

Pattern of head and neck malignant tumours in a Nigerian teaching hospital – A ten year review

Y.B. Amusa¹, *J.K. Olanji¹, O.V. Ogundipe¹, S.O. Olateju¹,
E.A. Agbakwuru¹, N. Ndukwe², and O.A. Fatusi²

¹Department of Surgery,

²Department of Dental, Oral and Maxillofacial Surgery.

Obafemi Awolowo University,

Ile-Ife, Osun State,

Nigeria.

Summary

Background: In Nigeria record of incidence and pattern of Head and Neck malignancies is scanty. In our Hospital, there had been no prior published report on this subject.

Objective: To study the pattern of occurrence of Head and Neck malignancies treated in Obafemi Awolowo university Hospitals Complex, Ile Ife, Nigeria.

Methods: medical records of patients with histopathologically confirmed head and neck malignancies over a 10 year period (1989 - 1998) were analyzed.

Main results: Three hundred and thirteen (313) cases, made up of 184 (59%) males and 129 (41%) females were found. The most common sites for head and neck malignancies were found to be in the oral cavity (36.8%), the neck (26.8%), the thyroid (13.7%), and the esophagus (5.1%). The paranasal sinuses and the ear were the least affected anatomical sites with one (0.3%) of cases each.

The histopathological tumour types found in this work were lymphoma (40.26%), squamous cell carcinoma (25.23%), sarcoma (2.6%), while many other minor histopathological variants accounted for 31.9%. Lymphoma was the most common in children, while carcinoma was found in , and forms the most common histopathological variant of head and neck malignancies in the older age group.

Principal conclusions: There is a high incidence of childhood head and neck malignancies found in this study in contrast to the Western literature where the highest incidence is found in the older age group and the elderly.

Jaw malignancies constituted the most common malignancies of the oral cavity. Lymphoma and thyroid malignancies are relatively common in our center.

Key words: *Head and neck malignancies, Histopathological variants, Incidence, Nigeria.*

Résumé

Introduction: Au Nigeria, le dossier de l'incidence et la tendance des virulences de tête et de cou est insuffisant. Dans notre hôpital, il n'y en avait aucun rapport précédent publié sur ce sujet.

Objectif: Etudier la tendance d'occurrence des virulences de tête et de cou au centre hospitalier universitaire d'Obafemi Awolowo, Ile-Ife, Nigeria.

Méthode: Les dossiers médicaux des patients histopathologiquement confirmé atteints des virulences de la tête et du cou au cours d'une période de 10 ans. (1989 - 1998) ont été évalués.

Résultats essentiels: Trois cent treize cas composé de 184 soit 59% du sexe masculin et 129 soit 41% du sexe féminin ont été étudiés. Les sièges les plus courants des virulences de tête et du cou étaient dans la cavité orale (36,8%), le cou (26,8%), la thyroïde 13,7%, et l'oesophage (5,1%). Le sinus paranasal et l'oreille étaient les sièges anatomiques les moins touchés avec 0,3% dans chaque cas. Les types de tumeur histopathologiques trouvés dans cette comprend lymphome (40,26%), carcinome cellule squame 25,23%, sarcome 2,6%, tandis que des autres variantes histopathologiques inférieures constituent 31,9%. Lymphome était plus courant chez des enfants, tandis que carcinome était trouvé chez le groupe des adultes, et constitue une variante histopathologique des virulences de tête et de cou chez le même groupe des adultes.

Conclusion principale: Il y a une incidence élevée des virulences d'enfance de tête et de cou indiquée dans cette étude comme contrast à la littérature occidentale où l'incidence la plus élevée est trouvée dans le groupe des adultes et des vieux. La virulence de la mâchoire a constitué les virulence les plus courantes de la cavité orale. Les virulences de la thyroïde et du lymphome sont relativement courant dans notre centre.

Introduction

Malignancies of the head and neck region are relatively rare in comparison to malignancies in other parts of the body ⁽¹⁾.

In the United States 42,000 new cases of head and neck malignancies are diagnosed annually and approximately 13,000 patients will die annually from this disease ⁽²⁾. There are 5,000 new cases of head and neck malignancies and 2,000 deaths registered in the United Kingdom ⁽³⁾.

In Nigeria however, record of incidence and pattern of Head Neck Malignancies is scanty. This study aims at

*Correspondence

studying the pattern of occurrence of head and neck malignancies in a Nigeria Teaching Hospital – Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife. The catchment areas of South Western Nigeria, which our hospital services is mainly in the rain forest region. Majority of the people live in the rural areas and farming is the predominant occupation.

Materials and methods

This is a retrospective study of all head and neck malignancies that were histopathologically confirmed during a 10-year period (1989-1998) at Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria. Records of the cases were obtained from the malignancies registers of the Obafemi Awolowo University Teaching Hospital Complex, the age, sex; the anatomical sites and the histopathological variant were analyzed.

Table 1 The age distribution of head and neck malignancies

Age	No. of cases	%
0-10	60	19.2
11-20	43	13.7
21-30	37	11.8
31-40	26	8.3
41-50	50	16.0
51-60	37	11.8
61-70	39	12.5
71-80	14	4.5
81-90	6	1.9
>90	1	0.3
Total	313	100%

Table 2 Distribution of the head and neck malignancies according to the anatomical sites.

Site	No. of cases	%
(a) Oral Cavity		
Jaw tumours	97	31.0
Lips	3	1.0
Tongue	3	1.0
Hard Palate	12	3.8
(b) Oropharyngeal malignancies		
Tonsils and soft Palate	10	3.2
(c) Nasopharynx	10	3.2
(d) Larynx	6	1.9
(e) Thyroid	43	13.7
(f) Ocular	15	4.8
(g) Esophagus	16	5.1
(h) Facial Malignancy (Ulcers)	7	2.2
(i) Neck masses	84	26.8
(j) Maxillary sinus	1	0.3
(k) Ear	1	0.3
(l) Salivary gland	5	1.6
Total	313	100%

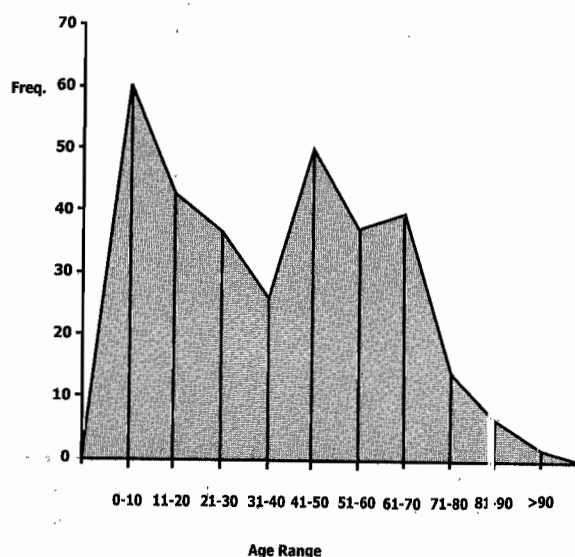


Fig. 1 Graph showing the age distribution of head and neck malignancies.

Results

The total number of patients studied was three hundred and thirteen (313). The sex distribution of the patients was 184 (59%) males and 129 (41%) females.

Table 1 and Figure 1 show the age distribution of the patients with head and neck malignancies; while Table 2 reflects the distribution of the head and neck malignancies according to the anatomical sites. The incidences were found to range from 0.31% for each of maxillary and ear regions to 36.8% for the oral cavity. The histopathological variants of the head and neck malignancies are as indicated in Table 3. Table 4 shows the age incidence of the thyroid malignancies.

Discussion

Three hundred and thirteen cases of histopathologically confirmed malignancies of the head and neck region were reviewed over a ten-year period. The ages ranged between 4 months and 95 years. The highest age incidence was found in the 1st decade of life accounting for 60 cases or 19.2% of total. While the first 3 decades of life accounted for 140 cases or 44.7% of the total of all the head and neck malignancies during the review period. The 3rd - 6th decades of life recorded an incidence of 113 cases (36%). The 7th to 10th decades of life recorded the lowest incidence of 60 cases (19.2%). These findings contrast with the studies done in the United Kingdom where the incidence of head and neck malignancies increases with increasing age⁽²⁾. Ninety per cent of cases in the Caucasians occurred above the age of 50 years. Moreover, Burkitt's lymphoma accounted for a significant percentage of the childhood jaw tumours. Epstein Bar virus infection is prevalent in our environment, and this has

Table 3 Histopathological tumor cell type and percentage of occurrence according to anatomical sites.

Anatomy Sites	Hodgkin's	Non HL	Burkitts	Squamous cell	Sarcoma	Others
Jaw malignancies (97)	-	2(2.0%)	66(68.0%)	10(10.3%)	06(6.2%)	13(13.4%)
Neck malignancies (84)	18(21.4%)	32(38.1%)	-	15(17.9%)	2(2.4%)	17(20.2%)
Thyroid malignancies (43)	-	-	-	-	-	Papillary 13 (30.2%) Follicular 18 (44.2%) Anaplastic 7 (16.3%) Mixed 3 (4.7%)
Esophageal Malignancies (16)	-	-	-	14 (87.5%)	-	2(12.5%)
Ocular malignancies (15)	-	-	-	3(20.0%)	-	12 (80%)
Palatal malignancies (12)	-	2(16.7%)	-	4(33.3%)	-	6(50.0%)
Nasopharynx (10)	-	2(20.0%)	-	8(80.0%)	-	-
Tonsils and soft Palate (10)	-	2(20.0%)	-	6(60.0%)	-	2(20.0%)
Malignant Facial Ulcer (7)	-	-	-	6(85.7%)	-	1(14.3%)
Larynx (6)	-	-	-	6(100.0%)	-	-
Tongue (3)	-	-	-	3(100.0%)	-	-
Lips (3)	-	-	-	1(33.3%)	-	2(66.7%)
Maxillary Sinuses	-	-	-	1(100.0%)	-	-
Ear (1)	-	-	-	1(100.0%)	-	-
Salivary gland (5)	-	2(40.0%)	-	1(20.0%)	-	2(40.0%)

Table 4 Age incidence of thyroid malignancies

Age	Frequency	% of total
0-10	0	0
11-20	2	4.7
21-30	11	25.6
31-40	7	16.3
41-50	10	23.3
51-60	5	11.6
61-70	5	11.6
71-80	1	2.3
81-90	1	2.3
91-100	1	2.3
Total	43	100

been found to be associated with Burkitt's lymphoma (4).

There is a male preponderance with the male to female ratio of 1.4:1. This agrees with findings in the developed world where a male preponderance was also recorded

Oral cavity

This includes the lip, tongue, floor of the mouth, buccal mucosa, hard palate-retromolar trigone and lower alveolus. Oral cavity malignancies accounted for 115 cases or (36.8%) Of the total. The jaw malignancies accounted for 97 (84.3%) of oral malignancies, the lips accounted for 3 cases (2.6%), while the tongue and hard palate accounted for 3(2.6%) and 12(10.4%) respectively. Of the jaw malignancies, 68 cases(70.1%) were lymphoma.

Burkitt's lymphoma was responsible for 66 (97.0%) of this jaw lymphoma.

Squamous cell carcinoma accounted for 10(10.3%) of jaw tumors while sarcoma was found in 6(6.2%); other histopathological jaw tumor variants found in this series were malignant ameloblastoma 8, adenoid cystic carcinoma 2, and osteogenic sarcoma 3, totaling 13(13.4%) of the jaw tumors. In this study jaw malignancies was found to be the most common malignancies of the oral cavity. Lip carcinoma which was reported to be the most common malignancies of the oral cavity (2), had a low incidence in this series, representing only 2.6% of oral malignancies.

This study revealed that the most common malignancies affecting the oral cavity is Burkitt's lymphoma. Among the Caucasians squamous cell carcinoma is the most common tumour of the head and neck (1,2,3). Bhatia (5), working in Plateau State of Nigeria reported only two cases of jaw Burkitt's out of the eighteen cases of jaw tumours found in his review. In a 12-year review of the head and neck malignancies at Zaria, Northern Nigeria, squamous cell carcinoma was the most common tumour (6). Squamous cell carcinoma affecting the oral cavity was relatively low in our series: 18 (15,7%). The two earlier studies in Nigeria (5,6) are from the Northern Savannah climatic region, compared with our center located within the Southern rain forest zone.

Other histopathology variants such as Non-Hodgkin lymphoma, rhabdomyosarcoma, osteogenic sarcoma, Kaposi's sarcoma, adenocarcinoma, melano-carcinoma and adenoid

cystic carcinoma were found not to be very common, cumulatively accounting for 31 (27%) of all oral malignancy.

Carcinoma of the oropharynx

The oropharynx comprises the tonsils, posterior third of the tongue, soft palate, and posterior wall of the oropharynx.

Tonsils and soft palate carcinoma accounted for 10 cases (3.2%) of all head and neck malignancies in this review. Two cases (20%) of tonsils malignancies were Non Hodgkin's lymphoma, six cases (60%) were squamous cell carcinoma while other rare histopathological variants adenocarcinoma and soft tissue sarcoma, were responsible for the remaining 2 (20%).

Carcinoma of the nasopharynx

Ten cases (3.2%) of malignancies of the nasopharynx representing the sixth most common malignancies, (same as the oropharynx) of the head and neck region were found in this review. The most common histopathologic type was squamous cell carcinoma (WHO type I)⁽⁷⁾, while lymphoma, the Non Hodgkin's type was responsible for two cases (20%) of the nasopharyngeal malignancies. This agrees with the study done at Ibadan, Nigeria, which reported a higher incidence of type I, (keratinizing squamous cell carcinoma) as the more common form of the disease in Nigeria.⁽⁸⁾

There was male preponderance with male to female ratio of 4:1. Sixty percent of the cases occurred within the 4th – 5th decades of life. There was no bimodal peak incidence as observed in endemic area. Our incidence of 3.2% of all head and neck malignancies agrees with the low incidence found among the Caucasians⁽⁹⁾. The incidence rate of 3.2% found in this study is however low when compared with the findings of carcinoma of the nasopharynx said to be the most common head and neck malignancies in Saudi Arabia with an incidence of 33%⁽¹⁰⁾. Our findings also contrast with a recent study in Lagos, Nigeria, in which nasopharyngeal carcinoma was the most common head and neck malignancies with an incidence of 16.8%⁽¹¹⁾. The higher figure reported in that study⁽¹¹⁾ might be because they reviewed the radiotherapy records; their center being one of the very few functional radiotherapy units in Nigeria, many patients get referred there from other centers since most nasopharyngeal carcinoma are radio-sensitive.

Carcinoma of the larynx

This accounted for six cases (1.9%). All the patients were males. This agrees with the existing literature. Cigarette smoking has been linked with the higher incidence of this disease in males. However, in our environment, other factors other than cigarette smoking may be associated. This is because most of the patients with the carcinoma of larynx in our environment do not present with any significant history of cigarette smoking. In this review average cigarette sticks smoked per day were 2-3.

All the six cases of the carcinoma of the larynx were

the squamous cell type. This also agrees with studies done in other parts of the world⁽²⁾. Two cases (33.3%) occurred in the 4th – 5th decades of life, while the remaining cases were found in the 6th – 7th decade of life, that is, the incidence increases with age; this agrees with the age incidence pattern of head and neck malignancies in developed countries. Our incidence rate is lower when compared with the reports from other centers in Nigeria, where laryngeal carcinoma was found to account for 5.5%⁽⁵⁾, and 12.1%⁽¹¹⁾ of all head and neck malignancies. The incidence in our series could be an under reporting since only histopathologically confirmed cases were selected for this review and most of our patients with carcinoma of the larynx presents very late and usually in respiratory obstruction. Once the obstruction is relieved by emergency tracheostomy, many of them decline further surgery for either diagnostic or therapeutic purposes due to financial reasons.

Carcinoma of the paranasal sinuses

The paranasal sinuses comprise of the frontal, ethmoidal, maxillary and sphenoidal sinuses. In this study carcinoma of the paranasal sinuses accounted for one case (0.3%), it was found to have involved the maxillary antrum in a 45-year-old female. The histopathology was well-differentiated squamous cell carcinoma. This however contrasts with the study from Lagos, Nigeria, in which paranasal sinuses and middle ear carcinoma were reported to be the second most common head and neck malignancies, with an incidence of 13.6% in a 10-year review of 381 cases that were undergoing radiotherapy⁽¹¹⁾. This could be because of selection of the group of patients that was studied, that is, patients with radiosensitive malignancies⁽¹¹⁾. Bhatia reported an incidence of 24.7% in his study on head and neck malignancies in plateau state of Nigeria⁽⁵⁾. The reason for this disparity is not so obvious. Our findings agree with the study on ethmoidal adenocarcinoma where the authors reported that carcinoma of the paranasal sinuses are rare and that in the majority of cases it involves the maxillary antrum⁽¹²⁾.

Carcinoma of the salivary gland

There were five cases of salivary gland malignancy representing 1.6% of all head and neck malignancies in this study. Three cases (or 60% of these) involved the parotid, while the remaining 2 (40%) involved the submandibular salivary gland. The parotid gland is the most common site of salivary malignancies⁽¹³⁾. Of the five cases of salivary gland malignancies reported, 4 cases (80%), occurred in males while the remaining 1 (20%) occurred in a female.

Mucoepidermoid malignancies was found in one case (20%), non-Hodgkin's lymphoma accounted for two cases (40%), while adenocarcinoma accounted for the remaining two cases (40%) of the histopathological types of salivary gland malignancies seen in this study. Eighty-percent of these malignancies occurred in the age range of above 50 years, while one case occurred in a male

below the age of 20 years and it is the non-Hodgkin's lymphoma.

Orbital malignancy

Orbital malignancies are very rare. In this study, orbital malignancies accounted for 15 cases (4.8%), and were the fifth most common head and neck malignancies in this series. There were seven males (46.7%) and eight (53.3%) females.

The peak incidence of ocular malignancies was in the 1st decade of life, representing 10(66.7%) of all malignant ocular tumors. The 5th decade and above accounted for 3 cases (20%). The only lachrymal malignant oncocyoma and another case of neuroblastoma occurred at the third decade of life. Retinoblastoma accounted for 8 (53.3%). Squamous cell carcinoma of the conjunctiva accounted for three cases (20%) while the remaining four cases (26.7%) comprised of metastatic neuroblastoma, 1 case each of lachrymal oncocyoma, and squamous cell of the eye lid. Burkitt's lymphoma was not found in this series which contrasted with an earlier study from Ibadan, Nigeria where Burkitt's was the most common orbital tumour⁽¹⁴⁾.

Carcinoma of the ear

Only one case (0.3%) of carcinoma of the ear was found in this study. This is in keeping with the rarity of this type of head and neck malignancies⁽¹⁵⁾.

Malignant facial ulcer

This accounted for seven cases (2.2%) of all the head and neck malignancies. A male to female of 2:5 was found. Peak incidence was between 4th and 5th decades of life, which accounted for 6 cases (85.7%).

Squamous cell carcinoma was found in six cases (85.7%), while basal cell carcinoma was found in one, representing 14.3% of all malignant facial ulcers.

Carcinoma of the esophagus

Esophageal malignancies were the fourth most common head and neck malignancies in this report accounting for sixteen (5.1%). There was equal sex distribution in this study, which contrasts with the finding of overwhelming male preponderance in Tanzania, Kenya and Transkei; but agrees with the findings of equal gender distribution in Uganda⁽¹⁶⁾. The age range of between 50 and 70 was typical of esophageal carcinoma.

Neck malignancies

Eighty-four cases of neck malignancies were identified representing 26.8% of all the head and neck malignancies in this review. Various histopathological types afflicted the neck: lymphoma formed fifty cases (59.5%), while fifteen cases (17.9%) of neck malignancies were found to be squamous cell carcinoma; sarcoma accounted for two (2.4%), while rarer histopathological types like – parasympathetic paraganglioma, embryonal tumors, anaplastic carcinoma, melanoma, and metastatic adenocarci-

noma, accounted for the remaining 20.2%.

Thyroid malignancies

Forty-three cases of thyroid malignancies were identified. Of these, there were 14 males and 29 females with a male to female ratio of 1:2.

No case of thyroid malignancy was found in the first decade of life. The incidence peaked in the 3rd and 5th decades, maintained a plateau between 6th and 7th decades, and then declined. (See Table 4)

Follicular carcinoma was found to be the most common thyroid malignancies; 18 cases (44.2%), followed by the papillary carcinoma, 13 cases (30.2%) of cases. This finding agrees with some existing works in Africa^(16,17,18,19). Others were anaplastic 7; (16.3%), medullary and mixed adenocarcinoma, which were found to be 2, (4.7%) each.

Conclusion

This study found a high incidence of childhood malignancies; and a double-peak age incidence in the 1st and the 5th decades. Lymphoma constituted the most common head and neck childhood malignancy; while squamous cell carcinoma was the predominant histopathologic variant in the older age group.

Jaw tumours, neck and thyroid malignancies were the 3 most common head and neck tumours; while the paranasal sinuses and ear malignancies were found to be of low incidence. Lip carcinoma carried a low incidence in this series in contradistinction to earlier reports⁽²⁾.

References

1. Cunningham M J, Myers E N, Bluestone C D: Malignant tumours of the head and neck in children. A twenty-year review. *Int. J. Paed. Otorhino laryngol* 1987; 13:279-292.
2. Neal Anthony J, Hoskin Peter J.: *Head and Neck Malignancies in Clinical Oncology* 2nd edition 1997; 133-141.
3. Hearly GB: Malignant tumours of the head and neck in Children: Diagnosis and treatment. *Otolaryngol Clinic North Am* 1980; 13:483-488.
4. Rao CR, Gutierrez MI, Bhatia Feud F, Franklin J, Appaji L, Gallo G O, Connor G, Lalitha N Magrath I.: Association of Burkitts Lymphoma with the Epstein-Bar virus in two developing countries: *Leuk Lymphoma* 2000; 39: 329-37.
5. Bhatia PL. Head and Neck Malignancies in Plateau State of Nigeria: *West African Journal of Medicine* 1990; 9: 304-310.
6. Yakubu A, Mabogunje O. Skin Malignancies of the head and neck in Zaria, Nigeria. *Acta Oncologica*; 1995: 469-71
7. Belal Abdel-Aziz A. Cancer Nasopharynx In *Otolaryngology Head and Neck Surgery*. Ed. Belal A.A. 4th Edition. Alexandria University Cairo: 1992; 87-89.

8. Martinson FD. Malignancies of the Nasopharyngeal in Nigeria. *J. Laryngol* 1968; 82:1119-1126.
9. Ho H J C. Epidemiologic and clinical study of nasopharyngeal carcinoma. *Int. J. Radiat. Oncol. Biol. Phys.*, 1978; 4:181-192.
10. Clubb BS, Quick C A, Amer M H Moliboubi E, El-Senoussi M.A et al. Head and Neck malignancies in Saudi Arabia. IAEA-SM-290/139-146.
11. Nwawolo C C, Ajekigbe AT, Oyenyin JO, Nwankwo KC, Okeowo PA. Pattern of head and Neck Cancers among Nigerians in Lagos. *WAJM* 2001: 111-116.
12. Wax M K, Yun K J, Wetmore S J, Lu X, Kaufman H H; Adenocarcinoma of the ethmoidal sinus; *Head Neck* 1995; 17: 303-11.
13. Sowemimo G O A, Ademiluyi S A, Oyenyin J O Salivary gland Tumours: *Nigerian Medical Journal* 1978; 8: 119-130.
14. Olurin O, Williams A.O.: Orbito-Ocular tu nouns in Nigeria; *Cancer* 1972; 30: 580-586.
15. Clubb B S, Quick C A, Amer M H, Mal'boubi E, El-Senoussi M A et al. Head and Neck cancers in Saudi Arabia. IAEA-SM-290/139-146.
16. Badoe E A. Archampong EQ, daRocha-Afodu JI. Carcinoma of the oesophagus. In principles and practice of surgery including pathology in the tropic.. 3rd edition, Asemblies of God Literature Center Ltd. Accra 2000; 365-371.
17. Olurin E O, Itayemi S O, Oluwasanmi J C, Ajayi O O: The pattern of thyroid gland diseases at Ibadan: *Nigeria Medical Journal* 1973; 3: 58-65.
18. Edis A J Surgical treatment for the thyroid malignancies: *Surg. Clin North Am* 1977; 57: 533-42.
19. Lawal O, Agbakwuru A, Olayinka O S, Adelusola K: Thyrod malignancy in endemic nodular goiters: Prevalence, pattern and treatment. *EJSO*, 2001; 27: 157-161.