



## CLINICOPATHOLOGICAL PROFILE OF SINONASAL MASSES: A RETROSPECTIVE STUDY AT A TERTIARY CARE HOSPITAL.

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### ABSTRACT

**Introduction:** Sinonasal masses may appear simple in nature but tend to create diagnostic ambiguity. They are broadly classified as non-neoplastic/ inflammatory and neoplastic lesions. A thorough evaluation and confirmation of diagnosis becomes crucial for overall management. The aim of the present study was to evaluate the clinicopathological profile of sinonasal masses (SNM) at our tertiary care hospital.

**Methods & Methodology:** 106 patients with features suggestive of a SNM were included in the present study between July 2018 and December 2019. A detailed history and thorough clinical examination was carried out and data recorded. Patients were subjected to laboratory and radiological evaluation as deemed necessary. Histopathological evaluation was done to confirm the diagnosis.

**Results:** Sinonasal masses were more commonly noted in the males with a male to female ratio of 1.71:1. 39.62% of the study population comprised of patients in the age group of 31-40 years. Non-neoplastic masses (66.98%) were more common in comparison to neoplastic masses (33.02%). Squamous cell carcinoma was the most common malignancy (9.43%).

**Conclusion:** Sinonasal masses are commonly encountered in the otorhinolaryngology outpatient department. The clinical features and presentation are indistinguishable and pose a great deal of ambiguity in diagnosis and treatment. Patients presenting with sinonasal masses should be thoroughly evaluated clinically, radiologically and histopathologically for effective and appropriate management

**KEYWORDS :** Sinonasal masses, inflammatory, neoplastic, polyps

### INTRODUCTION

The nose and paranasal sinuses (PNS) form a single functional unit with common pathological mechanisms. Sinonasal masses (SNM) are commonly encountered in the outpatient department which requires a careful evaluation for all possible differential diagnoses for a better overall management. Most patients present with complaints of nasal obstruction<sup>1</sup>. Other symptoms include nasal discharge, epistaxis and disturbances of smell etc.

A sinonasal mass can have various origins and presentations such as congenital, inflammatory, neoplastic (benign or malignant) or traumatic. A congenital SNM may be intranasal, extranasal or may present as external nasal mass with nasal obstruction<sup>2</sup>. These are predominantly midline swellings such as dermoids, glioma and encephaloceles<sup>3</sup>.

Nasal polyps as a part of SNM have been medically recognised since the ancient Egyptian timeline and their removal with a snare was described by Hippocrates, a method which persisted till the second half of 20<sup>th</sup> century<sup>4</sup>. In the general population, the prevalence of nasal polyps (allergic and infective) is around 4%<sup>5</sup>. In cadaveric studies, this prevalence can be as high as 40%<sup>6</sup>.

Neoplasms of the nose and PNS can be benign or malignant in nature. Benign neoplasia is not uncommon<sup>6</sup>, whereas malignant tumours account for less than 1% of all malignancies and about 3% of all head and neck malignancies<sup>7</sup>. These tumours can remain clinically silent for months to years. Coexisting infection can mask the clinical signs and symptoms, further delaying the diagnosis.

The aim of this study was to evaluate the clinicopathological profile of sinonasal masses (SNM) in a tertiary care hospital.

### MATERIALS & METHODOLOGY

The present study titled 'Clinicopathological Profile Of Sinonasal Masses: A Retrospective Study At A Tertiary Care Hospital' was carried out between July 2018 to December 2019. Patients having clinical features of SNM were included in the study. Previously treated cases of sinonasal disease with recurrence and patients not consenting evaluation were excluded from the study.

### Study Design:

Hospital based Retrospective Study.

### Methodology:

106 consecutive patients with clinical features of a sinonasal mass were included in the present study. A detailed history of the patients

including age, gender, occupation and clinical symptomatology was documented. A thorough examination was carried out including diagnostic nasal endoscopy as per standard protocols. Laboratory investigations and radiological evaluation (Computed tomography of nose & PNS) were carried out as required.

Patients with clinical diagnosis of benign inflammatory polyps underwent functional endoscopic sinus surgery (FESS) while others had endoscopic examination under anaesthesia with incisional and excisional biopsy. All masses excised were subjected to histopathological examination. Data was collected and tabulated in an excel sheet. Results presented as percentages and proportions.

### RESULTS

A total of 106 consecutive patients presenting with SNM were enrolled in the present study. 62(58.5%) were males and 44(41.5%) were females (Table 1). The male to female ratio was 1.71: 1. The most common age group affected was between 31- 40 years having 42 patients (39.62%) (Table 2).

**Table 1: Gender Distribution**

GENDER	NUMBER OF PATIENTS	PERCENTAGE
Male	62	58.5
Female	44	41.5
Total	106	100

**Table 2: Age Distribution**

AGE (IN YEARS)	NUMBER OF PATIENTS	PERCENTAGE
1-10	02	1.89
11-20	07	6.60
21-30	29	27.36
31-40	42	39.62
41-50	11	10.38
51-60	08	7.54
61-70	05	4.72
>70	02	1.89
Total	106	100

The patients presented with a wide array of symptomatology. The most common symptom was nasal obstruction in 82 patients. The next frequent symptom was nasal discharge (71 patients) followed by headache (48 patients) (Table 3).

The presenting features in non-neoplastic versus neoplastic SNM were indistinguishable and ambiguous. The most common clinical sign was a fleshy mass in either or both nasal cavities.

**Table 3: Symptomatology**

SYMPTOMS	NUMBER OF PATIENTS
Nasal obstruction	82
Nasal discharge	71
Epistaxis	22
Headache	48
Sneezing	45
Smell abnormalities	24
Facial swelling	11
Facial pain	19
Proptosis	08
Hearing loss	05

After appropriate clinical, laboratory and radiological evaluation the SNM were broadly classified into non-neoplastic and neoplastic (benign & malignant) (Table 4). All patients underwent biopsy followed by histopathological examination of the SNM which helped in confirming the diagnosis and plan appropriate management.

**Table 4: Distribution Based On Type Of Lesion**

TYPE OF LESION	NUMBER	PERCENTAGE
Non- neoplastic	71	66.98
Benign	17	16.04
Malignant	18	16.98
Total	106	100

Non- neoplastic masses were seen in 66.98% of the patients whereas neoplastic masses were noted in 33.02%. Among the non-neoplastic lesions, allergic polyps were most common in 43 patients (60.56%) followed by rhinosporidiosis in 5 patients (7.04%). Inverted papilloma was the most common benign lesion noted in 8 patients (47.06%). A variety of malignant tumours were noted in our study where squamous cell carcinoma was the most common in 10 patients (55.55%). This was followed by variants such as lymphomas (11.11%), adenocarcinoma (11.11%) and extramedullary plasmacytoma (11.11%) (Table 5).

**Table 5: Histological Classification Of Sinonasal Masses**

HISTOLOGY	NUMBER	PERCENTAGE
Non-neoplastic mass		
Allergic polyp	43	60.56
Inflammatory polyp	22	30.99
Rhinosporidiosis	5	7.04
Rhinoscleroma	1	1.41
Total	71	100
Benign neoplastic mass		
Haemangioma	6	35.29
Angiofibroma	3	17.65
Inverted papilloma	8	47.06
Total	17	100
Malignant neoplastic mass		
Squamous cell carcinoma	10	55.55
Adenocarcinoma	2	11.11
Lymphoma	2	11.11
Malignant melanoma	1	5.56
Extramedullary plasmacytoma	2	11.11
Undifferentiated carcinoma	1	5.56
Total	18	100

## DISCUSSION

Masses arising from the sinonasal tract are difficult to differentiate based on macroscopic features. In our study, SNM were more common in males with a male to female ratio of 1.71:1. Similar findings were noted in a study by Zafar et al.<sup>8</sup> with a male to female ratio of 1.7: 1. This may be due to the increased awareness or an overall higher male attendance in the hospital. In our study, the most common age group affected was 31-40 years with 42 patients (39.62%). Similar findings were noted in a study by Bakari et al.<sup>9</sup> in which 31-40 years showed a higher number of patients with a peak at 33 years.

The most common presenting complaint in our study was nasal obstruction in 82 patients followed by nasal discharge in 71 patients and headache in 48 patients. These findings were in accordance to studies done by other authors<sup>10,11</sup>.

Nasal polyposis is a result of chronic inflammation of the nose and PNS mucosa. They can have strong association with allergy, asthma or

infection. In our study, nasal polyps (inflammatory and allergic) accounted for 91.55% of the non-neoplastic SNM (71 patients). Of these 60.56% were allergic polyps and 30.99% were inflammatory polyps. Our findings were consistent with a similar study done by Dasgupta et al.<sup>10</sup> where nasal polyps were the most common SNM noted. Rhinosporidiosis is an endemic disease in India, relatively rare and lesser documented in literature. In a study done by Pradhananga et al.<sup>11</sup> had only one patient of rhinosporidiosis whereas in our study 5 patients were diagnosed with rhinosporidiosis which is slightly higher than the findings in other studies.

Inverted papilloma is a benign neoplastic lesion of the sinonasal tract which shows a percentage of malignant transformation as high as 11%<sup>12</sup>. In our study, inverted papillomas were the most common benign neoplastic lesion in 8 patients (47.06%) followed by haemangiomas in 6 patients (35.29%). In a similar study done by Chavan et al.<sup>13</sup>, 5 patients presented with inverted papillomas in their study population. In the study done by Lathi A et al.<sup>14</sup> 47% of their study population presented with nasal haemangiomas which is higher than the number reported in our study.

Malignant lesions in the sinonasal tract are rare<sup>15</sup>. In our study 18 (16.98%) of the 106 patients were diagnosed with sinonasal malignancies. Squamous cell carcinoma was the most common variant in 10 patients (55.55%). This was followed by adenocarcinoma, lymphoma and extramedullary plasmacytoma in 2 patients (11.11%) each. In another study done by Abu Hena et al.<sup>1</sup> squamous cell carcinoma was noted in 41.67% of their study population. The prevalence of squamous cell carcinoma was slightly higher in our study. In a study done by N Khan et al.<sup>16</sup> malignant melanoma was noted in 10% of their study population. This was in accordance to our present study.

Histopathological examination is conclusive in diagnosing the SNM in terms of aetiology and cellular features. It gives a definitive determination of the nature of lesion, i.e. inflammatory or neoplastic. Radiological investigations may also help in understanding the type of pathology, extension of lesion and provide a road map to the surgeon when planning surgery. Most of non-neoplastic and benign neoplastic nasal masses require surgical excision, while malignant neoplastic nasal masses require wide surgical excision, radiotherapy or chemotherapy either alone or in combination.

## CONCLUSION

Sinonasal masses are commonly encountered in the otorhinolaryngology outpatient department. The presenting features of all sinonasal lesions may be indistinguishable and therefore represent diagnostic and therapeutic dilemma.

Clinical, radiologic and histopathological correlation is of utmost importance for accurate diagnosis. All these modalities are complementary to each other. Most importantly, a thorough histopathological evaluation- a gold standard for diagnosis, is essential and mandatory for a suitable and timely intervention.

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