

Sinonasal Malignancies: A 10-Year Review in a Tertiary Health Institution

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Sinonasal malignancy is a cause of otorhinolaryngologic morbidity and mortality in West Africa. However, there is a dearth of information in the literature on its clinicopathologic presentation in West Africa. It is our aim to determine the prevalence of sinonasal malignancy and highlight the clinicopathologic features in our environment. A 10-year retrospective review of cases with histologically diagnosed malignant sinonasal tumors in University College Hospital, Ibadan, Oyo State, Nigeria was carried out. There were 82 cases—56 (68.29%) males and 26 (31.71%) females—whose ages ranged from 4–69 years. Epistaxis, rhinorrhea and nasal blockage were seen in all patients; other symptoms were facial [76 (93%)], oral cavity [48 (59%)], ophthalmic [33 (40%)] and [otologic 21 (25%)]. Squamous cell carcinoma accounted for 69/75 (92%) of epithelial tumors, and malignant lymphoma accounted for 4/7 (57%) of nonepithelial tumors. Advanced disease was the predominant presentation in our series, stage 3 in 59 (79%) and stage 4 in 12 (16%) cases. Therefore, health education on early presentation to hospitals and efforts at early detection of the disease are needed in order to achieve cure. Industrial workers should always wear face masks to protect their nasal cavity.

Key words: tumor ■ pathology ■ sinonasal malignancy ■ clinicopathologic ■ Nigeria ■ epithelial

© 2007. From the Department of Otorhinolaryngology, University College Hospital, Ibadan, Oyo State, Nigeria. Send correspondence and reprint requests for *J Natl Med Assoc.* 2007;99:1407–1410 to: Dr. Ayotunde J. Fasunla, Senior Registrar, Department of Otorhinolaryngology, College of Medicine of University of Ibadan, University College Hospital, PMB 5116, Ibadan, Nigeria; e-mail: ayofasunla@yahoo.com

INTRODUCTION

Malignant tumors constitute a small percentage of sinonasal pathologies;¹ nevertheless, they constitute a significant cause of otorhinolaryngologic morbidity among Africans. Most of these tumors arise from the maxillary sinus and are predominantly squamous cell carcinoma.^{1,2}

Exposure to substances such as wood dust, textile or leather dusts, nickel, isopropyl oils, among others, has been implicated as a predisposing factor to sinonasal

malignancies.^{3,4} The symptoms depend on the site and extent of tumor involvement. Epistaxis often accounts for hospital presentation, though there could be orofacial, ophthalmic and cerebral symptoms in advanced disease. However, the dearth of literature on the clinicopathologic behavior of this disease in West Africa is remarkable. Our aim is to report the prevalence and clinicopathologic features of malignant sinonasal tumors seen in our center.

MATERIALS AND METHODS

This was a 10-year retrospective study of all patients managed for malignant sinonasal lesions in University College Hospital, Ibadan, Oyo State, Nigeria from 1996–2006. Patients' data collected from their case notes and Ibadan cancer registry records included demographic data (age, sex), presenting symptoms and their duration, and tumor characteristics (site, stage and histologic subtypes).

Those with incomplete clinical entries/histological reports were excluded from this study. The data were analyzed using simple descriptive method and the results presented in tabular forms.

RESULTS

Malignant sinonasal tumors constituted 59.42% of the 138 sinonasal neoplasms seen during the study period. This formed 1.57% of the total 5,224 rhinologic cases. There were 56 (68.29%) males and 26 (31.71%) females with a male:female sex ratio of 2.15:1. The age ranged from 4–69 years with a mean age of 43.91 years and with the peak age at the fifth decade for epithelial sinonasal malignancies and second and third decades for nonepithelial sinonasal malignancies. However, the mean age of patients with squamous cell carcinoma was 48.98 ± 17.30 years.

Histologic analysis revealed that 75 (91.46%) were epithelial tumors, while seven (8.54%) were nonepithelial tumors. Squamous cell carcinoma accounted for 90.67% of the epithelial tumors and 82.93% of the malignant sinonasal tumors. Rhabdomyosarcoma (14.29%) accounted for the least percentage of the non-

epithelial tumors (Table 1).

The duration of symptom at presentation ranged between 3–15 months, with a mean of 8.5 months. Most of these patients (82.93%) belonged to low socioeconomic class, while 4.89% belonged to high socioeconomic class. The right sinonasal region only was involved in 40 (48.78%) patients and left sinonasal region only in 38 (46.34%) patients, while four (4.88%) patients had bilateral involvement.

The various clinical presentations were as shown in Table 2, and epistaxis was seen in 100% of the patients.

The site of origin of the tumor could not be determined in our patients because at presentation, the tumor had spread to involve more than one anatomic site of the paranasal sinuses and nose in the majority of the cases (Table 3).

Seven of our patients were wood workers, two were involved in welding jobs, four were electronic technicians that solder, and one had worked in a textile factory. Other patients were traders, civil servants and students.

Fifty-nine (78.67%) of our 75 patients with epithelial tumors were at stage 3 at diagnosis, while none presented at stage 1 (Table 4).

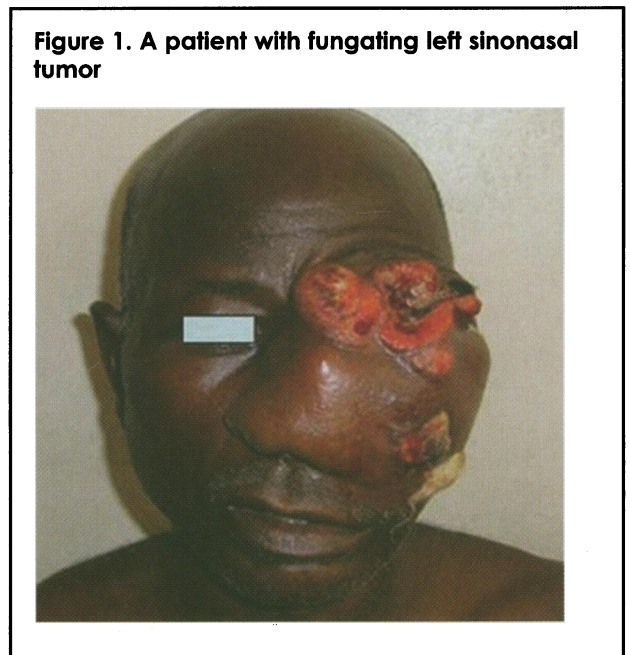
DISCUSSION

Sinonasal carcinoma represents 3% of all head and neck malignancies and 0.2–0.8% of all malignancies in the body.⁵ In this study, sinonasal malignancies accounted for 1.57% of all rhinologic diseases. The predominance of males seen in this study is similar to other reports in the literature.¹² Our study showed that the squamous cell carcinoma was found at a younger age compared to previous reports.^{4,7,8} This may be attributable to the lower life expectancy in Nigeria, which is 44 years when compared to other countries.⁹ The average duration at presentation in this study was 8.5 months. The delay in presentation could be attributed, not only to the nonspecific symptoms of the lesion at an early stage but also to the sociocultural beliefs and practices of the people in this environment, which lead to delay in presenting to the hospital (Figure 1). In addition, contem-

porary radiologic examination tools such as computerized tomographic (CT) scan and magnetic resonance imaging (MRI), which are effective tools for early detection of these sinonasal lesions, are not readily available and affordable in most practices in the subregion.^{10,11} Various environmental factors, especially the industrial agents, have been reported as known predisposing factors to sinonasal malignancies.¹²⁻¹⁵ In this study, exposure to environmental risk factors for sinonasal neoplasms was seen in only 14 (17.07%) cases; hence, our impression was that the factors that predispose our patients to the disease were yet to be identified. Further studies may be indicated in order to find out these factors in our environment. Exposure to wood dust was found in two (50%) of our patients with adenocarcinoma, and this agrees with previous studies that had implicated wood dust in the etiology of adenocarcinoma.^{7,13} The offending substances in the wood dusts have been reported to be formic acid and hydrocarbon produced by pyrolysis of wood. The furniture makers who are likely to be exposed to the fine wood dusts of threshold >5mg/m³/day are at greater risk.¹³

The presentation of sinonasal malignant tumor depends on the site involved and direction of spread. Approximately 55% of sinonasal tumors originate from the maxillary sinus, 35% from the nasal cavity, 9% from the ethmoid sinus and the remainder from the frontal and sphenoid sinuses.¹⁶ In our study, the site of origin of the tumor could not be determined, as most of our patients had large tumors which had spread to involve adjacent structures before presentation (Figure 2). Sixty-two (82.67%) of our patients with sinonasal carcinoma had involvement of maxillary antrum, ethmoid and nasal cavity at presentation. Bone erosion occurs when the tumor spreads and involves adjacent structures, causing dysfunction and resulting in symptoms. Our patients presented with similar symptoms documented in the litera-

Types	Incidence
Epithelial	75 (100.00%)
Squamous cell carcinoma	69 (92.00%)
Adenocarcinoma	4 (5.33%)
Adenoid cystic carcinoma	2 (2.67%)
Nonepithelial	7 (100.00%)
Rhabdomyosarcoma	1 (14.29%)
Lymphoma	4 (57.14%)
Osteogenic sarcoma	2 (28.57%)



ture. However, all our patients had nasal symptoms that included nasal obstruction, epistaxis or blood-stained nasal discharge. Early complaints are often minimal and can mimic those of chronic sinusitis.^{6,17} When pain occurs, it is an indicator of perineural extension of the malignancy or tumor infection.⁶ Pain over the cheek is an early symptom of adenoid cystic carcinoma, which has a higher predilection for neural involvement and spread.¹¹

Squamous cell carcinoma had been reported to be the predominant epithelial cell type. In this environment, squamous cell carcinoma appears relatively more common as 92.00% of our patients had squamous cell carcinoma; an earlier similar study had reported 80%.¹⁵ Adenocarcinoma represents approximately 10–20% of all sinonasal malignancies.^{18,19} However, in our study, it represented 5.33%. The adenocarcinoma is far less common in our environment than what had been reported elsewhere. Since the histopathologic features of both are different, the case of misdiagnosis cannot be entertained. Lymphoma accounted for 57.14% of all the non-epithelial malignant sinonasal tumors in our center. This is different to what had been reported earlier, where rhabdomyosarcoma was reported as having the highest frequency.^{9,20} The relatively increased incidence of lymphoma of the sinonasal region might not be unconnected with increased HIV infection, which is one of the predisposing factors to malignant lymphoma.^{21,22} About 95% of our patients presented at a late stage; 59 (78.67%) patients presented at stage 3. The reason for

Table 2. Symptomatology of malignant sinonasal tumors

Symptoms	Incidence
Nasal	
Epistaxis	82 (100.00%)
Nasal blockage	82 (100.00%)
Nasal discharge	82 (100.00%)
Hyponasal speech	74 (90.24%)
Anosmia/hyposmia	24 (29.27%)
Facial	
Cheek swelling	76 (92.68%)
Cheek pain/paraesthesia	57 (69.51%)
Oral Cavity	
Trismus	28 (34.15%)
Loosening/lost tooth	32 (39.02%)
Tooth ache	48 (58.54%)
Palatal swelling	21 (25.61%)
Palatal ulceration	8 (9.76%)
Ophthalmic	
Proptosis	25 (30.49%)
Double vision	29 (35.37%)
Epiphora	33 (40.24%)
Visual impairment	16 (19.51%)
Otologic	
Tinnitus	16 (19.51%)
Aural blockage	12 (14.63%)
Hearing impairment	21 (25.61%)
Cerebral/Cranial Nerve	
Seizure	2 (2.44%)
Headache	1 (1.22%)

Figure 2. Coronal CT scan showing tumor involving the left nasal cavity, maxillary antrum, ethmoid and orbit

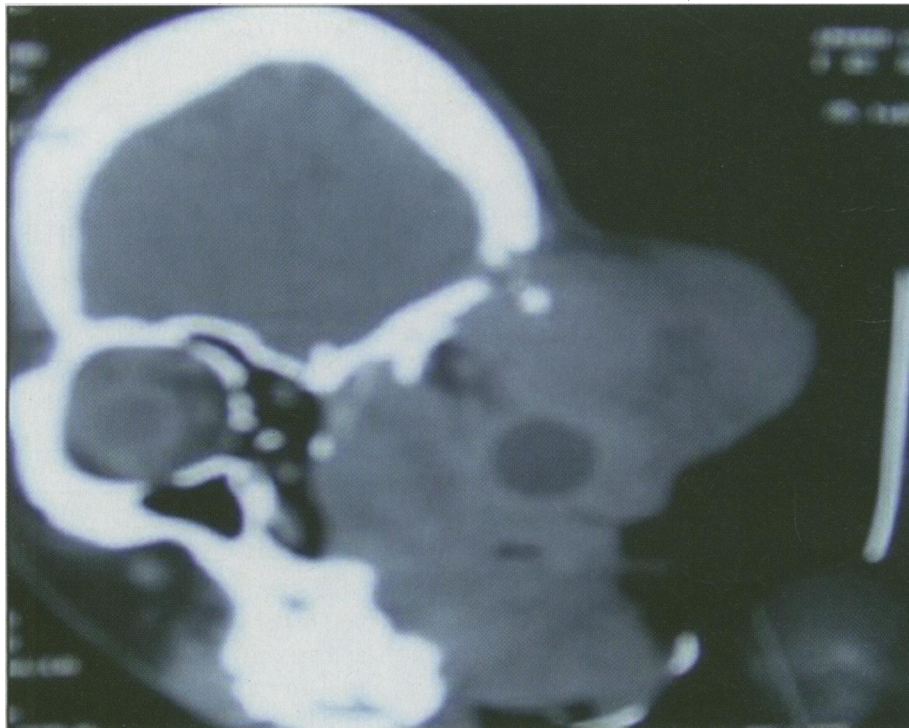


Table 3. Sinonasal sites involved in epithelial tumors

Sites	%
Antranasal	9
Nasoethmoidal	1
Antronasoeethmoidosphenoidal	3
Antronasoeethmoidal	62
Maxillary antrum only	0
Frontal sinus only	0
Ethmoidal sinus only	0
Sphenoid sinus only	0
Nasal cavity only	0

Table 4. Staging at diagnosis for the epithelial tumors

Stage	%
Stage 1	0
Stage 2	4 (5.33%)
Stage 3	59 (78.67%)
Stage 4	12 (16.00%)

this late presentation in our center could be due to the fact that most patients would have tried self-medication or resulted to spiritual assistance, thinking that they are being bewitched by their enemies before presenting to the hospital. This might be directly or indirectly related to poverty and illiteracy, which still prevail in our society. Most of our patients (89.93 %) belong to low socioeconomic class.

CONCLUSION

The clinicopathologic features of sinonasal malignancies in our series seem similar to other reports. However, advanced disease is the predominant in our series; hence, effort at early detection of disease is needed in order to achieve cure. Industrial workers should always wear face masks to protect their nasal cavity from direct exposure to the predisposing factors. This paper has re-emphasized the problems of advanced sinonasal malignancies in a developing country; however, there is need for further research into the etiologic factors in our patients.

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