RESEARCH ARTICLE

PATTERN OF HEAD AND NECK TUMORS IN A TERTIARY HOSPITAL IN SOUTH-WEST NIGERIA: AN EIGHT YEAR REVIEW

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ABSTRACT

Background: Head and neck tumors are uncommon but are not as rare as early studies suggest. Recent studies have indicated a higher incidence.
Objective: To document the pattern and trend of head and neck tumors diagnosed at Ladoke Akintola University of Technology Teaching Hospital, Osogbo, South-West Nigeria in an eight year period (2005 – 2012).
Methods: The medical records of patients with head and neck tumors over an 8-year period (2005-2012) were analyzed.
Results: Of the one hundred and ninety seven (197) cases reviewed, 92 were males and 105 were females. 135 cases (68.5%) were benign while 62 cases (31.5%) were malignant. The neck was found to be the commonest site for head and neck tumors accounting for 52 cases (26.4%) followed by sinonasal 48 cases (24.4%), salivary gland 30 cases (15.2%). Others are Oral cavity tumors and laryngeal tumors 24 cases (12.2%) respectively.
Of the 62 malignant tumors, 37 were male while 25 were female with a male to female ratio of 1.5:1. The sinonasal area was the most common site for malignancy (30.2%) followed by the larynx (17.5%), the oropharynx (16.1%), the nasopharynx (9.7%) and salivary glands (9.7 %). The others are thyroid (6.5%), mouth (4.8%) and esophagus (4.8%).
Conclusion: The study shows that goiter is the most common benign tumor while sinonasal cancer formed the most common group of head and neck malignancy while laryngeal and pharyngeal malignancy are the 2nd and 3rd most common in South-western Nigeria.

INTRODUCTION

Head and neck tumors refer to abnormal tissue growth involving the upper aero-digestive tract which tend to affect fundamental functions which is sub-served by this region. These functions include eating, drinking, speaking and respiration and affectation may also result in aesthetic disfigurements of these parts of the body. At an advanced stage of malignant head and neck tumors, quality of life may be affected and eventually, death may ensue. They can arise from the skin, muscle, mucosa, bone, cartilages or glands of the nose and paranasal sinuses, pharynx, larynx, mouth, salivary gland, ear esophagus and neck. Although most growths are benign, surgical excision or biopsy of these tumors is commonly performed for histopathological examination to rule out malignancies.

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The increased prevalence of head and neck tumors is associated with both environmental and lifestyle risk factors. The most implicated risk factor in head and neck tumors is the use of tobacco. This is synergistic with alcohol intake and poor orodental hygiene has been implicated in oral cavity cancers. (Hooper *et al.*, 2009) Currently, head and neck malignancy is the fifth cause of cancer by incidence and the sixth leading cause of cancer mortality in the world with approximately 900,000 new cases diagnosed worldwide per year. (Goon *et al.*, 2009) In the United States, 42,000 new cases of head and neck malignancies are diagnosed annually and approximately 13,000 deaths are recorded annually from this disease. While studies from South-Western Nigeria have recorded yearly incidence of 33 – 38 cases. (Amusa *et al.*, 2004; Nwawolo *et al.*, 2001) the Northern part of the country recorded 20 – 24 cases per year. (Otoh *et al.*, 2004; Otoh *et al.*, 2006) However, in Nigeria as in many areas in sub-Saharan Africa, record of incidence and pattern of head and neck malignancy is scanty. Also, cancer registries are not readily available and where available, they are

not well documented. Hence the study intends to highlight the presentation, burden as well as challenges to management in head and neck tumors in Osogbo, South-Western Nigeria.

MATERIALS AND METHODS

This is a retrospective study which was carried on all patients presenting with head and neck tumors at the Department of Otorhinolaryngology, Ladoke Akintola University of Technology Teaching Hospital, Osogbo, Nigeria. Information was obtained from outpatient clinic, ward and operating theatre records. The study was carried out over an 8 year duration (January 2005 to December 2012). Ethics approval was sought and obtained from the Ethics committee of LAUTECH Teaching Hospital, Osogbo prior to the commencement of the study. The records were then analyzed for age, sex, presenting complaints, duration of symptoms, type of care received, histologic diagnosis, mode of treatment, associated complications and outcomes of treatment received. The head and neck region was categorized into different sub-sites, namely, Oral cavity (lip, tongue, gum, floor of mouth, palate, mouth); Salivary glands (base of tongue, tonsils, oropharynx); Pharynx, other than oropharynx (nasopharynx, pyriform sinus, hypopharynx, others); Larynx (larynx). Tumors involving the brain, eye and spinal cord have been excluded from this study. All statistical analysis were done using SPSS statistical package for Windows, version 18 (SPSS Inc., Chicago, IL). The results were presented in simple charts and tables as appropriate.

RESULTS

A total of one hundred and ninety Seven (197) patients with a clinical diagnosis of head and neck tumors were seen during the eight year study period (January 2005 to December 2012).

Age of patients seen ranged from six months to ninety years (0.5 - 90 years). The Mean ± SD for benign tumours was 36.4 ± 18.41 while malignant tumours was 52.7 ± 17.33. The overall most prevalent age range was in the 5th decade (37/197), while the 3rd and 4th decade were 35/197 respectively. While the peak age range for malignant diseases was the 6th decade (18/62) and the 5th decade was most prevalent for benign tumours (31/135). Ninety two (46.7%) were males and one hundred and five (53.3%) were females with a M:F ratio of 1: 1.14. One hundred and thirty five (68.5%) were benign while sixty two cases (31.5%) were malignant. The low socio-economic class (SES) i.e. groups IV and V constituted about 60% of the patients with head and neck tumours. While the middle and high SES groups constituted 20.8% and 19.8% respectively. Other details are as seen in Table 1.

The Table 2 shows the anatomic site and type of the head and neck tumours observed during the study. The neck was found to be the commonest site for head and neck tumors accounting for 52 cases (26.4%) followed by sinonasal 48 cases (24.4%), salivary gland 30 cases (15.2%).

Others are Oral cavity tumors and laryngeal tumors 24 cases (12.2%) respectively. Alcohol consumption and tobacco intake constituted the possible etiological factor in about 30% of the patients with head and neck tumours (28.4%). While patients that had incomplete data as well no clearly identifiable risk factors were 41.1% and 30.4% respectively. For the cases of malignant tumours, 41.9% (26/62) had alcohol and tobacco consumption implicated in their histories, while the benign cases had 22.2% (30/135) implicated. The most prevalent duration of the head and neck tumours was the ≤ 5 year duration (38.6%), followed by 11 – 15 years (25.9%), 6 – 10 years (25.4%) and ≥ 16 years (10.1%) respectively.

Table 1. Socio-Demographic Characteristics

Parameter	Benign n =135 (%)	Malignant n =62 (%)	Total n =197 (%)
Gender of Subjects			
Male	56 (41.7)	36 (58.1)	92 (46.7)
Female	79 (58.3)	26 (41.9)	105 (53.3)
Age Range (years)			
≤ 10	13	-	13
11 – 20	12	1	13
21 – 30	27	8	35
31 – 40	27	8	35
41 – 50	31	6	37
51 – 60	12	18	30
61 – 70	11	14	25
71 – 80	1	5	6
≥ 81	1	2	3
Mean ± SD	36.4 ± 18.41	52.7 ± 17.33	
Socioeconomic Status			
I	10	5	15 (7.6)
II	15	9	24 (12.2)
III	29	12	41 (20.8)
IV	35	17	52 (26.4)
V	46	19	65 (33.0)

Table 2. Anatomic site involvement and type of Tumours

ICD 10 Code	Anatomic Site Involved	Benign n=135 (%)	Malignant n=62 (%)	Total n=197 (%)
	Oral Cavity	20 (14.8)	4 (6.4)	24 (12.2)
C00	Lip	1	-	
C02	Tongue	6	1	
C03	Gum	-	-	
C04	Floor of Mouth	-	-	
C05	Palate	4	3	
C07	Mandible	9	-	
	Salivary Glands	23 (17.0)	7 (11.3)	30 (15.2)
C01	Base of Tongue	1	-	
C06	Parotid	19	6	
C10	Oropharynx	3	1	
	Pharynx (other than Oropharynx)	2 (1.5)	12 (19.4)	14 (7.1)
C11	Nasopharynx	2	9	
C12	Pyriform sinus	-	-	
C13	Hypopharynx	-	3	
	Larynx			
C32	Larynx	11 (8.1)	13 (21.0)	24 (12.2)
	Sinonasal	26 (13.2)	22 (35.5)	48 (24.4)
C19	Nasal Cavity	7	5	
C20	Maxillary	12	13	
C21	Ethmoid	5	4	
C22	Frontal	2	-	
C23	Sphenoid	-	-	
	Others			
C14	Thyroid	48 (24.4)	4 (6.4)	52 (26.4)
C15	Ear	5 (3.7)	-	5 (2.5)

Table 3. Etiological Factors, Clinical Characteristics and Treatment Outcomes

Parameters	Benign n=135 (%)	Malignant n=62 (%)	Total n=197 (%)
Predisposing factors			
Alcohol consumption	10	7	17 (8.6)
Tobacco intake	14	9	23 (11.7)
Both Alcohol and Tobacco	6	10	16 (8.1)
Nil	45	15	60 (30.4)
Incomplete Data	60	21	81 (41.1)
Duration of Disease			
≤ 5	35	41	76 (38.6)
6 – 10	41	9	50 (25.4)
11 – 15	44	7	51 (25.9)
≥ 16	15	5	20 (10.1)
Treatment Received			
Surgical management alone	111	4	115 (58.4)
Radiotherapy alone	4	1	5 (2.5)
Chemotherapy alone	5	1	6 (3.0)
Combination of any of the above	-	38	38 (19.3)
Nil / Conservative	15	18	33 (16.8)
Outcome of Treatment			
Cure	35	4	39 (19.8)
Palliation	15	8	23 (11.7)
Recurrence	9	15	24 (12.2)
Lost to follow up	76	25	101 (51.2)
Death	-	10	10 (5.1)

The modal form of treatment that was given to patients with head and neck tumours was surgical management alone (58.4%). Other treatment included, combination therapy (19.3%) and conservative management (16.8%). A significant volume of patients were lost to follow-up visits (51.2%) to monitor outcome of treatment instituted. While cure was achieved in 19.8% of cases seen, presence of recurrence of disease as well as the need for palliative treatment for advanced cases occurred in 12.2% and 11.7% respectively.

DISCUSSION

In this study over 70% of the patients that had malignancy were above 40 years of age and the majorities were aged between 41 and 70 years. This finding is similar to other studies done in Sub-Saharan Africa which reported similar findings in head and neck cancers in patients above forth decade (> 40 years). (Nwawolo *et al*., 2001; Onyango *et al*., 2006) Out of the total of 62 cases of malignant tumors reviewed, sinonasal tumors were the most common accounting for 19 cases (30.2%). This is in keeping with a study carried out in North-central Nigeria.[8] While some others have implicated oral cavity malignancy was the most common head and neck cancer. (Amusa *et al*., 2004; Otoh *et al*., 2004) However, a review of 27 studies done in Nigeria (da Lilly-Tariah *et al*., 2009) showed that the nasopharynx, sinonasal and larynx respectively are the most common affected sites. In different countries it ranks among the three most common cancers.

The low socio-economic class (SES) i.e groups IV and V constituted about 60% of the patients with head and neck tumours. While the middle and high SES groups constituted 20.8% and 19.8% respectively. This finding is similar to the study of Johnson *et al*. (2008) which indicates that there appeared to be a distinct disadvantage in individuals from low socio-economic settings developing head and neck cancers. This conclusion was made after controlling for such known associated health behaviors such as smoking and alcohol consumption. However, another study carried out in North America reported indirect evidence that hepatitis B positive head and neck cancers were more common in the higher SES group. (McDonald *et al*., 2014) Contrary to the above findings, the study carried out amongst patients with oral cancers found no evidence of patients with lower SES presenting later or at a different stage from patients from higher SES. (Johnson *et al*., 2010) This findings might tend to suggest that the while the SES of head and neck patients may play a role in the predisposition and outcome of head and neck cancers, a variety of factors also have their own influence. Hence, further research will be required to improve our understanding of this clinical entity.

The study noted in general that, alcohol consumption and tobacco intake constituted the possible etiological factors in about 30% of head and neck tumours patients (28.4%). While 41.9% (26/62) and 22.2% (30/135) was reported for the cases of malignant and benign tumours respectively. This appears to agree with Guo *et al*. (2015) whose study noted that both individual and regional smoking reported significant and independent predictors of poor cancer survival. Thus suggesting that a multi-level approach to smoking prevention

should be adopted to achieve favorable outcome. Again, in the review of the work of Jones *et al*. (2015) a meta-analysis was carried out to determine if a relationship existed between alcohol consumption, SES and the development of chronic alcohol-attributable disease. The study noted a high prevalence in low as compared to high SES of increased incidence of head and neck cancer in individuals with hypertensive heart disease and Liver disease. Other factors implicated from other studies include Human papilloma virus status (McDonald *et al*., 2014) as well as the patient's occupation. (Swapna and Sudhakar, 2015), was the ≤ 5 year duration (38.6%), followed by 11 – 15 years (25.9%), 6 – 10 years (25.4%) and ≥ 16 years (10.1%) respectively.

A significant volume of patients were lost to follow-up visits (51.2%) to monitor outcome of treatment instituted. This finding is prevalent in many out-patient clinics in resource-limited settings. (da Lilly-Tariah *et al*., 2009) Whereby crucial follow-up visits scheduled after initial treatment of head and neck cancers are missed due to a variety of reasons ranging from cost of expenses (transportation, hospital-related expenses) to motivation to appropriate health-seeking behaviors. The routine period of follow-up in our center does not vary from what is practiced in other centers managing head and neck oncology. Hence we tend to follow-up for 5 to 10 years before discharging from routine clinics. Initially monthly, then three monthly, six monthly and later yearly. While very high rates of visits have been reported in Europe and North America, the same cannot be said of sub-Saharan Africa. (Francis *et al*., 2009; Ritoe *et al*., 2007).

The benefit of the follow-up clinic visits in head and neck cancer patients cannot be overemphasized. It results in the determining the adequacy of treatment given, ensure prompt response to complications of treatment and the disease. Also the identification of recurrence, where this occurs. In spite of the challenges identified above, some centers with similar hindrances have been able to report excellent results with the application of efficient interventions. The study carried out amongst African-Americans by Moore *et al*[18] is worth mentioning. The program targeted educational interventions with head and neck screening, focused on the homeless shelter and faith-based institutions. It was noted that there was an 80% follow-up rate, out of which only 9% presented with early lesions.

This finding is contrary to the general perceptions that individuals from underserved communities do not keep appointments. This study clearly shows that appropriately focused health-related interventions to patient education on symptoms and signs of disease, as well as impact on various aspects of their lives, will go a long way in obtaining a favorable outcome. The study was limited by a few factors. The first being that being a retrospective study it was subject to recall bias and some information on patient management might have lost, has to be stated. Secondly, due to the poor follow-up rate, long term outcome was not effectively documented. These shortcomings would be improved upon when a prospective and community-based study is carried out in future. It is hoped that this will address some of the gaps observed in this study.

Conclusion

The study showed that while Goitre represented the most common benign tumor, sinonasal cancer constituted the most common group of head and neck malignancy. Both laryngeal and pharyngeal malignancies were the second and third most common in South-western Nigeria respectively. The pattern of head and neck cancers observed provides reliable information on the burden of head and neck cancer morbidity the south western region of Nigeria that will be useful for health planning and cancer control, and future research.

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