

Original Research Article

The patterns of head and neck tumours in Northern Ghana: a histopathological review in a tertiary referral hospital in Northern Ghana

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ABSTRACT

Background: There is paucity of published data on head and neck tumours (HNTs) in Ghana, even the few studies available were conducted in the middle and southern belts of the country. The present study in northern Ghana, was conducted to study the histopathological characteristics of HNTs and offer recommendations.

Methods: This retrospective study analysed HNTs for the past 10 years at the Tamale Teaching Hospital in northern Ghana.

Results: There were 576 HNTs, with 66.0% benign and 34.0% malignant. The mean age (years) was 34.9±21.6. Females were commonly affected 53.6%. Benign tumours were diagnosed in relatively young patients with mean age of 29.6±19.2, compared to 44.9±22.6 for the malignant tumours. Patients commonly present late with HNTs. The common anatomical sites were: odontogenic and maxillofacial bone (18.4%), oral cavity and mobile tongue (18.1%), and hypopharynx and larynx (13.9%). The histopathological subtypes were: squamous papilloma (13.9%), squamous cell carcinoma (SCC) (12.8%), and salivary gland pleomorphic adenoma (9.4%). The common benign tumours were; squamous papilloma (21.1%), salivary glands pleomorphic adenoma (14.2%), and benign vascular tumours (13.9%). For malignant tumours the order was; SCC (37.8%), lymphoma (11.2%) and olfactory neuroblastoma (10.2%). A significant number of patients had no history of cigarette smoking ($p < 0.0001$).

Conclusions: Benign tumours were the common neoplastic lesions within the head and neck region. HNTs were common in relatively young patients and in females. Benign tumours were diagnosed in relatively young patients compared to malignant tumours. Patient with malignant tumours presented early to health facilities, compared to those with benign tumours.

Keywords: Head and neck tumours, Northern Ghana, Anatomical sites, Classifications, Histopathological subtypes, Presentation

INTRODUCTION

Head and neck tumours (HNTs) are common causes of morbidity and mortality in both the developed and developing countries and hence a public health problem.¹⁻

⁴ These group of neoplastic lesions however are of a major diagnostic challenge to clinicians and the pathologists, due to the varied clinical presentations, risk factors and the

anatomical sites of origin.^{1,3,5} This is further hampered by the paucity of literature on the exact aetiological agents of these tumours.^{6,7} The incidence of HNTs varied across the world, being commoner in developing countries.^{1,8} The disproportionately higher prevalence of HNTs in relation to other malignancies in developing countries may be due to the use of tobacco in various forms, consumption of alcohol and low socioeconomic condition related to poor hygiene, poor diet and or infections of viral origin.⁹

Globally, the relative proportions of benign and malignant HNTs varied among studies, however, many studies reported higher numbers of benign tumours compared to the malignant counterparts.^{3,10-12} Studies have reported varied gender and age characteristics for benign and malignant HNTs between countries, within countries and regions.¹⁰⁻¹²

There is paucity of published data on HNTs in Ghana, even the few studies available to readers, are not only limited to the middle and southern belts of the country, but are directed mostly at malignant tumours.^{2,13} This call for research that will evaluate the relative proportions of head and neck tumours, the anatomical sites (WHO classification), clinical presentations, and the histopathological subtypes.

The objectives of the current study were: to identify the spectrum, anatomical sites and relative proportions of head and neck tumours (HNTs) in a tertiary referral hospital in northern Ghana; to evaluate the clinicopathological characteristics of malignant head and neck tumours in northern Ghana; to evaluate the clinicopathological characteristics of malignant head and neck tumours in northern Ghana; and to describe associations between age, gender and anatomic sites with malignant and benign head and neck tumours.

METHODS

Study site and design

This was a retrospective review of all histological confirmed HNTs reported in the department of pathology of the Tamale teaching hospital from 01 January 2012 to 31 December 2021.

Case selection and sample size

We retrieved 576 reports of all histologically confirmed HNTs in the department of pathology from 01 January 2012 to 31 December 2021. The clinical request forms were also retrieved alongside. Where necessary, the corresponding histology slides were retrieved and reviewed. Cases with histopathology request forms, completed histopathology reports that were sent to the right patients constituted the sample size for the study. Cases that did not meet this criterion were excluded.

Data collection, entry and analysis

Data were collected on the category of tumour (benign and malignant), age (years) and gender at diagnosis, the anatomical site of the tumour, symptoms at presentation: stratified into primary, secondary and tertiary, duration (months) of symptoms at presentation and the histopathological subtypes of HNTs.

Head and neck tumours were classified based on the 4th edition of the World Health Organization classification of HNTs (by site), as - tumours of the oral cavity and mobile

tongue: code 1; tumours of the oropharynx (base of the tongue, tonsils and adenoids): code 2; tumours of the nasopharynx: code 3; tumours of the hypopharynx, larynx, trachea, and parapharyngeal space: code 4; tumours of the nasal cavity and paranasal sinuses and skull base: code 5; odontogenic and maxillofacial bone tumours: code 6; tumours of the salivary glands: code 7; tumours of the ear: code 8; paraganglionic tumours: code 9; temporal bone lesions: code 10; tumour-like lesions of the neck and lymph nodes: code 11; and mucosal melanoma: code 12.

The data were entered into a statistical database and analysed using statistical package for the social sciences (SPSS) software version 26.0 (Chicago). Fisher's exact test was used to compare tumour variables, where applicable. The results were presented in bar charts and frequency tables. We used a statistical significance level of $p < 0.05$.

RESULTS

Head and neck tumours (n=576)

Demographic and clinical features of HNTs

A total of 576 HNT, consisting of 380 (66.0%) benign and 196 (34.0%) malignant tumours ($p < 0.0001$) were reviewed from 01 January 2012 to 31 December 2021. The mean age (years) for patients with histopathologically confirmed HNTs was 34.9 ± 21.6 with a modal age group 20-29 (19.2%) (Table 1). Males were commonly affected (53.6%).

Benign tumours were diagnosed in relatively young patients with mean age of 29.6 ± 19.2 (Table 1). Malignant tumours were slightly common (53.1%) among males (Table 1).

Approximately, 13.3% of patients with malignant HNTs presented with up to three symptoms. Patient with malignant tumours also presented early (mean duration of 16.2 ± 23.2) to health facilities, compared to those with benign tumours (mean duration of 18.1 ± 23) (Table 1). A significant number of patients with HNTs had no history of cigarette smoking ($p < 0.0001$) (Table 1).

Anatomical sites (WHO classification) of head and neck tumours

The common anatomical sites for all HNTs were: odontogenic and maxillofacial bone (18.4%), oral cavity and mobile tongue (18.1%), hypopharynx and larynx (13.9%), neck and lymph nodes (13.4%) and nasal cavity and paranasal sinuses (12.3%) (Table 2).

Histopathological subtypes of head and neck tumours (HNTs)

The common top ten histopathological subtypes of HNTs in descending were: squamous papilloma (13.9%),

squamous cell carcinoma (12.8%), salivary gland pleomorphic adenoma (9.4%) benign vascular tumour (9.2%), benign cystic bony lesion (6.1%), fibrous

dysplasia (5.2%), lipoma (4.9%), olfactory neuroblastoma (3.5%), spindle cell sarcoma (3.0%) and nasopharyngeal carcinoma (2.6%) (Table 3).

Table 1: Age, gender, clinical symptoms and duration of head and neck tumours (HNTs).

Variables	Whole group		Benign		Malignant	
	N	%	N	%	N	%
Age group (years)						
≤9	66	12.0	53	14.6	13	6.9
10-19	82	14.9	69	19	13	6.9
20-29	106	19.2	78	21.4	28	14.9
30-39	92	16.7	69	19	23	12.2
40-49	64	11.6	32	8.8	32	17
50-59	55	10.0	30	8.2	25	13.3
60-69	50	9.1	21	5.8	29	15.4
≥70	37	6.7	12	3.3	25	13.3
Total	552	100.0		100	188	100
Missing data	24	4.2	16	4.2	8	4.1
Mean age	34.9±21.6		29.6±19.2		44.9±22.6	
Gender						
Male	267	46.4	163	42.9	104	53.1
Female	309	53.6	217	57.1	92	46.9
Number of symptoms						
One	435	75.5	319	84	116	59.2
Two	107	18.6	53	13.9	54	27.6
Three	34	5.9	8	2.1	26	13.3
Duration (months)						
≤3	97	16.8	62	16.3	35	17.9
4-7	135	23.4	88	23.2	47	24
7-12	152	26.4	91	23.9	61	31.1
≥12	192	33.4	123	32.4	48	24.5
Not stated	21		16	4.2	5	2.6
Mean	17.5±23.0		18.1±23		16.2±23.2	
History of cigarette smoking						
Yes	18	3.1	1	0.3	17	8.7
No	558	96.9	379	99.7	169	91.3
P values	0.0001		0.0001		0.0001	

Table 2: The anatomical sites of head and neck tumours.

Anatomical site (WHO classification)	Whole group		Benign		Malignant	
Oral cavity and mobile tongue	104	18.1	81	21.3	23	11.7
Oropharynx	11	1.9	5	1.3	6	3.1
Nasopharynx	9	1.6	0	0	9	4.6
Hypopharynx, larynx	80	13.9	42	11.1	38	19.4
Nasal cavity and paranasal sinuses	71	12.3	38	10	33	16.8
Odontogenic and maxillofacial bone	106	18.4	82	21.6	24	12.2
Salivary glands	58	10.1	42	11.1	16	8.2
Ear	22	3.8	18	4.7	4	2
Paraganglionic space	0	0	0	0	0	0
Temporal bone lesions	38	6.6	31	8.2	7	3.6
Neck and lymph nodes	77	13.4	41	10.8	36	18.4
Mucosa melanoma	0	0	0	0	0	0
Total	576	100.0	380	100.0	196	100.0

Table 3: The histopathological subtypes of head and neck tumours (HNTs).

Histopathological subtypes of HNTs	Frequency (n)	Percent (%)
Squamous cell carcinoma	74	12.8
Adenocarcinoma	13	2.3
Olfactory neuroblastoma	20	3.5
Adenoid cystic carcinoma	3	0.5
Spindle cell sarcoma	17	3.0
Nasopharyngeal carcinoma	15	2.6
Lymphoma	22	3.8
Thyroid cancer	14	1.6
Mucoepidermoid carcinoma	5	0.9
Metastatic carcinoma	7	1.2
Malignant mixed tumour	1	0.2
Myoepithelial carcinoma	1	0.2
Odontoameloblastoma	4	0.7
Salivary gland pleomorphic adenoma	54	9.4
Follicular thyroid adenoma	29	5.9
Ameloblastoma	13	2.3
Squamous papilloma	80	13.9
Benign cystic lesion	35	6.1
Lipoma	28	4.9
Fibrous dysplasia	30	5.2
Fibroepithelial polyp	14	2.4
Neurofibroma	11	1.9
Dermatofibroma	4	0.7
Fibroma	9	1.6
Glomus tumour	1	0.2
Schwannoma	2	0.3
Benign skin adnexal tumour	4	0.7
Carotid body tumour	2	0.3
Osteoma	3	0.5
Granular cell tumour	4	0.7
Others	4	0.9
Benign vascular tumour	53	8.9
Total	576	100.0

Malignant head and neck tumours (n=196)

Clinico-pathological features of malignant HNTs

The age range of patients with malignant HNTs was 1–100, with a mean of 44.9±22.6 and a modal age group of 40–49 (17.0%). A little above half (53.1%) were males (Table 1). The commonest primary symptom (57.1%) of malignant HNTs was swelling, followed by hoarseness of voice (20.4%) (Table 4).

Difficulty in breathing was the commonest (62.0%) secondary symptom. The great majority (79.6%) of patients with head and neck malignant tumours presented

after 3 months of onset of the disease (Table 1). A total of 17 (8.7%) had history of cigarette smoking.

Table 4: Symptoms of malignant head and neck tumours.

Symptoms	Frequency (N)	Percentage
Primary		
Swellings	112	57.1
Ulcers	29	14.8
Hoarseness of voice	40	20.4
Difficulty in breathing	11	5.6
Dysphagia	2	1.0
Epistaxis	2	1.0
Total	196	100.0
Secondary		
Difficulty in breathing	49	62.0
Dysphagia	7	8.9
Epistaxis	2	2.5
Cough	2	2.5
Exophthalmos	5	6.3
Hoarseness of voice	2	2.5
Swellings	3	3.8
Hearing impairment	2	2.5
Night sweat	2	2.5
Headache	1	1.3
Tinnitus	1	1.3
Anaemia	1	1.3
Weight lost	2	2.5
Total	79	100.0
Third		
Difficulty in breathing	3	11.5
Hoarseness of voice	2	7.7
Epistaxis	2	7.7
Virtual impairment	3	11.5
Swellings	2	7.7
Sore throat	2	7.7
Noisy breath sound	8	30.8
Weight lost	1	3.8
Slurred speech	1	3.8
Otalgia	1	3.8
Bloody sputum	1	3.8
Total	26	100.0

Classification of malignant head and neck tumours (HNTs) by anatomical site (WHO)

The common sites of malignant HNTs were: hypopharynx and larynx (19.4%), neck and lymph nodes (18.4%), nasal cavity and paranasal sinuses (17.3%), odontogenic and maxillofacial bone (12.2%) and oral cavity and mobile tongue (11.7%) (Table 1 and Figure 1).

Histological subtypes of malignant head and neck tumours

There were 153 (78.1%) carcinomas, 22 (11.2%) lymphomas and 17 (8.7%) sarcomas. The top five

histopathological subtypes of malignant HNTs were: squamous cell carcinoma (37.8%), lymphoma (11.2%), olfactory neuroblastoma (10.2%), spindle cell sarcoma (8.7%) and nasopharyngeal carcinoma (7.7%) (Table 5).

Table 5: The histopathological spectrum of malignant head and neck tumours (HNTs).

Subtypes of malignant HNTs	Frequency (n)	Percent
Squamous cell carcinoma	74	37.8
Adenocarcinoma	13	6.6
Olfactory neuroblastoma	20	10.2
Adenoid cystic carcinoma	3	1.5
Spindle cell sarcoma	17	8.7
Nasopharyngeal carcinoma	15	7.7
Lymphoma	22	11.2
Thyroid carcinoma	14	7.2
Mucoepidermoid carcinoma	5	2.6
Metastatic carcinoma	7	3.6
Malignant mixed tumour	1	0.5
Myoepithelial carcinoma	1	0.5
Odontoameloblastoma	4	2.0
Total	196	100.0

Benign head and neck tumours (n = 380)

Clinico-pathological features of benign HNTs

The age range (years) of patients with benign HNTs was 17–88, with a mean of 29.6±19.2 and a modal age group of 20–29 (21.4%). Approximately, 57.1% were female (Table 1). The great majority (84.0%) of the patients presented with only one primary symptom, followed by those (2.6%) two symptoms (Table 1). The commonest primary symptom of benign HNTs was swelling 326 (85.8%), followed by hoarseness of voice (11.3%) (Table 6). Difficulty in breathing was the commonest (82.2%) secondary symptom. Majority (79.5%) of patients with benign HNTs presented after 3 months of onset of the disease (Table 1).

Classification of benign head and neck tumours (HNTs) by anatomical site (WHO)

The common anatomical sites for benign HNTs were: odontogenic and maxillofacial bones (21.6%), oral and mobile tongue (21.3%), hypopharynx and larynx (11.1%), salivary glands (11.1%) and neck and lymph nodes (10.8%) (Table 1 and Figure 2).

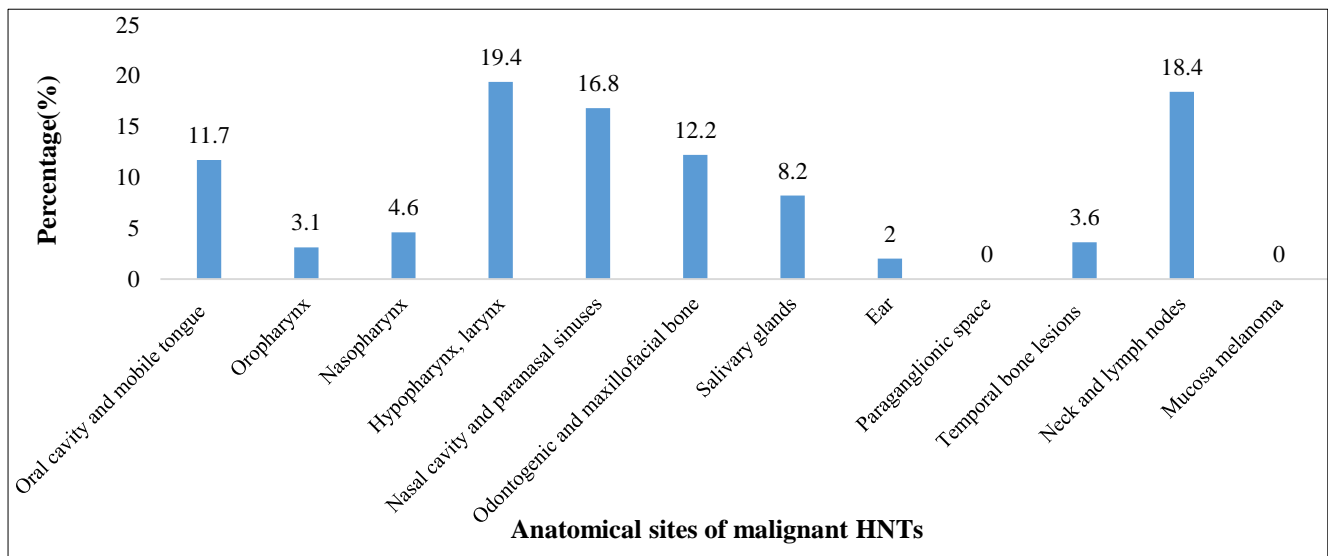


Figure 1: Anatomical sites of malignant HNTs.

Table 6: Symptoms of benign head and neck tumours.

Symptoms of benign HNTs	Frequency (n)	Percent
Primary		
Swellings	326	85.8
Hoarseness of voice	43	11.3
Difficulty in breathing	7	1.8
Dysphagia	2	0.5
Epistaxis	2	0.5
Total	380	100.0
Second		
Difficulty in breathing	51	82.2

Continued.

Symptoms of benign HNTs	Frequency (n)	Percent
Dysphagia	2	3.2
Virtual impairment	1	1.6
Hoarseness of voice	2	3.2
Swelling	1	1.2
Hearing impairment	1	1.6
Headache	1	1.6
Weight lost	1	1.6
Tinnitus	1	1.6
Proptosis	1	1.6
Total	62	100.0
Third		
Difficulty in breathing	4	50.0
Hoarseness of voice	1	12.5
Epistaxis	1	12.5
Swelling	1	12.5
Bloody sputum	1	12.5
Total	8	100

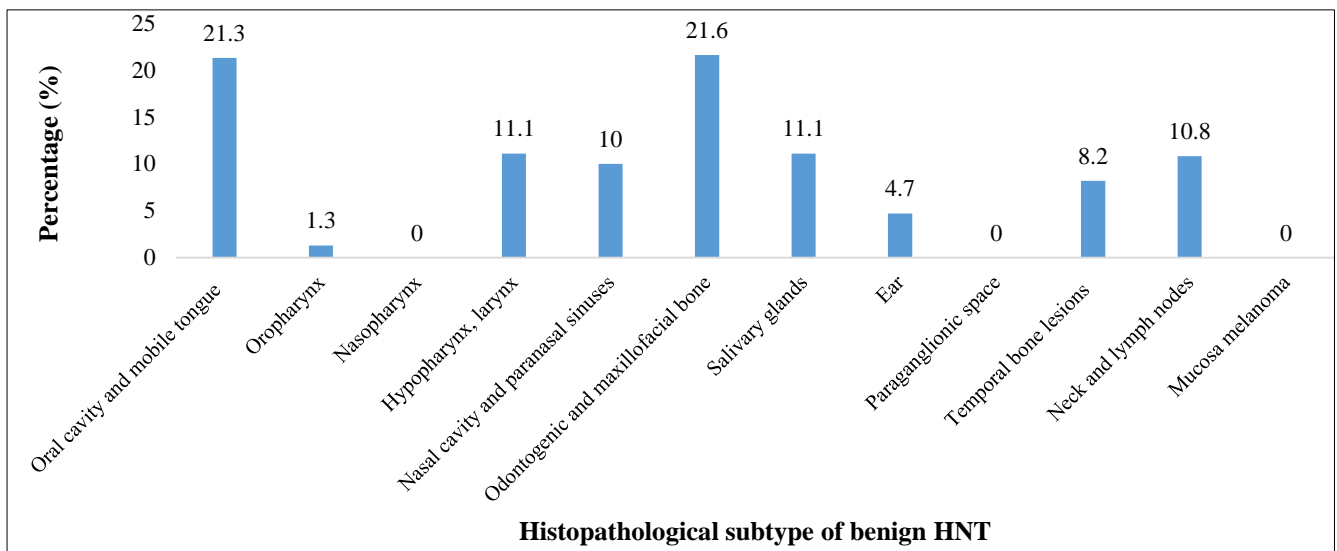


Figure 2: Anatomical sites of benign HNTs.

Table 7: The histopathological spectrum of benign head and neck tumours (HNTs).

Subtypes of benign head and neck tumours	Frequency (n)	Percentage (%)
Squamous cell papilloma	80	21.1
Salivary glands pleomorphic adenoma	54	14.2
Benign vascular tumour	53	13.9
Benign cystic bone lesions	35	9.2
Fibrous dysplasia	30	7.9
Follicular thyroid adenoma	29	7.6
Lipoma	28	7.4
Fibroepithelial polyp	14	3.7
Ameloblastoma	13	3.4
Neuroblastoma	11	2.9
Dermatofibroma	4	1.1
Fibroma	9	2.4
Glomus tumour	1	0.3
Schwannoma	2	0.5

Continued.

Subtypes of benign head and neck tumours	Frequency (n)	Percentage (%)
Benign skin adnexal tumour	4	1.1
Carotid body tumour	2	0.5
Osteoma	3	0.8
Granular cell tumour	4	1.1
Others	3	1.1
Total	380	100.0

Histological subtypes of benign head and neck tumours

The top common benign HNTs were: squamous papilloma (21.1%), salivary glands pleomorphic adenoma (14.2%), benign vascular tumours (13.9%), benign cystic bone lesions (9.2%), fibrous dysplasia (7.9%) and follicular thyroid adenoma (7.6%) (Table 7).

DISCUSSION

Previous published data on head and neck tumours (HNTs) in Africa were mostly directed at malignant lesions, with very few addressing both benign and malignant conditions.^{1-3,7,8,13} This situation is not very different from other developing countries.^{10,11}

Furthermore, many of the articles were directed at specific anatomical regions or compartments of the head and neck region, with controversy in the anatomical classification of lesions.^{4,7,9,13} However, the current study conducted in the biggest tertiary referral hospital in northern Ghana, had looked at all benign and malignant tumours arising from the head and neck region over a period of 10 years. Again, the current study classified head and neck tumours based on the WHO recommendations.

The current study conducted in the northern part of Ghana, found the relative proportion of HNTs to be 66.0% benign with 34.0% for the malignant ($p < 0.0001$). This picture is similar to findings in previous publications in Africa, and across the globe.^{1-3,10-13}

For instance, Hounkpatin et al in Benin, reported 51.2% benign and 48.8% malignant tumours.¹⁰ Mehrotra et al in India, reported the pattern as 79.3% benign and the 20.7% malignant tumours.¹¹ In southern Ghana, Abdulai et al reported the pattern as 55.1% benign, and 44.9% malignant tumours.² This pattern however, differs from Bhargava et al who reported 28.2% benign and 71.8% malignant tumours respectively.¹⁴ Similarly, Sumit et al reported the rate as 26.78% for benign and 73.2% for malignant tumours respectively.¹⁵

In this study, HNTs were common within the age group 40–49 (11.6%) years and this differs from studies that reported the peak age group among relatively older individuals.¹⁴⁻¹⁶ For instance, Bhargava et al reported a peak of 55–64 years (23.7%) in their study.¹⁴ Head and neck tumours in the Tamale study were slightly (53.6%) common among females, similar to reports of previous

studies, but differs from others studies.^{10-12,14,17} For instance, Al-Mowali et al reported 53.2% for males and 46.8% for females in a study conducted in Basrah.¹⁷

The commonest presentation of HNTs in this current study was a swelling (57.0%), and that the great majority (83.2%) of patients with HNTs presented very late (after 3 months) to health facilities for medical management. Previous published data decades ago on HNTs, identified large tumour size and late presentation of the disease to health facilities as major set-backs in achieving cure for many patients.^{18,19} This may not be very different from for patients with HNTs in northern Ghana.

The common anatomical sites for HNTs in the current study were: odontogenic and maxillofacial bone (18.4%), oral cavity and mobile tongue (18.1%), hypopharynx and larynx (13.9%), neck and lymph nodes (13.4%) and nasal cavity and paranasal sinuses.^{3,12} This pattern differs from other previous studies.¹⁴⁻¹⁶ For instance, Bhargava et al reported the anatomical sites of HNTs as oral cavity (56.2%), skin (9.2%), hypopharynx (8.4%), salivary gland (5.8%), soft tissue (4.7%), maxillary sinus (3.7%) and oropharynx (3.2%).¹⁴ Roychoudhury et al in their study, reported the common sites as; oral cavity (37.5%), thyroid (17%), larynx (16%), salivary gland (10.7%), face (89%) and mastoid (3.5%).¹⁶

The top common histopathological subtypes of HNTs in descending of frequency were: squamous papilloma (13.9%), squamous cell carcinoma (12.8%), salivary gland pleomorphic adenoma (9.4%), benign vascular tumour (9.2%), benign cystic bony lesion (6.1%), fibrous dysplasia (5.2%), lipoma (4.9%), olfactory neuroblastoma (3.5%), spindle cell sarcoma (3.0%) and nasopharyngeal carcinoma (2.6%). The order reported in the current study in northern Ghana differs from Roychoudhury et al who observed the following pattern; squamous cell carcinoma, follicular thyroid adenoma, salivary gland pleomorphic adenoma, papillary thyroid carcinoma, adenoid cystic carcinoma, basal cell carcinoma and capillary haemangioma.¹⁶

Bening head and neck tumours

Published data directed at benign HNTs are not commonly available and this makes comparisons between studies very difficult. The mean age of patients with benign HNTs in the current study was 29.6 ± 19.2 . The tumours were slightly common (57.1%) in females, closed to the 53.8% found by Bhargava et al.¹⁴ The common primary

symptoms of benign HNTs were swellings (85.8%), followed by hoarseness of voice (11.3%). For those presenting with second symptoms, difficulty in breathing was the commonest complaint. Also, majority (79.5%) of patients presented late, after 3 months of onset of the disease. Late presentation of benign HNTs with associated complications have been described in the past by researchers.^{17,20} Arnav et al in South West Punjab argued that, benign HNTs are associated with high morbidity and mortality, because the large tumour size and long duration interfere with the vital functions of life such as breathing swallowing, speech and hearing.¹⁷ Again, Chauhan et al further explained that, patients present late to health facilities with large and neglected tumours due to financial constraints, fear of surgical treatment and ignorance on the part of patient and or patient relatives.²⁰ The reasons outlined by previous studies may not be very different from that in Ghana, although the current study being retrospective in nature in did not seek to find factors associated with late presentation of these tumours.

The common anatomical sites for benign HNTs were: odontogenic and maxillofacial bone (21.6%), oral and mobile tongue (21.3%), hypopharynx and larynx (11.1%), salivary glands (11.1%) and neck and lymph nodes (10.8%). This is a complete departure from Bhargava et al who found the common sites to be scalp (26.1%), oral cavity (24.2%), salivary gland (16.8%), soft tissue (15.0%), and the maxillary sinus (0.9%).¹⁴ Similarly, Munjai et al observed the common sites to be; thyroid (24.3%), glottis (22.6%), oral cavity (14.8%), salivary gland (13.0%), and nose (9.6%).²¹ These differences may be attributed to anatomic classification systems used in previous studies.

The top common benign HNTs in descending were: squamous papilloma, salivary glands pleomorphic adenoma, benign vascular tumours, benign cystic bone lesions, fibrous dysplasia and follicular thyroid adenoma. The pattern observed in the current study differs from that reported in Bhargava et al study, where the order was; haemangioma, squamous papilloma, retention cyst, epuli and fibrolipoma.¹⁴

Malignant head and neck tumours

There is paucity of pushed data on malignant HNTs in Ghana and Africa.^{2,13,22-24} It is, therefore, difficult to extrapolate the true disease pattern in these populations.

In this current study conducted in northern Ghana, malignant HNTs were observed to be slightly common (53.6%) among males. The male predominance as found in this study is in line with previous studies across the globe.^{2,13,25-29} For instance, Amusa et al in Nigeria observed the rate to be 59.0% males and 41.0% female.²⁸ Again, Altumbabić et al in Bosnia and Herzegovina, reported the rate to be males (58.9%) and female (41.1%).²⁹ The pattern however, differs from other reports in the literature that observed female predominance.¹⁸

The mean age (years) of patients with malignant HNTs was 44.9±22.6, with a modal age group of 40–49 (17.0%) years. However, closed to 60.0% were aged 40 years and above. The mean age (years) at diagnosis observed in this study is higher than the 39.4 reported by Erinoso et al and 38.3 by Adeyemi et al studies, both conducted in Nigeria.^{27,30} The mean age in the current study conducted in northern Ghana, is however similar to the 45.08 reported in Ghana by Abdulai et al and by Bhurgri et al in Karachi.^{2,31} It is however, much lower than the 57.8 reported by Onotai et al in Nigeria.³² The peak age (years) for patients diagnosis with malignant HNTs was found to be 40–49 years, higher than the 30–39 observed in Nigeria, but lower than the 51–60 in Ghana and 50–59 in India.^{2,11,28}

The common primary and secondary symptoms of malignant HNTs in this study were swellings (57.1%) and difficulties in breathing (62.0%) respectively. It was also found that, the great majority (79.6%) of patients with malignant HNTs presented after 3 months of onset of the disease. The prognosis of malignant HNTs depends largely on accurate and timely diagnosis, proper and adequate treatment, as observed by Cocks et al about half a decade ago in Nairobi.³³ Late presentation of malignant HNTs have also been reported in neighbouring Nigeria as a poor prognostic indicator of treatment outcome.^{22,34-37} For instance, da Lilly-Tariah et al reported that, over 80% of their population presented very late with the disease.³⁴ Gathere et al argued that, patients with malignant HNTs present late due to the obscure nature of the anatomical site of the tumour, thereby making early diagnosis and management difficult.²² However, other early researchers attributed the late presentation of patients with malignant HNTs for management at health facilities to reasons such as; financial, cultural beliefs, traditional medicine usage and other alternative treatments.³⁴⁻³⁷ Furthermore, Morhason-Bello et al observed low awareness of the cancer burden and a poor understanding of the potential for preventing cancer as a major factors.³⁵ Although the current study in northern Ghana being retrospective in nature, did seek the reasons for late presentation of malignant HNTs, the reasons if seek for, may not be very different from those reported by previous researchers.

The common sites of malignant HNTs in this current study were: hypopharynx and larynx (19.4%), neck and lymph nodes (18.4%), nasal and paranasal sinuses (17.3%), odontogenic and maxillofacial (12.2%) and oral cavity (11.7%). This pattern is a complete departure from many previous studies across Africa that found the oral cavity as the commonest anatomical site.^{17,21,27-29}

For instance, Erinoso et al observed the order to be oral cavity (21.2%), thyroid (15.2%), and orbit (11.4%).²⁷ Munjai et al observed the common sites as oral cavity (31.3%), glottis (20.3%), thyroid (18.0%), supraglottis (7.8%) and face (7.8%).²¹ Similarly, Amusa et al reported the pattern as, oral cavity (36.8%), the neck (26.8%), the thyroid (13.7%), and the esophagus (5.1%).²⁸

The study found the great majority (78.1%) of malignant HNTs to be carcinomas ($p < 0.0001$), followed by lymphomas (11.2%) and sarcomas (6.7%). This supports previous studies conducted in this region of the human body.^{28,29,34,39} For instance, Musa et al found the pattern as carcinomas (67%), lymphomas (16.5%) and sarcomas (10.6%).²⁸

The top five histopathological subtypes of malignant HNTs found in this study were squamous cell carcinoma (37.8%), lymphoma (11.2%), olfactory neuroblastoma (10.2%), spindle cell sarcoma (8.7%) and nasopharyngeal carcinoma (7.7%). This disagreed with Musa et al in their 10-year study at a teaching hospital in Nigeria who reported the order as lymphoma (40.26%), squamous cell carcinoma (25.23%), sarcoma (2.6%), with other minor histopathological variants accounting for 31.9%.²⁸ The current finding further disagreed with Nwawolo et al who found sarcomas as the second most common histopathological subtype.³⁹ Nevertheless, the pattern of histopathological subtypes of malignant HNTs observed in this current study conducted in northern Ghana, agree with numerous studies in other regions of the world with similar patterns.^{2,3,13,32,34,40-42}

The aetiological role of smoking and the risk of carcinoma, particularly squamous cell has been recorded in many previous studies across Africa with varying rates.^{28,43-48} For instance, Ibrahim et al., in Sudan, reported that, 14.0% among their study population had history of smoking, Pacella et al in the Republic of South Africa, observed a value of 96%, Lawal et al and Otoh et al both studies conducted in neighbouring Nigeria reported 25% and 17% respectively.^{43,44,46,47}

However, Oji et al also in Nigeria reported single case of smoking in their study.⁴⁸ The current study in northern Ghana, although retrospective in nature, observed that, 17 (8.7%) of patient with histologically confirmed malignant HNTs had history of smoking and this is within the range of values reported in previous studies.

Limitations

Limitations of our study were small sample size and the retrospective nature, and also the fact that is a single institutional study. The data reflects our specific patient population reporting to the hospital and not the community as a whole, and this may have led to some information bias.

CONCLUSION

Benign tumours were the common neoplastic lesions within the head and neck region. Head and neck tumours were common in relatively young patients and in females. Benign tumours were diagnosed in relatively young patients compared to their malignant counterparts. Patient with malignant tumours presented early to health facilities, compared to those with benign tumours.

Recommendations

A prospective study on head and neck tumours that will take into account geographic location (region, district and town), patient life style (smoking and alcohol consumption), occupation, sources of income, the aetiological agent (infections and other chemicals), management options and survival rates is highly recommended for pathologists and all other specialties with interest on head and neck disorders.

There is also an urgent need for appropriate educational and health related programmes by the Ministry of Health and the Ghana Health Service, directed at early reporting of head and neck disorders to health facilities for prompt and appropriate medical management.

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