Original Research Article

Clinico-pathological profile and management of sino-nasal masses

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Abstract

Background: Otorhinolaryngologists are frequently confronted with a sinonasal mass in the nasal cavity. Despite its high frequency, treatment is frequently a therapeutic dilemma. To find out the incidence of sinonasal masses in those patient attending at ENT OPD in this institution **Methods:** Patients presenting with signs and symptoms of sinonasal masses were included in this study according the following criteria. All sinonasal masses were divided into distinct groups and plans for data analysis based on clinical characteristics, radiographic, and histological findings. The study was conducted in the department of ENT and Head Neck Surgery, Darbhanga Medical college. Total 50 patients were included in this study, during the period January 2018 to November 2019. **Results:** Non-neoplastic masses were the majority in our analysis of 50 cases, with 31 cases (62%) having a maximum age occurrence of 18 to 39 years and mostly in men (74.2%) [23 cases]. Antrochoanal polyp 19 instances (61.3%) and ethmoidal polyp 5 cases were the lesions discovered in this group (16.13 percent). The neoplastic masses were detected in 19 of our cases (38%) and had the highest age incidence in the age categories 18-29 years (47.37%) and 40-49 years (36.84%), with males having a higher frequency (73.7 percent). Benign neoplasms were detected in seven of the 19 neoplastic cases (36.84 percent). Inverted papilloma was detected in three cases (42.86 percent) and angiofibroma in one case among these benign neoplasms (14.29 percent). **Conclusion:** The location, size, form, and extension of the mass can all be determined using radiological studies. CT scans are quite useful in determining the extent of a malignant lesion, any destruction of adjacent structures, and cerebral invasion, among other things. Histopathological investigations provide the final word on the right nature of the growth (benign or malignant), and they are critical for optimal therapy planning.

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INTRODUCTION

Nasal polyposis has a long history, dating back approximately 5000 years to Ancient Egypt, albeit the exact specifics are unknown.[1] Nasal polyps affect 1-2 percent of the adult population in Europe[2] and 4.3 percent of the population in Finland.[2] Males outnumber girls by a factor of two to one.[3] Nasal polyps can be caused by a variety of illnesses and symptoms. There have been reports of incidence rates ranging from 7% to 42% in asthmatic individuals.[4] Individuals with acetylsalicylic acid (ASA) intolerance are more likely to develop nasal polyps, with 40 percent to 60 percent of these patients developing nasal polyps.[5] Cystic fibrosis (CF), one of the most common hereditary diseases in Caucasians, is a comorbid disease with nasal polyposis. Adult patients with CF have polyps in 20-48 percent of cases.[5] Nasal polyps are also significantly linked to several types of chronic rhinosinusitis.[6] Obstruction of air flow through the nose, typically with dripping and nasal discharge, hyposmia and anosmia, are clinical signs. Systemic or intranasal steroids are usually utilised in their therapy; however surgery may be required in situations of severe obstruction or infectious consequences. The recurrence of nasal polyposis is a significant clinical issue. Recurrence report rates of up to 29-53% have been reported. Sino-nasal masses can be a frustrating condition for both the patient and the physician

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treating them. Although much knowledge regarding nasal physiology and nasal masses has been gained thanks to scientific discoveries in the domains of biochemistry, microbiology, and immunology, the origin and pathophysiology of sino-nasal masses remain unknown.

MATERIALS AND METHODS

Patients presenting with signs and symptoms of sinonasal masses were included in this study according the following criteria. All sinonasal masses were divided into distinct groups and plans for data analysis based on clinical characteristics, radiographic, and histological findings. The study was conducted in the department of ENT and Head Neck Surgery, Darbhanga Medical college. Total 50 patients were included in this study, during the period January 2018 to November 2019.

Inclusion criteria: AGE- Above 18years. Male and Female both. Patients presenting with signs and symptoms of sinonasal mass. Those willing to participate in this study through written informed consent. Patients who on anterior rhinoscopy reveals nasal mass in either or both nasal cavity.

Exclusion criteria: Patients with severe epistaxis who have a serious coagulation issue and are unwilling to participate in this research. A patient with a congenital sinonasal mass and a nasal mass of intracranial origin, such as a basal meningocoele, meningoencephalocoele, or nasal glioma.

All of the patients were assessed for demographics, clinical and pathological aspects, radiographic findings of sinonasal masses, relative occurrence, and classification of the lesions as neoplastic or non-neoplastic.

Investigations: Hematological investigations like Hb%, Total leukocyte count, Differential count, Absolute eosinophil count, Bleeding time, Clotting time, Blood grouping and typing and urine routine examinations were done. Radiological investigations included. Plain para nasal sinus x-rays (Water‟s view). Computerized tomographic scan of nose and paranasal sinuses (coronal and axial. With or without contrast enhancement) was done in almost all cases.

Excision of the polypoidal tumour with the patient's agreement, using a transnasal, lateral rhinotomy, endoscopic technique, or radical surgery as necessary, while adhering to well-known, practised, and established therapeutic modalities.

In the Department of Pathology, all surgically removed polypoidal tumours were histopathologically examined.

For histological investigation, all sections were stained with haematoxylin and eosin. Other specific stains were applied as needed to determine the nature of polypoidal masses.

Following are explicit expressions for several t-tests. The formula for a test statistic that exactly follows or nearly approximates a t-distribution is presented in each situation. Also, the degrees of freedom are specified. These statistics can be used to perform one-tailed or two-tailed tests. After determining the t value, a p-value can be found using Student's t-distribution table. The null hypothesis is rejected if the estimated p-value is less than the threshold for statistical significance. Statistical significance was defined as 0.05 or less.

RESULTS

Table 1: Sex distribution

Sex	Frequency	Percent
Female	13	26.0%
Male	37	74.0%
Total	**50**	**100.0%**

The above table shows that out of 50 patients, 37 (74%) were male and 13 (26%) were female. Male: female ratio was 2.8:1.

Table 2: Age Distribution.

Age (Years)	Frequency	Percentage
≤29	19	38.0%
30-39	15	30.0%
40-49	12	24.0%
50-59	2	4.0%
60-69	2	4.0%
Total	**50**	**100.0%**

Table shows that the commonest decades of presentation of sino-nasal masses was third decade of life (i.e.18-29 years of age).

Table 3: Relative distribution of sino-nasal mass.

Nasal mass	Frequency	Percent
Neoplastic	19	38.0%
Non-Neoplastic	31	62.0%
Total	**50**	**100.0%**

The nonneoplasia (62%) outnumbered their neoplastic counterpart in case of sino-nasal masses.

Table 4: Relative distribution of neoplastic sino-nasal mass.

Neoplastic	Frequency	Percent
Benign	7	36.8%
Malignant	12	63.2%
Total	**19**	**100.0%**

The malignant neoplasia (63%) outnumbered their benign (37%) counterpart in case of sino-nasal masses.

Table 5: Distribution of Benign patients.

Type of neoplasia	Frequency	Percent
Fibrous dysplasia	2	28.6%
Heman gioma	1	14.3%
Inverted papilloma	2	28.6%
Nasopharyngeal angiofibroma	1	14.3%
Rec inverted papilloma	1	14.3%
Total	**7**	**100.0%**

From the above table it is evident that, both fibrous dysplasia and inverted papilloma occurred in28.6% of cases. Haemangioma as well as nasopharyngeal angiofibroma had in same incidence (14.3%).

Table 6: Distribution of Malignant patients.

Malignant	Frequency	Percent
Adenocarcinoma	1	8.3%
Esthesioneuroblastoma	1	8.3%
Low graded transitional cell type SCC	1	8.3%
Metastatic clear cell CA	1	8.3%
Mod diff SCC	1	8.3%
NHL	1	8.3%
Sarcoma maxilla	1	8.3%
Well differentiated SCC	2	16.7%
Transitional cell type SCC	2	16.7%
Undiff non ker SCC	1	8.3%
Total	**12**	**100.0%**

The most commonest presentation of malignant sino-nasal masses was squamas cell carcinoma of maxilla.

Table 7: Distribution of Non neoplastic lesion.

Type of non neoplastic lesion	Frequency	Percent
Antro-choal polyp	19	61.3%
Ethmoidal polyp	5	16.1%
Nasolabial cyst	2	6.5%
Rhinolith	1	3.2%
Rhinosporidiosis	4	12.9%
Total	**31**	**100.0%**

It is observed that the sino-nasal masses, non neoplasatic in 31(62%) study subjects and neoplastic in 19(38%) patients. The ethmoidal polyps (histologically allergic origin) were 5(16.1%) patients and 19(61.3%) patients were antro-choanal polyp (inflammatory origin).

Table 8: Nasal endoscopic findings of nasal masses.

SIGNS AND SYMPTOMS	NONNEOPLASTIC-	BENIGN	NEOPLASTIC	MALIGNANT
UNILATERAL NASALMASS	**26**	**7**		**12**
BILATERAL NASAL MASS	**5**	**0**		**0**
BLEEDING TO TOUCH	**0**	**1**		**1**
DNS	**15**	**3**		**5**
TURBINATE HYPERTROPHY	**8**	**2**		**0**

Non-neoplastic lesions had bilateral nasal mass, 05 had unilateral nasal mass. All benign neoplastic and malignant lesions presented with unilateral nasal mass. Bleeding on touch was found in 1benign neoplastic and 1 malignant lesions. Deviated nasal septum (DNS) was seen in 15 non-neoplastic lesions, 3 benign neoplastic lesions and 5malignant lesions. Turbinate hypertrophy was seen in 8 non neoplastic lesions and 2 benign neoplastic lesions.

DISCUSSION

For the last decade, there have been 50 reported cases of sino-nasal mass The findings of this study were compared to those found in a review of the relevant literature. The study's gender incidence reveals that men were disproportionately more afflicted than women (in the ratio of 2.8:1) The external environment may have an exacerbating impact for the onset of the disease in men due to the fact that they are more likely to work outside on a daily basis. In the study by Zafar *et al.*[7] from India, the male-to-female ratio was greater (1.7:1). A Nigerian research, on the other hand, found the reverse ratio, with women outnumbering men (M:f ratio of 1:1.2). A 2:1 ratio was found in a British study of nasal polyposis (M:F). There was a strong correlation between illness severity and patient age, with patients in their third decade of life (18 – 29 years) being hit the most (38 percent). They are more vulnerable to pollutants in the air, mechanical and chemical risks on the job, etc. for this patient group. The fact that none of the patients were under the age of 18 lends credence to the hypothesis. As people age, their sino-nasal masses become more susceptible to development. Bakari *et al.*[5] found a 33-year peak in incidence, while Zafar *et al.*[7] found a 22.5-year median age at presentation. After the fourth decade of life, malignancies are more commonly observed than in earlier decades. There was bilateral opacity in the ethmoidal sinuses and/or maxillary sinuses in ethmoidal polyps. Opacity was seen in the nasal cavity and maxillary anteroposterior region in one of the rhinosporidosis patients. There was no bone degradation in one of the inverted papillomas, while the other indicated mass in the nasal cavity and maxillary antrum. In one example of fibrous dysplasia, the maxilla was densely opacified, while in another, the right maxilla was hollowed down due to an overgrowth of fibrous tissue. The CT scan result indicated a malignant tumor in the left maxillary sinus spreading to the left ethmoid in the case of metastic clear cell carcinoma of the left maxilla. bone erosion with deficiency and expansion to the left nasal cavity, the left orbit and cribiform plate of left ethmoid in the frontal sinus area Right maxillary transitional cell squamous cell carcinoma as detected by computed tomography The right maxillary sinus was found to have a generalized soft tissue opacity, with obliteration of the right osteo-meatal complex. A CT scan revealed enormous development of the right maxilla and frontal bone, as well as an indentation in the frontal lobe and proptosis, in the second case of fibrous dysplasia. There was no bone loss in the instance

of recurrent inverted papilloma since the tumor was contained to the nasal cavity and right maxillary antrum. In this study, (83.88%) cases of unilateral nasal mass and 5 (16.13%) cases of bilateral nasal mass in non-neoplastic lesions. A unilateral nasal mass accompanied all of the patients' tumors, benign or malignant. bulk in the paranasal sinuses on both sides Five examples of non-neoplastic lesions and a unilateral paranasal sinus tumor had CT scan results of which one was positive (16.13 percent). 14 (45.16%) of non-neoplastic lesions had CT scan findings; 5 (71.43%) of mild neoplastic lesions had CT scan findings; 12 (100%) of malignant lesions had CT scan findings. Deviated nasal septum (DNS) was found in 15 non-neoplastic patients (48.39 percent), 3 benign neoplastic cases (42.85%), and 5 cancerous cases (41.66%). There were eight occurrences of turbinate hypertrophy (25 percent) in non-neoplastic lesions and two cases of benign neoplastic lesions (28.57 percent) in the study. One noncancerous nasopharyngeal tumor was discovered in 1.48% of patients. In one case, a cancerous tumor was discovered (8.3 percent) Hematological and clinical comparisons revealed that a thorough histopathological examination (HPE) is required to determine the kind of lesion present in a patient. If a sinonasal mass is found, it can be diagnosed via an HPE scan of the excised tissue. Histopathological testing is still the gold standard for diagnosis in the majority of cases, according to research.

CONCLUSION

Male patients are more likely than females to have sino-nasal masses. The majority of patients are in their 30s and 40s (i.e. 18-29 years of age). Nasal polyp is the most frequent benign sino-nasal mass, while squamous cell carcinoma is the most common malignant sino-nasal tumor. Nasal polyps can be caused by a variety of factors, including allergies and infections. Drowning in ponds is common among farmers and individuals with a history of infection from rhinosporidiosis. Environmental pollution, smoking, and chronic infection are all risk factors for developing malignant sino-nasal tumors (resulting in sinusitis and polyposis). The recurrence of ethmoidal polyp, inverted papilloma, and rhinosporidiosis is well known. Histopathological tests provide the last word on whether a growth is benign or malignant (e.g., cancerous), and this information is critical for determining the best treatment option.

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