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Clinical and histopathological presentations of sinonasal cancers in Komfo Anokye Teaching Hospital

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Abstract

Objective: To determine the incidence, clinical and histopathological presentations of the paranasal sinus tumors in Komfo Anokye Teaching Hospital, Kumasi, Ghana.

Methods: All cases of sinonasal cancers diagnosed between January 2007 and December 2012 were retrospectively reviewed.

Results: Of the 68 patients (38 males, 30 females) whose charts were reviewed, the median age was 49 (range: 14 to 84) years. The common clinical presentations were epistaxis (23%), nasal mass (20%), headache (12%), nasal blockage (12%), nasal discharge (11%), proptosis (9%), cheek swelling (8%), and epiphora (5%). The most common histopathological subtypes were squamous cell carcinoma (39.6%) and adenocarcinoma (25%).

Conclusion: Sinonasal tumors are frequent in male adults and present with epistaxis, nasal mass, blocked nose and nasal discharge, while squamous cell carcinoma remains the common histopathological type.

Keywords: Paranasal sinus, tumor, clinical, histopathological.

Özet: Komfo Anokye Eğitim Hastanesinde sinonazal kanserlerin klinik ve histopatolojik özellikleri

Amaç: Çalışmanın amacı Gana Kumasi'deki Komfo Anokye Eğitim Hastanesinde paranazal sinüs tümörlerinin insidansı, klinik ve histopatolojik özelliklerini belirlemektir.

Yöntem: Ocak 2007 ile Aralık 2012 arasında tanı konmuş tüm sinonazal kanser olguları retrospektif olarak gözden geçirilmiştir.

Bulgular: Altmış sekiz hastanın (38 erkek, 30 kadın) dosyaları gözden geçirilmiş olup yaş ortalaması 49 (aralık: 14–84) idi. Olağan klinik belirtiler burun kanaması (%23), nazal kitle (%20), baş ağrısı (%12), burun tıkanıklığı (%12), burun akıntısı (%11), proptoz (%9), yanak şişliği (%8) ve epifora (%5) idi. En sık görülen histopatolojik alt-tipler yassı epitel hücreli karsinom (%39.6) ve adenokarsinom (%25) idi.

Sonuç: Sinonazal tümörler sıklıkla yetişkin erkeklerde görülmekte olup hastalar burun kanaması, nazal kitle, tıkalı burun ve burun akıntısı ile başvurmaktadırlar. Yassı epitel hücreli karsinom hâlâ sık görülen histopatolojik tiptir.

Anahtar sözcükler: Paranazal sinüs, tümör, klinik, histopatolojik.

Sinonasal cancers are malignant neoplastic lesions of the nose and the paranasal sinuses. Sinonasal cancers are rare neoplastic lesions accounting for less than 1% of all malignancies and about 3% of all head and neck cancers.[1–3] These lesions tend to affect mostly Africans, the Japanese and the Arabs.[4,5]

Kuijpens et al. reported of a greater incidence of sinonasal cancers in males than in females with a male-to-female ratio of 2:1.[1] Arnold et al. reported in a similar retrospective study of a male-to-female ratio of 2:1.[6] The patients' ages ranged between 28 and 92 years with a median age at diagnosis of 64 years. Likewise, Betlejeweski et al. found in another study a male-to-female ratio of 1.5:1, with ages ranged between 50 and 69 years.[7] Fasunla and Lasisi also reported of male to female ratio of 2:1, with ages ranged between 4 and 69 years.[8] Brobby also reported of a similar study male-to-female ratio of 1.5:1 with ages ranged between 36 and 79 years.[9]

Sinonasal cancers are associated with significant otorhinolaryngologic morbidity and mortality in West Africa.[5] The symptoms of sinonasal cancers depend on site and the extent of disease and may initially include nasal obstruction, epistaxis, or symptoms consistent with chronic sinusitis such as headache, rhinorrhoea while

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small tumors may be asymptomatic.[10] Koivunen et al. reported nasal obstruction (35%), epistaxis (18%) and observable or palpable tumor (12%) in the cases studied.[11] Fasunla and Lasisi found epistaxis, obstruction and nasal discharge in all cases (100%), check swelling (92.7%), cheek pain and paraethesia (69.5%) and toothache (56.5%).[8] In another study by Waldron et al., the most common presenting symptoms were pain (59%), oral symptoms (40%), facial swelling (38%), nasal obstruction (35%) and epistaxis (25%).[12] Myers et al. also reported pain (34%), nasal obstruction (34%), expansile mass (29%), epistaxis (23%), numbness in the area innervated by the maxillary component of the trigeminal nerve (V2 distribution) (14%), epiphora (11%) and diplopia (11%).[2]

Sinonasal cancers can present a histological diversity pattern, the most common being squamous cell carcinoma, adenocarcinoma, lymphoma, melanoma, sarcoma and adenoid cystic carcinoma. Arnold et al. found squamous cell carcinoma with 30.9%, melanoma (19.5%), and adenocarcinoma (17.1%) of the patients.[6] Others were esthesioneuroblastoma (8.9%), lymphoma (5.7%), undifferentiated carcinoma (4.9%), adenoid cystic carcinoma (4.9%), plasmocytoma (3.3%), fibrosarcoma (1.6%), leiomyosarcoma (1.6%) and metastatic disease (1.6%) in the cases studied. Kuijpens et al. found squamous cell carcinoma as the most frequent histological type in 46.0%, followed by adenocarcinoma (15.0%), melanoma (8.0%) and olfactory neuroblastoma (3.5%).[1] Myers et al. also reported squamous cell carcinoma (51.0%), adenoid cystic carcinoma (12.0%) and adenocarcinoma (11.0%).[2] Madison Michael et al. revealed squamous cell carcinoma (64.0%), adenocarcinoma (18.0%), adenoid cystic carcinoma and undifferentiated carcinoma (9.0%) in a histological analysis of sinonasal tumors.[13]

This study was conducted in view of the fact that less literature has been reported on sinonasal cancers within West Africa sub-region and Ghana in particular.

Materials and Methods

Study design

The study has been conducted in accordance with the principles of the Helsinki Declaration and approved by the local Institutional Review Board. Medical records of the sinonasal cancer patients admitted to Eye, Ear, Nose and Throat Clinic of Komfo Anokye Teaching Hospital between January 2007 and December 2012 were analyzed retrospectively.

Outcome parameters

Data including age, sex, clinical presentations and histological diagnosis were obtained from patients' medical records for the study.

Statistical analysis

Data were analyzed using the IBM Statistical Package for Social Sciences v16 (SPSS Inc., Chicago, IL, USA). Parametric tests were applied to data of normal distribution and non-parametric tests were applied to data of questionably normal distribution. Data are expressed as mean±SD or median (interquartile range), as appropriate. Statistical significance was assumed for $p<0.05$.

Results

Of the 68 patients (38 males, 30 females) whose charts were reviewed, the median age was 49 (range: 14 to 84) years. With regard to age distribution, 5 (7.4%) patients were between 11 and 25 years, 16 (23.5%) patients were between 26 and 40 years, 30 (44.1%) patients were between 41 and 55 years, 6 (8.8%) patients were between 56 and 70 years and 11 (16.3%) patients were between 71 and 85 years.

The clinical presentations of the patients varied in respect to the stage of the lesion at presentation. In this study, 23 (33.8%) patients presented with epistaxis, 12 (17.6%) patients with headache, 8 (11.8%) patients with cheek swelling, 12 (17.6%) patients with nasal blockage, 11 (16.2%) patients with nasal discharge, 9 (13.2%) patients with proptosis, and 5 (7.4%) patients with epiphora. A total of 20 patients (29.4%) were presented with nasal mass.

The patients' histological reports analyzed revealed variety of cancers including squamous cell carcinoma in 27 (39.6%) patients, adenocarcinoma in 17 (25.0%) patients, malignant melanoma and lymphoma in 6 (8.8%) patients each. Besides, there were undifferentiated carcinoma in 7 (10.3%) patients, fibrosarcoma in 3 (4.4%) patients, adenoid cystic carcinoma and olfactory neuroblastoma were found in one (1.5%) patient.

Discussion

Sinonasal cancers can be diagnosed in all ages, nonetheless are rare in children. In this study, 68 cases of sinonasal cancers were found in the age range 14 to 84 years with median age of 51 and peak age group of 41 to 55 (44.1%) with a male-to-female ratio of 1.3:1.

The distribution in this study was lower than the findings in Poland by Betlejewski et al.[7] where majority of cases

(55) were between 50 and 69 years and Zyłka et al.[14] who reported 50.8% of all the patients aged above 60 years, with the most common age group being 71–80 years (33.3%).

Carrau et al.[15] found sinonasal cancers mostly in patients between 50 and 70 years of age and Myers et al.[2] reported of a higher incidence at 60 years.

Fasunla and Lasisi[8] in Nigeria reported of occurrence of sinonal cancers in the age ranged between 4 and 69 years with the peak age of 50 years.

The lower median age of occurrence in this study may be due to the lower life expectancy in Ghana which is about 57 years.

The sex distribution in this study was similar to other studies reported in the literature where sinonasal cancers seemed to be frequent in males than females.

A male to female ratio of 1.3:1 was in concordance to that of Betlejewski et al.[7] (1.5:1), Brobby[9] (1.5:1), Fasunla and Lasisi[8] (2:1), Kuijpens et al.[1] (2:1) and Arnold et al.[6] (2:1). The higher incidence in males than females may be due to the fact that males may be more exposed to certain conditions that may contribute to the insurgence of the disease. For instance, with the exposure of sawn dust, inhalation of fume from heavy metals, smoking and alcoholism may predispose individuals to such condition.

The clinical presentations in this study were epistaxis (28%), headache (12%), cheek swelling (8%), nasal blockage (12%), nasal discharge (11%), epiphora (5%), proptosis (9%) and nasal mass (20%).

Most of the literatures reviewed reported of epistaxis, nasal obstruction, nasal discharge, check swelling and nasal mass as some of the common presentations in sinonasal cancers. These symptoms may vary from patient to patient depending on the stage of the lesion. Myers et al.[2] reported of nasal obstruction (34%), expansile mass (29.0%), epistaxis (23.0%) and epiphora (11.0%). Koivunen et al.[11] also reported of nasal obstruction (25.0%), epistaxis (18.0%) and palpable tumor (12.0%) whereas Fasunla and Lasisi[8] reported of nasal obstruction and discharge (100%), cheek swelling (92.7%), cheek pain and paraesthesia (69.5%) and toothache (56.5%). This really indicates that patients who present with nasal blockage, epistaxis, nasal mass and others might be possible candidates of sinonasal tumors.

In this study, the most common histological presentation was squamous cell carcinoma (39.6%) followed by adenocarcinoma (25.0%), malignant melanoma and lymphoma (8.8%). Besides, there were undifferentiated carcinoma and fibrosarcoma (7.4%), and adenoid cystic carcinoma and olfactory neuroblastoma (1.5%).

Likewise, the most of the studies reported in the literature revealed squamous cell carcinoma as the most common histological feature of sinonasal cancers followed by adenocarcinoma.

Madison Michael et al.[13] reported squamous cell carcinoma (64.0%) and adenocarcinoma (18.0%), Kuijpens et al.[1] also reported 46.0% and 15.0%, Myers et al.[2] reported 51.0% and 11.0% while Arnold et al.[6] reported 30.9% and 17.1%, respectively. All these studies confirm the higher incidence of squamous cell carcinoma in sinonasal cancers.

Conclusion

Although sinonasal cancers are rare, they constitute almost 3.0% of all head and neck cancers. They affect mostly adults and they are frequently seen in males than females often present with epistaxis, nasal mass, blocked nose and nasal discharge, whilst the common histological feature is the squamous cell carcinoma. It is therefore important to investigate properly patients who present with some of these symptoms for sinonasal cancers.

Conflict of Interest: No conflicts declared.

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