7% as shown in table 2.

Squamous cell carcinoma was the commonest histological type accounting for 83.1% of all cases. This was followed by non-Hodgkin's lymphoma (6.5%). Malignant midline reticulosis and melanoma had 3.9% each. A case each of embryonal and neurofibrosarcoma were also recorded as shown in table 3.

**Table 1:** Age and sex distribution of malignant neoplasms of the ENT.

Age(years)	No of males	No of females	Total	%
0-10	1	2	3	3.9
11-20	3	0	3	3.9
21-30	6	8	14	18.0
31-40	17	7	24	31.2
41-50	8	3	11	14.3
51-60	8	3	11	14.3
61-70	7	2	9	11.7
71-80	2	0	2	2.6
<b>Total</b>	<b>52</b>	<b>25</b>	<b>77</b>	<b>100%</b>

**Table 2:** Anatomical location of malignant neoplasms of the ENT.

Anatomical location	No of cases	Percentage (%)
Nasopharynx	36	46.8
Nasal cavity	23	29.9
Larynx	7	9.1
Maxillary	5	6.5
Oropharynx	4	5.2
Ear	2	2.7

**Table 3:** Histological types of malignant neoplasms of the ENT

Histological types	No of cases	Percentage(%)
Squamous cell carcinoma	64	83.1
Non-Hodgkins Lymphoma	5	6.5
Malignant midline reticulosis	3	3.9
Melanoma	3	3.9
Rhabdomyosarcoma	1	1.3
Neurofibrosarcoma	1	1.3
<b>Total</b>	<b>77</b>	<b>100</b>

## DISCUSSION.

Malignant neoplasm of the ear, nose and throat are not common in our environment compared to other parts of the world<sup>1</sup>. This study has revealed the extent of the disease seen in our environment in twelve years. Males were more affected as in two previous studies in Jos (Nigeria) with male to female ratio of 2:3:1, 10 and 1:7:1, 11. Smoking alcohol ingestion are important risk factors in cancer of the ENT. More males indulge in the habit of smoking and alcohol consumption, this could support the male preponderance. The peak age incidence in this study is between the 3<sup>rd</sup> and 4<sup>th</sup> decades. Martinson<sup>8</sup> and Martinson et al<sup>12</sup> have shown a similar peak age incidence in nasopharyngeal cancer in Nigerians, whereas Okeowo et al<sup>9</sup> showed a higher peak incidence in the sixth decade. This could be as a result of difference in sample size.

The cancers occur highest in the nasopharyngeal region. The histology showed squamous cell carcinoma in most of our patients. This disease is uncommon in the white population forming 2% of all head and neck cancers<sup>1</sup>. A strikingly high incidence of nasopharyngeal cancer is found among the southern Chinese where it accounts for 13.20% of all cancers and up to 57% of all head and neck cancers<sup>1</sup>. The disease was thought to be rare in Nigeria, until Martinson<sup>8</sup> in 1998, Okeowo et al<sup>9</sup> in 1979 and Martinson et al<sup>12</sup> in 1984 reported on 56 cases, 84 cases and 180 cases respectively to reveal its emergence. A more recent study also showed that nasopharyngeal carcinoma was the commonest head and neck cancer in Nigerians<sup>10</sup>.

Nasal cavity malignancy was the next common condition in our report. Earlier studies from Enugu<sup>13</sup> and Jos<sup>10</sup> (Nigeria) showed low incidences. All but six of our 23 patients had carcinoma; it is of interest to note that none of the earlier studies recorded melanoma and malignant midline reticulosis which constituted 3 patients each in our study.

All the laryngeal cancers were squamous cell carcinoma and were all found in adult males. Similar study in Enugu (Nigeria) showed only one female out of 10 males<sup>14</sup> whereas in Jos it appears to be the second commonest ENT malignancy<sup>10</sup>. The difference could be due to lifestyle and probably to irradiation from mining activity in Jos community<sup>10</sup>.

The maxillary sinus malignancies were squamous cell carcinoma. This constituted 6.5% of all ENT malignancies diseases. This is in contrast with the Jos study, which reported a

higher incidence of 12.7%<sup>10</sup>. Singh et al<sup>15</sup> in a study of 136 malignant disease of the paranasal sinuses showed that the maxillary sinuses were the most affected amounting to 48%. Other sinuses like the ethmoid, antrethmoid and frontal sinuses constituted 36%, 14.6% and 1.4% respectively<sup>15</sup>. This could support the absence of involvement of other sinuses in our study.

Oropharyngeal cancers constituted 5.2% of the malignant condition of the ENT in our study, the histologic types were squamous cell carcinoma and non-Hodgkin's lymphoma. This findings is similar to both studies in Jos with 5.9%<sup>10</sup> and 5.5%<sup>11</sup>.

Malignancy of the ear forms the least incidence in our report and the histology in the patients are squamous cell carcinoma. Studies in Jos<sup>11</sup> and Enugu<sup>16</sup> also showed that this condition is rare as compared to other malignancies of the ENT.

Other histologic types were non-Hodgkin lymphomas (6.5%), malignant midline reticulosis (3.9%), melanoma (3.9%), embryonal rhabdomyosarcoma (1.3%), and neurofibrosarcoma (1.3%). Embryonal rhabdomyosarcoma accounts for 4-8% childhood malignancies and 5-15% of childhood solid tumours<sup>17</sup>. In our report, embryonal rhabdomyosarcoma accounted for 1.3% of ENT tumours. This difference could be due to small sample size since only patients who presented to the ENT were considered in our study.

Malignant midline reticulosis were identified in 3 (3.9%) patients that were male in their 4<sup>th</sup> and 5<sup>th</sup> decades in our report. A plethora of terms has been introduced including "luthal midline granuloma", "non-healing midline granuloma" and "polymorphic reticulosis" but the substitution of "reticulosis" for "granuloma" has received more support<sup>18</sup>. This rare condition cause extensive and progressive destruction of soft tissues, cartilages and bones<sup>19</sup>.

The data in this report of twelve years period appeared low. High cost of hospitalization, distant location of health facilities and absence of radiotherapy unit in our centre could be responsible for this small number over this period. Radiotherapy is very effective in most malignancies of ENT where function and cosmetic outlook are very important in addition to achieving cure. The few radiotherapy centres available in the country have long booking list and their distant location from the hinterland makes it difficult for poor patients to benefit from this service.

REFERENCE.

1. Zagar G.K, Smith J.L, Norante J.D, Mc Donald S. Tumours of the head and neck. In clinical Oncology: A multidisciplinary approach for physicians and students. Ed. By Philips Rubin. 7<sup>th</sup> edition 1993. Pub. W.B Saunders. 319-362.
2. Spitz Mr. Epidemiology and risk factors for head and neck cancers. Seminars in Oncology 1994;21(3): 281-288.
3. Henk J.M, Rhys-Evan P, head and neck cancer. In Oncology a multidisciplinary text book Ed. By Alan Horwich. First edition 1995, pub. Chapman and Hall. 541-563.
4. Vokes EE, Weichselbaum RR, Lipman S.M Hong W.K. Head and neck cancer. New Engl J. med 1993;328:184-194.
5. Maran AGD, Gaze M, Wilson JA. Tumours of larynx. In Stell and Maran, head and neck surgery. 3<sup>rd</sup> edition 1994 pub. Butterworth Heineman limited Pg. 106-138.
6. Roland NJ, McRae RDR, Mc Combe AW. Key topics in Otolaryngology. Bio Scientific pub 1995, Pg 280-284.
7. Bhatia P.I, Varughese R. pattern of otolaryngological diseases in Jos community. Nig. med. J 1987;2:67-73.
8. Martinson F.D Cancer of the nasopharynx in Nigeria. J. of laryngol otol. 1968.82:1119-1128.
9. Okeowo P, Ajayi. DOS, Nasopharyngeal cancer in Nigerians. In cancer in Nigeria. Ibadan tropical medicine series 1979. 117-122.
10. Lilly-tariah O.B, Nwana EJ; Okeowo P.A cancer of the Ear, Nose and Throat. Nigerian J. of surg. Science 2000.10(1).52-56.
11. Bhatia P.L. Head and neck cancer in Plateau State. West Afr J. MED 1990.9.304-310.
12. Martinson F.D, Aghadiuno P.U nasopharyngeal cancer in Nigeria. International Agency for research on cancer 1984; 63:501-511.
13. Okafor B.C Otolaryngology in South-Eastern Nigeria 1. Pattern of the disease of the nose. Nig. J. 1983;13:21-29.
14. Okafor B.C Otolaryngology in South-eastern Nigeria 1. Pattern of disease of the throat. Nig. Med. J 1983;13:30-41.
15. Singh SP, Martinson F.D. Malignant disease of the paranasal sinuses in Nigeria. J. of laryngol otol. 1969;83:239-250.
16. Okafor B.C. otolaryngology in South-Eastern Nigeria 1. Pattern of the disease of the ear. Nig. med. J. 1983;13:11-19.
17. Zagar G.K, Smith J.L, Norante J.D, Mc Donald S. Tumours of the head and neck. In clinical oncology: A multidisciplinary approach for physicians and students. Ed. By Philips Rubin. 7<sup>th</sup> edition 1993, pub. W.B Saunders Pg. 251-298.
18. Friedmann I. Systemic pathology: Nose, Throat and Ears vol 1 Ed. by W St C. Symmers 3<sup>rd</sup> edition 1986 pub. Churchill livingstone Pg. 48-62.
19. Galli M, Formenti A, Pettenati C, De Bartolo G, Mariscotti C, Ponzi S. immunological Features on Non healing Midline Granuloma. Otolaryngology J. 1986;48:256-260.