

Original Research Article

Histopathology

# Histopathological Spectrum of Sinonasal Masses in Patients Coming To a Tertiary Care Hospital: A Study of 150 Cases

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## Abstract

**Background:** Sinonasal masses (SNMs) are a pretty frequent medical entity that take place amongst patients of all age groups. Their symptoms and signs regularly overlap, as a result a diagnostic predicament exists. A right analysis is prudent for instituting right cure and anticipating recovery. The purpose of this analysis was to find out the incidence & variety of nonneoplastic & neoplastic lesions of nasal cavity & paranasal sinuses. **Objectives:** The aims of this study were to determine the histopathological spectrum of sinonasal masses in patients coming to a tertiary care hospital and also to compare the findings with other studies. **Methods:** This analysis was carried out on 150 patients with SNMs presented to the Department of Histopathology at National Institute of ENT & Hospital, Dhaka, Bangladesh over a period of about two years (September 2016 to May 2018). Their demographic data, clinical profile and histopathological diagnosis were analyzed. **Results:** A total of 150 cases were studied. The neoplastic lesions formed the larger group, 87 cases (58%) followed by nonneoplastic lesions, 63 cases (42%). Nonneoplastic lesions were more common in the age group of 2<sup>nd</sup> & 3<sup>rd</sup> decades while neoplastic masses were prevalent in the 2<sup>nd</sup> & 6<sup>th</sup> decades. The lesions of nasal cavity & paranasal sinuses had a stronger predilection for males as compared to females with the male to female ratio being 2.33. **Conclusions:** The majority of sinonasal masses sent for histopathology are inflammatory, a variety of benign & malignant lesions may present as nasal masses. All nasal masses must need thorough histopathological examination.

**Keywords:** Sinonasal masses, Nasal cavity, Paranasal sinuses and Malignant lesions.

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## INTRODUCTION

Sinonasal lesions are the common lesions encountered in an ENT outpatient department. They give rise to varieties of histological patterns and grades of malignancies. A good number of nonneoplastic and neoplastic conditions involve the nasal cavity & paranasal sinuses. The presence of mass in the nasal cavity is a seemingly simple problem, however it raises numerous questions about the differential diagnosis [1]. Although, neoplasms of the nose and paranasal sinuses are not common, they are of interest because of their various types. The nose and paranasal sinuses account for less than 1% of all malignant tumors in general, not more than 3% of the head and neck region malignancies. The presenting features & imaging technique help to reach a presumptive diagnosis but histopathological examination remains the mainstay of definitive diagnosis [2]. Thus, careful histological workup is essential for a correct diagnosis and timely

intervention. The aims of this study were to find out the incidence and variety of nonneoplastic and neoplastic lesions of nasal cavity and paranasal sinuses.

Sinonasal masses (SNMs) are a pretty frequent medical entity that happen amongst patients of all age groups and are common finding encountered in clinical practice [3]. They encompass a very large range of pathologies ranging from non-neoplastic to neoplastic in nature. Their providing facets are various and rely upon the type, spread and extent of the main disease. Accordingly, the patients may additionally have nasal complaints (obstruction, discharge, sneezing, epistaxis, disturbances of smell), complaints of oro-facial involvement (palatal or buccal swelling, loose teeth, facial pain and swelling), ophthalmic complaints (epiphora, proptosis, diplopia), aural feature (fullness, hearing impairment), and/or metastatic neck nodes [4].

These masses can be congenital or acquired. Congenital masses such as dermoid cysts, glioma and encephaloceles are predominantly midline swellings, and may additionally present both intranasally or extranasally. Acquired sinonasal masses can be inflammatory together with allergic, traumatic, granulomatous or neoplastic (benign and malignant) in nature. Acquired pathologies providing with sinonasal masses consist of nasal polyps (antrochoanal and ethmoidal), rhinosporidiosis, fungal sinusitis, hemangiomas, inverted papilloma, angiofibroma, malignancies etc [5].

Owing to the overlapping medical elements of the range of lesions, it is hard to become aware of the precise nature of the disease. Hence there is a prudent role of thorough history, medical examination, nasal endoscopy, imaging and histopathology in attaining a precise diagnosis [6]. The reason of this retrospective

evaluation was to learn about the number of pathologies that existing as sinonasal masses.

## METHODS

This is an observational study. The study was carried out among the admitted patients at National Institute of ENT & Hospital, Dhaka, Bangladesh, over a period of about two years (September 2016 to May 2018) retrospectively. A total number of 150 specimens received in the Department of Histopathology with the clinical diagnosis of nasal and sinonasal masses were selected for the study. The data had been accumulated from patients' medical information and radiographs. Statistical analysis of data was done using a window-based computer software program, Statistical Packages for Social Sciences (SPSS-24).

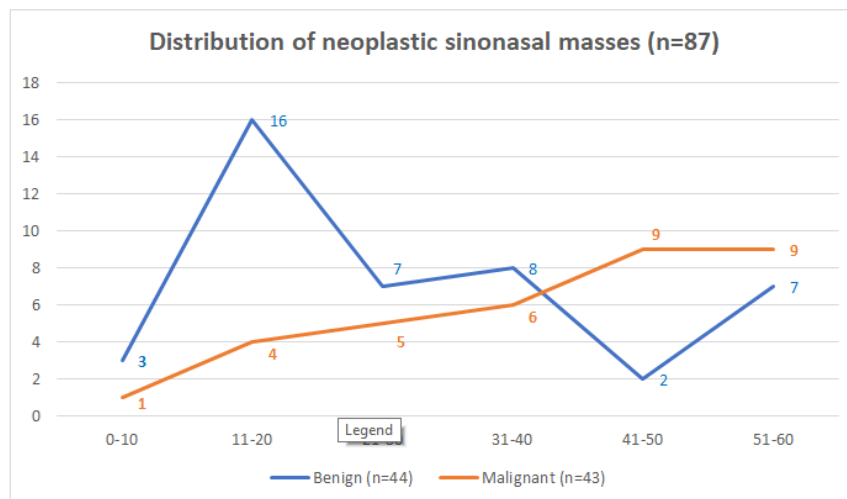
## RESULTS

**Table 1: Age wise distribution of nonneoplastic sinonasal lesions (n=63)**

Age (Years)	Inflammatory polyp (n=42)	Rhinosporidiosis (n=19)	Reparative giant cell granuloma (n=1)	Inflammatory pseudotumour (n=1)
0-10	1	2	-	-
11-20	8	6	-	-
21-30	12	5	-	1
31-40	6	1	1	-
41-50	3	4	-	-
51-60	7	1	-	-
61-70	5	-	-	-

Total number of patients with nonneoplastic SNMs were 63 aged up to 70 years. Among the Inflammatory polyp (n=42), age group <10 was 1, 11-20 were 8, 21-30 were 12, 31-40 were 6, 41-50 were 3,

51-60 were 7 and 61-70 were 5. And among the Rhinosporidiosis (n=19), age group <10 were 2, 11-20 were 6, 21-30 were 5, 31-40 were 1, 41-50 were 4 and 51-60 were 1.



**Figure I: Age wise distribution of neoplastic sinonasal masses (n=87)**

Figure I demonstrated age wise distribution of neoplastic sinonasal lesions (n=87). Among the Benign tumour (n=44), age group <10 were 3, 11-20 were 16, 21-30 were 7, 31-40 were 8, 41-50 were 2 and 51-60

were 7. And among the Malignant tumour (n=43), age group <10 was 1, 11-20 were 4, 21-30 were 5, 31-40 were 6, 41-50 were 9 and 51-60 were 9.

**Table 2: Distribution of nonneoplastic lesions according to sex**

Diagnosis	Number of cases	Male	Female	%
Inflammatory polyp	42	26	16	66.66
Rhinosporidiosis	19	10	9	30.16
Inflammatory pseudotumour	1	-	1	1.59
Reparative giant cell granuloma	1	1	-	1.59

Table 2 demonstrated Distribution of nonneoplastic lesions according to sex. Among male patients, Inflammatory polyp was 26, Rhinosporidiosis was 10 and Reparative giant cell granuloma was 1. And

among female patients, Inflammatory polyp was 16, Rhinosporidiosis was 9 and Inflammatory pseudotumour was 1.

**Table 3: Distribution of Benign neoplastic lesions according to histopathological diagnosis**

Diagnosis		No. of cases	Male	Female	%
Epithelial	Inverted papilloma	16	12	4	36.36
Mesenchymal	Angiofibroma	20	20	-	45.46
	Fibromyxoma	2	2	-	4.55
	Hemangiomas polyp	1	-	1	2.27
	Cavernous hemangioma	2	1	1	4.55
	Schwannoma	1	1	-	2.27
	Juvenile psammomatoid ossifying fibroma	1	1	-	2.27
	Solitary fibrous tumour	1	1	-	2.27
Total		44	38	6	

Table 3 demonstrated Distribution of Benign neoplastic lesions. Among male patients, Inverted papilloma was 12, Angiofibroma was 20, Fibromyxoma was 2, Cavernous hemangioma was 1, Schwannoma

was 1 and Solitary fibrous tumour was 1. And among the females, Inverted papilloma was 4, Hemangiomas polyp was 1 and Cavernous hemangioma was 1.

**Table 4: Distribution of Malignant neoplastic lesions according to histopathological diagnosis**

Diagnosis		No. of cases	Male	Female	%
Epithelial	Squamous cell carcinoma	16	15	1	37.21
	Adenoid cystic Carcinoma	7	2	5	16.28
	Adenocarcinoma	3	1	2	6.97
	Squamous cell carcinoma in situ	1	1	-	2.33
Mesenchymal	Olfactory neuroblastoma	4	3	1	9.30
	Malignant fibrous histiocyctoma	3	3	0	6.97
	Non-Hodgkin lymphoma	3	1	2	6.97
	Malignant melanoma	2	-	2	4.65
	Fibrosarcoma	1	1	-	2.33
	Malignant small round cell tumour	1	1	-	2.33
	Chondrosarcoma	1	1	-	2.33
	Myxofibrosarcoma	1	1	-	2.33
Total		43	30	13	

Table 4 demonstrated Distribution of Malignant neoplastic lesions. Among the male patients, Squamous cell carcinoma was 15, Adenoid cystic Carcinoma was 2, Adenocarcinoma was 1, Squamous cell carcinoma in situ was 1, Olfactory neuroblastoma was 3, Malignant fibrous histiocyctoma was 3, non-Hodgkin lymphoma was 1, fibrosarcoma was 1, Malignant small round cell tumour was 1, Chondrosarcoma was 1 and Myxofibrosarcoma was 1. Among the females, Squamous cell carcinoma was 1, Adenoid cystic Carcinoma was 5, Adenocarcinoma was 2, Olfactory neuroblastoma was 1, non-Hodgkin lymphoma was 2 and Malignant melanoma was 2.

## DISCUSSION

The nasal cavity and paranasal sinuses form a purposeful unit, which is lined by stratified squamous, respiratory-type pseudostratified ciliated columnar and transitional (intermediate) epithelium [7]. The mucosa of nasal cavity and paranasal sinuses is referred to as the Schneiderian membrane. Large quantity of pathological conditions, both non-neoplastic and neoplastic occur in the sinonasal tract and are often encountered in every day clinical practice [8]. A thorough history, providing symptoms and signs in conjunction with records supplied via advanced

imaging strategies assist to frame a presumptive diagnosis, however histopathological examination stays the gold standard for achieving a definitive diagnosis, which is prudent for well-timed intervention and recovery [9].

In the present study, 63 (42%) patients had nonneoplastic lesions. Inflammatory polyp comprised the highest number (n=42, 66.7%), majority being 21-30 years age group followed by Rhinosporidiosis (n=19, 30.2%) with the majority in the 11-20 years age group. Similar observations regarding a high incidence of non-neoplastic SNMs have been observed by Lathi A *et al* (71.4%), Agarwal P *et al.*, (59.6%) and Rokade V *et al.*, (71.5%) [6, 10, 11]. In their study by Lathi A *et al.*, amongst the non-neoplastic group, nasal polyps constituted the majority (87.5%). Rhinosporidiosis, an endemic disease in India, Sri Lanka and a few African nations was also diagnosed [12]. We found 19 cases of rhinosporidiosis (30.2%).

Angiofibroma forms 0.5% of all head and neck tumours in Europe [13]. Among the benign tumours, angiofibroma (45.5%) was the most common lesion in our study followed by inverted papilloma (36.4%). This finding corresponds to the observation of Rokade V *et al.*, [11]. Malignancy of sinonasal tract is rare. The maxillary sinus is the most common site of origin and the most common histological type is squamous cell carcinoma [14]. It was observed that total number of malignant neoplastic lesions was 43. Squamous cell carcinoma represented 37.2% of all sinonasal malignancies and adenoid cystic carcinoma was the second most common tumour (16.3%) (Table 4). Lathi A *et al.*, Rokade V *et al.*, and Fasunla *et al.*, have similarly reported squamous cell carcinoma to be the most commonly encountered malignancy in their study [6, 11, 14].

Histopathological examination is the gold standard for the diagnosis of SNM. Radiological investigations assist in perception of the kind and extent of the pathology. Majority of the non-neoplastic and benign neoplastic SNMs require surgical excision, while malignant neoplastic SNMs require vast surgical excision, radiotherapy or chemotherapy in combination [15]. A regular follow-up is obligatory for early detection of recurrence or metastases.

#### Limitations of the study:

This cross-sectional study is single blinded; single centered study. Due to short duration and small sample size, the study may not proclaim the scenario of whole country.

## CONCLUSION

SNMs represent a very large spectrum of differential diagnoses. They have a male predominance and majority are non-neoplastic. Inflammatory polyps are the most frequently encountered SNM, viewed all

through 2nd to 4th decade of life, whilst squamous cell carcinoma is the most typically encountered malignancy, typically from 5th decade onwards. Surgery is the treatment of choice. Although the majority of nasal masses sent for histopathology are inflammatory, a variety of benign & malignant lesions may present as nasal masses. All nasal masses must need thorough histopathological examination.

## RECOMMENDATIONS

A multicenter double blinded study in the divisional/ tertiary hospitals of whole Bangladesh can reveal the real picture. The study period should be longer. A multi-disciplinary approach of research work can make a study precise & more authentic in this regard.

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## DECLARATION

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**Conflict of interest:** None.

**Ethical approval:** The study was approved by the ethical committee of National Institute of ENT & Hospital, Dhaka, Bangladesh.

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