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A 10-year review of the clinicopathological patterns and prevalence of head and neck lesions in a tertiary health facility in Uyo, South-South Nigeria

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ABSTRACT

Objectives: Head and neck (HN) lesions occur globally, with remarkable morbidity and mortality. However, in our setting, relevant data are lacking to show its clinicopathologic nature. Hence, we aimed to review the clinicopathological patterns and incidence of HN lesions within a 10-year (January 2010 to December 2019) period as well as provide useful data/information to help in better future management of patients with HN lesions.

Material and Methods: A retrospective cross-sectional study of HN lesions (with respect to age, gender, site of lesion, and histopathological diagnosis) at the University of Uyo Teaching Hospital Uyo from January 2010 to December 2019.

Results: A total of 276 HN lesions were analyzed over a 10-year period, with a prevalence of 0.004. Patients with the highest volume of HN lesions were within the 30–<40 age group. The lesions were more in females (53.6%) with M: F ratio of 1:1.2. There were more neoplastic HN lesions (85.1%) than non-neoplastic HN lesions (14.9%). The benign HN lesions (67.7%) were also more frequent than the malignant HN lesions (32.3%). And the benign neoplastic HN lesions (79.5%) were more than benign non-neoplastic HN lesions (20.5%).

Conclusion: The most common HN lesions, respectively, in different subcategories, found in this study were squamous cell carcinoma, nodular goiter, inflammatory nasal polyps, and cystic hygroma. We recommend study of HN lesions' possible etiologic/risk factors as well as a nationwide survey to determine a national prevalence of HN lesions.

Keywords: Clinicopathological patterns, Head and neck lesions, Uyo

INTRODUCTION

Lesions of the head and neck (HN) are diverse and ranges from simple allergic inflammatory polyposis to malignancies. They occur globally and affect individuals in both pediatric and geriatric populations.[1-4] Patients with lesions of the HN present commonly in many surgical out-patient clinics, including the ear, nose, and throat clinics. The HN lesions can be classified into congenital, inflammatory, or neoplastic types.[5] However, its classification has enjoyed wide variability among many researchers making comparison of trends and patterns difficult across geographical boundaries.[6-8]

Anatomically, HN region harbors numerous specialized tissues of all lineages, namely: skin, soft tissue, upper aerodigestive tract elements (laryngopharynx, nose, and paranasal sinuses), ears,

endocrine glands (pituitary, thyroid, and parathyroid), lymph nodes, thymic and mucosa-associated lymphoid tissue, oral, dental, ocular, bone, joint, peripheral, and central nervous system tissues.[9,10] A plethora of different disease entities including those of the skin adnexa, upper aerodigestive tract, major and minor salivary glands, accessory mucus glands, ceruminous glands, and lacrimal glands are often encountered within this region because of its peculiar anatomical variety.[9]

Histopathological evaluation of these lesions remains the gold standard in definitive tissue diagnosis and treatment.[1,9] Relevant literatures reviewed for this study revealed that for children under 15 years, 90% of their neck masses are benign, of which up to 55% may be congenital. Conversely, approximately 80% of non-thyroid neck masses in the adult population are neoplastic lesions, 80% of which are malignant (metastatic) lesions.[5,11] The developmental lesions of the HN region include cystic hygromas, hemangiomas, branchial cleft anomalies, preauricular pits/sinuses/cysts, thyroglossal duct cysts, dermoid and epidermoid cysts, among others. Inflammatory lesions of the HN region are common; affecting mainly the skin, mucosal linings and lymphoid tissues. Sometimes, infected congenital lesions of the HN region can mimic primary inflammatory lesions of the HN region. It is worth noting also that malignant lesions of the HN region, including carcinoma, lymphoma, sarcoma, and neuroblastoma are rare. The etiology of some of these HN malignant lesions are unknown; however, some risks factors such as cigarette smoking, alcohol consumption, prolonged exposure to ionizing radiations, petrochemicals, hard wood dust, and viruses (Human Papilloma virus and Epstein Barr virus) have all been implicated in carcinogenesis.[12]

Globally, only few studies have focused on histopathological spectrum of lesions of the HN region including congenital, inflammatory, benign, and malignant lesions.[13] To the best of our knowledge, this is a pioneer retrospective study in our tertiary healthcare facility aimed at reviewing the clinicopathological patterns and incidence of HN lesions within a 10-year (January 2010 to December 2019) period. Furthermore, we also aim to provide useful data/information from this study to help in better future management of patients with HN lesions.

MATERIAL AND METHODS

This is a retrospective review of HN lesions (with respect to age, gender, site of lesion, and histopathological diagnosis) at the University of Uyo Teaching Hospital (UUTH) Uyo from January 2010 to December 2019. We carried out this study according to the World Medical Association Helsinki Convention guidelines following local ethical approval from the University of Uyo Teaching Hospital Research and Ethical Review Committee (UUTH/AD/S/6/VOL.XXI/465).

All relevant clinical information were retrieved from the biopsy report register of the histopathology department (which keeps archives of histopathology reports, microscopic slides, and paraffin blocks of patients' biopsies) and corresponding patient's case files. All the surgical tissue biopsy specimens included in this study were previously received at the histopathology department, grossed, and processed using standard tissue handling protocols and stained with routine hematoxylin and Eosin (H and E) stains in the histopathology laboratory. The respective microscopic slides were retrieved from the archives and reviewed for diagnostic accuracy by the consultant anatomical pathologists, based on established microscopic histopathological diagnostic criteria for HN lesions. In cases, where the retrieved slides were faded, new H and E stained paraffin sections were made for definitive reviews. The HN lesions were classified based on site using the International Classification of Disease – tenth edition. Excluded from the study were intracranial and orbital lesions, as well as those cases in which the case file, histopathology slide and/or tissue blocks could not be found/traced. The age grouping pattern recommended for morbidity in health by the Department of International Economic and Social Affairs of the United Nations was used. It categorizes as follows: 1–14 years (children), 15–24 years (young adults or adolescents), 25–44 years (older adults), 45–64 years (middle aged), and ≥65 years (elderly).[14]

Data collected were recorded on Microsoft Excel spread sheet and analyzed using Statistical Package for the Social Sciences version 17 (SPSS 17). The result generated from analysis was presented in tables, figures, and photomicrographs, and then compared with results from similar published work by other researchers. The statistical test of significance was done using Z test (two tail test) with the level of significance set at 5%.

RESULTS

A total of 7823 histopathology requests were received within the period of study (January 2010 to December 2019). Interestingly, 276 (3.5%) of these histopathology requests were HN lesions, hence giving a prevalence of 0.004 cases/year (over a 10-year period). However, 275 out of the 276 specimens were eligible for this study because one sample had an "Inadequate for histopathologic diagnosis" histopathology report. Overall, there was an initial slow increase in the number of new cases of HN lesions yearly until year 2018 when a sharp increase in the number of lesions was observed [Figure 1]. It is of note, also, that the ages of patients in this study ranged from 7 to 97-years-old. Interestingly, we found that these HN lesions were mostly seen in the 4th decade of life (22.0%) followed by the 3rd decade of life (18.7%). We further noted a decline in

number of HN lesions from the 6th decade (10.4%) down and similarly fewer HN lesions in the 1st and 2nd decades of life (15.7%). Furthermore, we found that HN lesions were more commonly seen in females (53.6%) than in males (46.4%), giving a male to female ratio of 1:1.2 [Tables 1 and 2].

On categorical analysis we found a variety of lesions in this study, of which neoplastic lesions (85.1%) were more prevalent than non-neoplastic lesions (14.9%). Furthermore, we found that benign lesions (67.7%) were more frequent than malignant lesions (32.3 %) within our study period. It is of note that the most common malignant HN lesion in our study is squamous cell carcinoma (21.6%), followed by lymphoma (14.9%) and nasopharyngeal carcinoma (9.5%) [Figures 2-4]. Interestingly, 79.5% (155/195) of the benign HN lesions were neoplastic, while 20.5% (40/195) of them were benign non-neoplastic HN lesions. The benign non-neoplastic HN lesions comprised inflammatory (38/42) and developmental lesions (5/42). It is of note that the most common benign neoplastic HN lesion was nodular goiter (16.03%), followed by lipoma (12.82%), whereas the most common benign non-neoplastic HN lesions were inflammatory polyps (50%), among inflammatory lesions subcategory, and cystic hygroma (60%), among developmental lesions subcategory, within our study period [Tables 3-6].

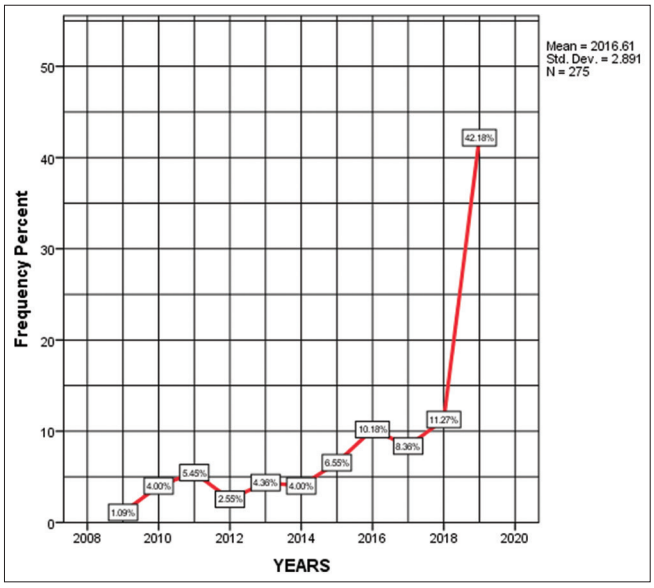

Figure 1: Yearly distribution of head and neck lesions.

Notably, the HN lesions were most commonly seen in the nose (18.8%), neck (17.8%), and thyroid gland (15.6%) while the tongue and oropharynx had the least number (0.36% each) [Table 7].

DISCUSSION

A critical analysis of our findings showed that generally HN lesions were found mostly among individuals within the 4th decade of life (22.0%) followed closely by the 3rd decade of life (18.7%). This finding can be explained by the fact that, the older patients in our setting are mostly retirees and ailing dependents, lacking sufficient economic ability to access specialized tertiary health care, unlike the younger patients. However, this is inconsistent with studies by Khetrapal *et al.*, Sharma *et al.* and Lei *et al.* who found their peak age group for HN lesions to be 3rd, 5th, and 6th decades of life, respectively.[6-8] The reason for this inconsistency is not clear; but could be because of the inherent socio-demographic and health-economic differences between our setting and the settings in which these reviewed studies were done.

It is of note that HN lesions were found more prevalent in females (53.6%) than males (46.4%), with a male to

Table 1: Age and sex distribution of head and neck lesions.

Variable	Group	Type of lesion		Total (100%)
		Neoplastic (85.1%)	Non-neoplastic (14.9%)	
Age (Years)	0–<10	12 (5.3)	8 (20)	20
	10–<20	18 (7.9)	4 (10)	22
	20–<30	34 (14.9)	16 (40)	50
	30–<40	53 (23.2)	6 (15)	59
	40–<50	45 (19.7)	3 (7.5)	48
	50–<60	27 (11.8)	1 (2.5)	28
	60–<70	24 (10.5)	1 (2.5)	25
	70–<80	11 (4.8)	1 (2.5)	12
	80–<90	3 (1.3)	0 (0)	3
	≥90	1 (0.4)	0 (0)	1
	Total	228 (100)	40 (100)	268
Sex	Female	128 (54.0)	19 (51.4)	147 (53.6)
	Male	109 (46.0)	18 (48.6)	127 (46.4)
	Total	237 (100)	37 (100)	274 (100)

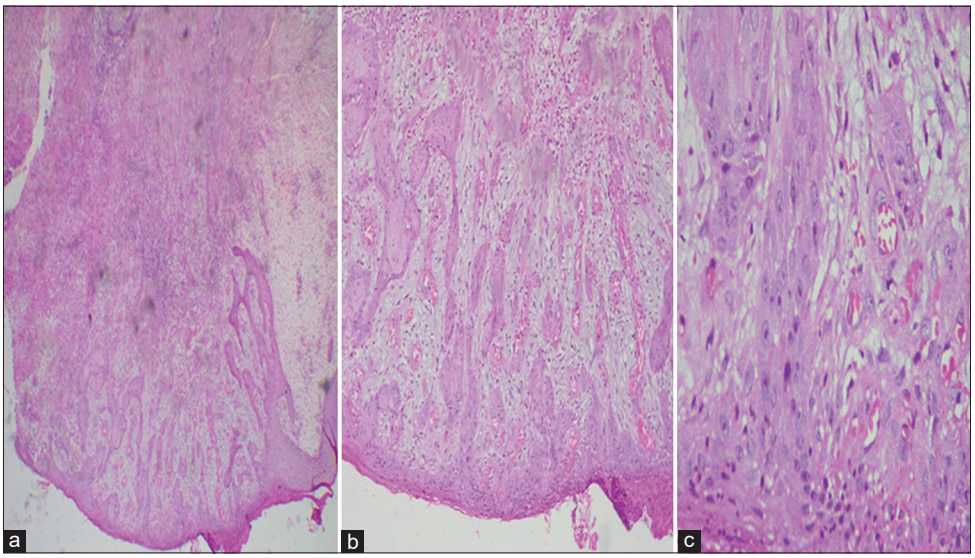

Figure 2: Histopathologic sections from a facial mass biopsy specimen, within our study period, shows (a) an invasive malignant epithelial neoplasm composed of cords and trabeculae of atypical keratinocytes (×40), which are disposed as (b) cords and anastomosing trabeculae of atypical keratinocytes within a background myxoid stroma containing numerous capillary sized blood vessels (×100), and cytomorphologically display (c) round to oval shaped cells with scant eosinophilic cytoplasm having large nuclei with double nucleoli as well as a focus of nuclear pleomorphism (×400). These features are consistent with a Squamous Cell Carcinoma diagnosis.

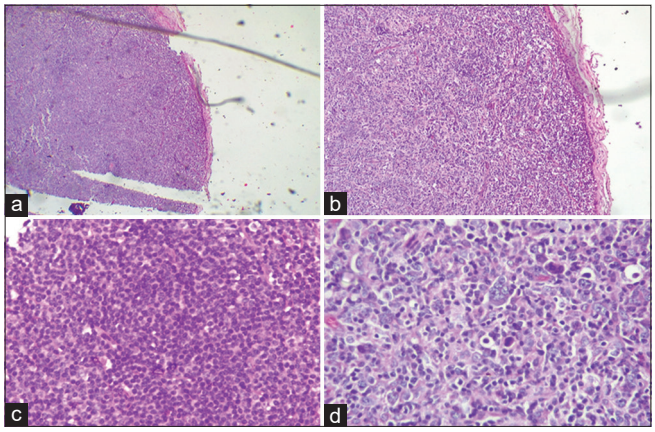

Figure 3: Histopathologic sections from a cervical lymph node biopsy specimen, within our study period, shows (a) complete effacement of lymph architecture by sheet of malignant basophilic cells (×40), with (b) no reactive germinal centers (×100), composed of (c) sheet of round to oval basophilic cells with scant eosinophilic cytoplasm (×400), as well as (d) malignant bizarre lymphoid cells, large histiocytes and few inflammatory cells (×400). These features are consistent with a Non-Hodgkin Lymphoma.

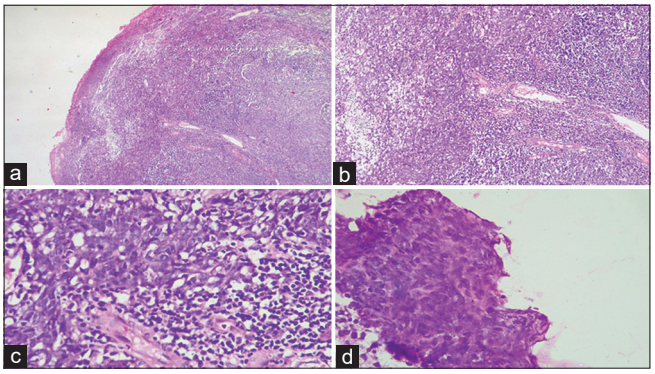

Figure 4: Histopathologic sections from a nasopharyngeal biopsy specimen, within our study period, shows (a) a diffusely invasive malignant epithelial neoplasm composed of dark staining cells (×40), composed of (b) atypical cells within an inflammatory background (×100), and cytomorphologically (c) and (d) the lesional cells are round to oval in shape having scant eosinophilic cytoplasm which harbor round nuclei with occasional prominent nucleoli and are intimately admixed with chronic inflammatory cells infiltrate in areas (×400). These features are consistent with a Nasopharyngeal Carcinoma diagnosis.

female ratio of 1:1.2. Consistent with this ratio, more of both the neoplastic (54.0%) and non-neoplastic (51.4%) lesions of the HN region occurred in females than in males. This finding could be because of higher health seeking behavior by females than males in our setting, particularly for HN cosmetic and sociocultural needs, especially for marital purposes. On the contrary, Sharma *et al*. and Lei *et al*. found their male to female ratios to be 1.37:1 and 1.3:1, respectively.[6,7] The reason for the higher male ratio proportion in these reviewed studies, could be because of better health seeking behavior among the men in their setting.

It is also important to note that majority of these neoplastic lesions of the HN were found in patients within the 4th (23.2%) and 5th (19.7%) decades of life; with findings decreasing with increasing age. Similarly, majority of the non-neoplastic

Table 2: Age and sex distribution of neoplastic lesions of head and neck.

Variables	Group	Benign (67.7%)	Malignant (32.3%)	Total (100%)
Age	0–<10	6 (3.9)	5 (6.8)	11
	10–<20	12 (7.7)	6 (8.1)	18
	20–<30	29 (18.7)	7 (9.5)	36
	30–<40	38 (24.5)	15 (20.3)	53
	40–<50	30 (19.4)	15 (20.3)	45
	50–<60	22 (14.2)	5 (6.8)	27
	60–<70	11 (7.1)	13 (17.6)	24
	70–<80	5 (3.2)	6 (8.1)	11
	80–<90	2 (1.3)	1 (1.4)	3
	91–<100	0 (0)	1 (1.4)	1
	Total	155 (100)	74 (100)	229
Sex	Female	89 (56.7)	34 (45.9)	123 (53.2)
	Male	68 (43.3)	40 (54.1)	108 (46.8)
	Total	157 (100)	74 (100)	231 (100)

Table 3: Frequency distribution of malignant lesions of head and neck.

Diagnosis	Frequency (%)
Adenoid Cystic Carcinoma	4 (5.4)
Adeno-Squamous Carcinoma	1 (1.4)
Basal Cell Carcinoma	3 (4.0)
Basosquamous Cell Carcinoma	1 (1.4)
Carcinoma Ex-Pleomorphic Adenoma	1 (1.4)
Follicular Carcinoma	1 (1.4)
Kaposi Sarcoma	1 (1.4)
Malignant Lymphoma	11 (14.9)
Malignant Mesenchymal Tumour	3 (4.0)
Malignant Neuroectodermal Tumour	1 (1.4)
Malignant Peripheral Nerve Sheath Tumour	1 (1.4)
Metastatic Carcinoma	5 (6.7)
Mucoepidermoid Carcinoma	4 (5.4)
Nasopharyngeal Carcinoma	7 (9.5)
Papillary Carcinoma	4 (5.4)
Poorly Differentiated Carcinoma	2 (2.7)
Retinoblastoma	1 (1.4)
Small Round Blue Cell Tumour	1 (1.4)
Squamous Cell Carcinoma	16 (21.6)
Transitional Cell Carcinoma	1 (1.4)
Total	47 (100)

lesions of the HN region were found in patients within the 3rd decade of life (40%) and distantly followed by patients in the 1st decade of life (20.0%). This further buttresses the higher health seeking behavior of the younger individuals than the older ones in our setting. However, the 1st decade of life patients come to the fore here possibly because of HN cosmetic needs.

Interestingly, the neoplastic lesions (85.1%) of the HN region were more prevalent than non-neoplastic lesions (14.9%) in our study. This again could be because of health seeking behavior engendered by HN cosmetic needs given that neoplastic HN lesions form noticeable HN bumps/distortions that can be surgically remedied. Furthermore, on subcategorization of these HN neoplastic lesions, we found that benign lesions (67.7%) of the HN region were also more common than the malignant lesions (32.3%). This finding could be because of lesser existence of the risk factors necessary to develop malignant HN lesion in our setting. Even though these risk factors were not explored in our study, it will form a viable theme for our future research. Our findings for the benign and malignant HN lesions is consistent with most of the literatures reviewed for this study.[2-5,8] Similarly, the finding of the lower proportion of malignant HN lesion in this study is consistent with many other reviewed articles.[6,12,13,15] The reason for this lower proportion of malignant HN lesions could be as a result of lower exposure to etiologic agents/risk factors necessary for their development. In contrast, however, Lei *et al*. found malignant HN lesions to be more frequent than benign HN lesions.[7] This could be as a result of higher exposure to more etiologic agents/risk factors necessary for the development of malignant HN lesions in their setting. Notably, however, we found that while majority of the benign lesions of the HN region involved females (56.7%) and majority of the malignant lesions of the HN region involved males (54.1%). The reason for this finding is not clear; however, it is possible that in our setting, female sex hormones might be playing a protective role against malignant HN lesion development in females, while the male sex hormone maybe playing the role of a risk factor in males. Hence, further study along this line is needed to explore and verify this hypothesis. With regard to lifestyle also, majority of the men in our setting indulge in consuming alcoholic beverages and smoking cigarettes. These substances have been documented to have synergistic effect in the etiology of cancers globally.[1,9,16] It is also interesting to note that majority of these malignant neoplastic lesions of the HN region were found in patients

Table 4: Frequency distribution of benign neoplastic lesions.

Diagnosis	Frequency (%)
Acrospiroma	1 (0.6)
Ameloblastic Fibroma	2 (1.3)
Ameloblastoma	5 (3.2)
Angiofibroma	1 (0.6)
Basal Cell Adenoma	3 (1.9)
Basal Cell Epithelioma	1 (0.6)
Benign Lymphoepithelial Cyst.	1 (0.6)
Cementifying Fibroma	2 (1.3)
Chondroid Syringoma	2 (1.3)
Colloid Goiter	6 (3.9)
Conjunctival Intraepithelial Neoplasia	1 (0.6)
Dentigerous Cyst	1 (0.6)
Dermatofibroma	1 (0.6)
Dermoid Cyst	2 (1.3)
Epidermoid Cyst	1 (0.6)
Epulis	1 (0.6)
Fibroepithelial Polyp	1 (0.6)
Fibrohistiocytoma	1 (0.6)
Fibroma	3 (1.9)
Fibromyxoma	1 (0.6)
Fibrous Dysplasia.	1 (0.6)
Follicular Adenoma	5 (3.2)
Follicular Tumour Of Uncertain Malignant Potential	1 (0.6)
Giant Cell Tumour Of Soft Tissue	1 (0.6)
Grave's Disease	1 (0.6)
Haemangioma	6 (3.9)
Hamartoma	4 (2.6)
Hidrocystoma	4 (2.6)
Inclusion Cyst.	4 (2.6)
Keloid	1 (0.6)
Lichen Planus	1 (0.6)
Lipoma	20 (12.8)
Malignant Mesenchymal Tumour	1 (0.6)
Meningothelial Meningioma	1 (0.6)
Nevus	2 (1.3)
Neurofibroma	2 (1.3)
Nodular Goiter	25 (16.0)
Odontogenic Cyst	1 (0.6)
Odontogenic Fibroma	2 (1.3)
Ossifying Fibroma	3 (1.9)
Paraganglioma	1 (0.6)
Pleomorphic Adenoma	8 (5.1)
Plexiform Schwannoma	1 (0.6)
Pyogenic Granuloma	8 (5.1)
Salivary Duct Carcinoma	1 (0.6)
Sclerosing Polycystic Adenosis.	1 (0.6)
Sinonasal Papilloma	6 (3.9)
Sinus Histiocytosis With Massive Lymphadenopathy	2 (1.3)
Squamous Papilloma	3 (1.9)
Trichoepithelioma	1 (0.64)
Verruca Vulgaris	1 (0.64)
Total	156 (100)

Table 5: Frequency distribution of inflammatory lesions of head and neck.

Variables	Group	Frequency	Percentage
Inflammatory	Chronic Granulomatous Inflammation	12	31.6
	Inflammatory Polyp	19	50.0
	Lymphoid Hyperplasia	7	18.4
	Total	38	100

Table 6: Frequency distribution of developmental lesions of head and neck.

Variables	Group	Frequency	Percentage
Developmental	Branchial Fistula	1	20.0
	Cystic Hygroma	3	60.0
	Thyroglossal Duct Cyst	1	20.0
	Total	5	100

Table 7: Anatomical sites/locations of lesions of head and neck.

Variable	Group	Frequency	Percentage
Sites	Ear	3	1.1
	Eye	12	4.4
	Face	3	1.1
	Forehead	12	4.4
	Gum	3	1.1
	Larynx	7	2.6
	Lip	4	1.5
	Mandible	5	1.8
	Maxilla	9	3.3
	Mouth	16	5.8
	Nasopharynx	8	2.9
	Neck	49	17.8
	Nose	51	18.6
	Oropharynx	1	0.4
	Palate	2	0.7
	Parotid	16	5.8
	Scalp	10	3.6
	Sub mandible	10	3.6
	Thyroid	43	15.6
	Tongue	1	0.4
	Tonsil	10	3.6
	Total	275	100

within the 4th and 5th decades of life (20.3% each) and this is closely followed by patients within the 7th decade of life (17.6%%). This finding is in keeping with the already known

fact that, generally, malignant lesions' occurrence becomes commoner with advancing age.[9,16]

Importantly, we found that the most common malignant neoplastic lesion of the HN region, in our setting, was squamous cell carcinoma (21.6%) and this is followed by nasopharyngeal carcinoma (9.5%) and metastatic carcinoma (6.7%). The reason for this finding is not known given that the risk factors for malignant HN lesion development were not explored and correlated in this study. However, it could be due to prolonged exposure to carcinogenic environmental pollutants particularly cigarette smokes (both through active and passive smoking), hydrocarbons from gas flaring, and petrochemicals found abundantly in this region. Hence, further studies along this line are needed to explore and verify this hypothesis. Many other studies also found squamous cell carcinoma as the commonest malignant HN lesion in their respective settings.[6,7,13] In contrast, however, Khetrapal *et al*. in their study found lymphoma to be the most common malignant HN lesion in their environment.[8] The reason for this could be as a result of preponderance of lymphoma-inducing risk factors rather than squamous cell carcinoma-inducing risk factors in their setting.

It is important to note that on further subcategorization of the benign lesions of the HN region, we found that benign neoplastic lesions (79.5%) were higher than benign non-neoplastic lesions (20.5%). This finding could, again, be because of health seeking behaviors engendered by HN cosmetic needs given that HN benign neoplastic lesions form noticeable HN bumps/distortions that can be remedied by HN surgery unlike the non-neoplastic HN lesions in which patients with them are likely to choose self-medication as a treatment option in our setting. It is also important to note that we found majority of these benign neoplastic lesions of the HN region in patients within the 4th decade of life (24.5%) and this is closely followed by patients within the 5th decade of life (19.4%).

Again, the most common benign neoplastic lesion of the HN region was nodular goiter (16.0%) and this is followed by lipoma (12.8%), pleomorphic adenoma (5.1%) and pyogenic granuloma (5.1%). This finding could, again, be because of health seeking behavior engendered by HN cosmetic needs, particularly in this context, the anterior neck (with the thyroid gland) region, given that neoplastic HN lesions form noticeable HN bumps/distortions that can also be corrected by HN surgeries.

Furthermore, we also found that on subcategorizing benign non-neoplastic lesions of the HN region, inflammatory lesions (38/42) were more prevalent than developmental lesions (5/42). Ghosh *et al*. also reported very low cases of developmental HN lesions.[13] This finding could be because of higher exposure to infective agents as well as air pollutants which cause inflammatory HN lesions in our environment, than teratogenic agents known to cause developmental anomalies. Interestingly also, we found that the commonest inflammatory lesion of the HN region in our setting, was inflammatory polyp (50.0%) and this is followed by chronic granulomatous inflammation (31.6%). This finding maybe because of existence of more air pollutants/irritants in our setting, which are known etiologic/risk factors for inflammatory polyps, than infective agents (particularly *Mycobacterium tuberculosis*), which are implicated in HN chronic granulomatous inflammation. Hence, further study along this line is needed to explore and verify this hypothesis. Some studies found inflammatory lesions, particularly chronic granulomatous inflammation to comprise a significant proportion of the HN lesions in their settings.[6,8] This may be due to preponderance of infective agents in their environment, particularly *M. tuberculosis*. It is of note that we found very few developmental lesions of the HN region in our study. The most common was cystic hygroma (60.0%), then branchial fistula (20.0%) and thyroglossal duct cyst (20.0%). The reason for this finding is not clear. However, it maybe because of lower health seeking behavior by parents/care givers, in our setting, due to adverse socioeconomic factors or maybe due to lower exposure of mothers to teratogenic agents required to develop this lesion in our environment. Hence, also, further study along this line is needed to explore and verify this hypothesis. Kim *et al*. in their study, found more congenital HN lesions, including hemangioma, preauricular pits/sinuses/cysts, dermoid, and epidermoid cysts.[12] The preponderance of congenital HN lesions in their study could be as a result of more exposure to teratogenic agents known to cause these lesions.

On topographic analysis of these HN lesions, we found the nose (18.6%) to be the most common anatomical site of involvement. Non-thyroid gland lesions of the neck were 17.8%, while thyroid gland lesions were 15.6%. This could be because of the delicate nasal epithelium which is in incessant direct contact with irritative/allergic adverse environment agents. The presence of the thyroid gland in the fore could also be because of higher exposure of these patients to goitrogens as well as other substances toxic to the thyroid gland in our setting, and also cosmetic reasons. This topographical variation in localization of HN lesions found in this study is consistent with that found in similar studies reviewed for this work.[1,9,10]

Interestingly, on critical analysis of the yearly distribution of these HN lesions in our setting, we found that the year 2019 had the highest number of HN biopsy specimens (42.18%) for histopathological evaluation and this is distantly followed by years 2018 (11.27%) and 2016 (10.18%), respectively. Overall, this graph [Figure 1] indicates an initial gradual

upward trend and a terminal steep upward trend in the volume of HN biopsy specimens being submitted to the histopathology department for evaluation and diagnosis. This finding could be because of upgrading (personnel and equipment) of the departments involved with taking care of HN lesions in our tertiary health-care facility as well as, possibly, increasing health seeking behavior for HN lesions' treatments in addition to better health education and advocacy in our setting.

To the best of our knowledge, this study is the first attempt in our locality, at providing the prevalence of HN lesions (0.004 cases/year) over a 10-year period. This is one of our major contributions to knowledge in this research project, hence filling this knowledge gap. However, this low incidence of HN lesions could be, generally, as a result of low health seeking behavior or relative absence of the etiologic agents necessary to develop these HN lesions in our environment over the study period. Therefore, a further study along this line is needed to explore or verify this hypothesis. Interestingly, worldwide incidence of HN lesions is scarce; however, there are more than 650,000 cases of HN cancers annually worldwide with approximately 330,000 deaths.[17] Similarly, incidence of HN lesions in Nigeria is scarce. However, Erinoso *et al*. in their study in Lagos reported HN cancer prevalence of 99 cases/year, Akinshipo *et al*. reported 47 cases/year in North-western Nigeria, while Kanu *et al*. reported 14 cases/year in Calabar.[15,18,19] Thus, there is a great need to conduct a nationwide multicenter study to determine the incidence of HN lesions in Nigeria, particularly for HN malignant lesions.

The limitations of our study are intrinsic to its retrospective nature in that we are not in major control of the entry of all the historical/archival data; particularly those of the initial study period era, which we did not enter by ourselves; hence, cannot account for missing data. Furthermore, some historical data like the risk factors for malignant lesions of the HN region, including cigarette smoking, alcohol consumption, prolonged exposure to ionizing radiation, petrochemicals, hard wood dust, viruses (HPV and EBV), and explored in studies reviewed for this project could not be surveyed. Hence, a robust prospective multicenter clinico-pathological study of HN lesions, as a further study in our setting will be a good way to explore these risk factors for malignant lesions of the HN region in our setting.

CONCLUSION

Our survey of HN lesions over a 10-year period has revealed a prevalence of 0.004 cases/year, with a male to female ratio of 1:1.2 and a 4th decade of life peak age group. The commonest HN lesions found were squamous cell carcinoma, nodular goiter, inflammatory nasal polyps, and cystic hygroma. We recommend a longitudinal study of the possible etiologic/risk factors that can cause these lesions as well as a nationwide survey to determine Nigerian HN lesions' incidence.

Declaration of patient consent

Institutional Review Board (IRB) permission obtained for the study.

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Conflicts of interest

There are no conflicts of interest.

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