

# A Study of Neoplastic and Non-neoplastic Sinonasal Masses at a Tertiary Center

<sup>1</sup>Kavita Sachdeva, <sup>2</sup>Saurav Naskar

## ABSTRACT

**Aim:** The aim of this study was to evaluate all the cases of sinonasal masses based on histopathology into neoplastic and non-neoplastic lesions and to study their clinical and radiological presentations.

**Materials and methods:** The present study was carried out in 42 patients coming to the outpatient and inpatient Department of ENT of Netaji Subhash Chandra Bose Medical College & Hospital with the complaint of nasal obstruction during the period of March 2015 to August 2016. Patients were subjected to thorough clinical examinations and radiological investigations, which included digital X-ray paranasal sinus (PNS) and contrast-enhanced computed tomography PNS, and diagnosis was confirmed by nasal biopsy for histopathology reports.

**Results and observations:** A total of 42 patients were studied, of which 71.43% were non-neoplastic and 28.57% were neoplastic. Nasal polyps were the commonest non-neoplastic lesions (61.91%). Most common benign neoplastic lesion was angiofibroma (11.9%), while the commonest malignant neoplastic mass was found to be squamous cell carcinoma (7.14%). There was one case of adenoid cystic carcinoma.

**Conclusion:** Patients with sinonasal masses may present with trivial complaints, but proper evaluation of all the cases will enable us to make specific diagnosis and treat them accordingly.

**Keywords:** Nasal polyp, Neoplastic lesion, Non-neoplastic lesion, Sinonasal mass.

**How to cite this article:** Sachdeva K, Naskar S. A Study of Neoplastic and Non-neoplastic Sinonasal Masses at a Tertiary Center. *Clin Rhinol An Int J* 2017;10(2):66-69.

**Source of support:** Nil

**Conflict of interest:** None

## INTRODUCTION

Nasal mass is a very common ear, nose, and throat (ENT) problem encountered in the outpatient department of

any hospital. These masses produce wide range of symptoms ranging from nasal obstruction to headache and epistaxis to destruction of local structures. Inflammation of local tissue produced by these masses may bring changes in local anatomy and physiology. The presenting symptoms of all masses either benign or malignant are almost similar and hence a thorough clinical examination becomes necessary for provisional diagnosis. By the use of advanced investigation tools like computed tomography (CT) scan, magnetic resonance imaging, endoscopy, etc., a presumptive diagnosis is often made. However, it is the careful histopathological examination which decides the nature of any particular lesion and also makes it possible to implement correct and timely interventions, which is a major deciding factor for better prognosis.

Sinonasal masses can be non-neoplastic or neoplastic in nature. Most common non-neoplastic sinonasal lesion is nasal polyposis. The prevalence rate of nasal polyposis is about 2%.<sup>1</sup> Neoplastic masses can be benign or malignant. Benign sinonasal malignancies are a diverse group of tumors, some of which are unique to the nose. These tumors are uncommon and account for less than 1% of all neoplasm. Sinonasal malignancies have an incidence of 0.5 to 1 per 100,000 per year. They account for 0.2 to 0.8% of all malignancies and 3% of upper aerodigestive tract neoplasms.<sup>2</sup>

Nasal polyps were first recognized in India, and by 1000 BC curettes had been devised to remove them.<sup>3</sup>

Hippocrates (460–370 BC) recognized them, as well as devised a method of removing them using a piece of string which was passed through nose into nasopharynx. A piece of sponge was attached to the postnasal end, and the sponge was pulled through the nose removing the polyps before it.<sup>4</sup>

Nasal polyps are non-neoplastic masses of edematous nasal or sinus mucosa.<sup>5</sup> The polyps protrude into the nasal cavity from the middle and superior meatus, resulting in nasal blockage and abolishing airflow to the olfactory region.<sup>1</sup>

This study being done in a tertiary hospital, located in the outskirts of the city, was of immense value as it helped in analyzing the clinicopathological aspects of neoplastic and non-neoplastic sinonasal masses in both urban and rural population.

<sup>1</sup>Associate Professor, <sup>2</sup>Postgraduate Student

<sup>1,2</sup>Department of ENT, Netaji Subhash Chandra Bose Medical College & Hospital, Jabalpur, Madhya Pradesh, India

**Corresponding Author:** Kavita Sachdeva, Associate Professor Department of ENT, Netaji Subhash Chandra Bose Medical College & Hospital, Jabalpur, Madhya Pradesh, India, Phone: +919827447657, e-mail: drksachdeva@yahoo.co.in

**MATERIALS AND METHODS**

This study was carried out in the Department of ENT and Head and Neck Surgery, Netaji Subhash Chandra Bose Medical College & Hospital, Jabalpur, Madhya Pradesh, India.

It is a retrospective study.

All the patients attending ENT outpatient department of Netaji Subhash Chandra Bose Medical College & Hospital, Jabalpur, India, with complaint of nasal mass and obstruction, excluding upper respiratory tract infection/deviated nasal septum/allergy, were included in this study.

Detailed history of the patients was taken, and they were thoroughly examined. Investigations included relevant blood examinations, radiological investigations like digital X-ray paranasal sinus (PNS) and contrast-enhanced computed tomography PNS, and histopathological report of the nasal masses.

**RESULTS AND OBSERVATIONS**

**Results**

In the present study, 42 cases were studied, out of which 61.99% (26 cases) were males and 38.1% (16 cases) were females.

Sinonasal masses ranging from age group 0 to 15 years accounted for 23.8% (10 cases), 16 to 30 years, 40.47% (17 cases), 31 to 45 years, 23.8% (10 cases), whereas 11.93% of cases (5 cases) belonged to age group >45 years.

All the patients came with the complaint of nasal obstruction. Duration of obstruction was less than 1 month in 4.73% (2 cases), 1 to 6 months in 45.27% (19 cases), 7 to 12 months in 19.05% (8 cases), and greater than 12 months in 30.95% (13 cases). Other associated symptoms were rhinorrhea in 73.8% (31 cases), headache in 61.90% (26 cases), epistaxis in 45.27% (19 cases), and anosmia in 4.7% (2 cases) (Table 1).

Contrast-enhanced computed tomography PNS was available in 50% (21 out of 42) of patients. Out of 21 cases, bone erosion was found in 4 patients (19.05%).

According to the present study, 59.52% (25 out of 42) were inflammatory polyps, 2.39% (1 out of 42) were allergic polyps, 11.9% (5 out of 42) were angiofibroma, 9.52% (4 out of 42) were rhinosporidiosis and nasopharyngeal

**Table 1:** Incidence of sinonasal masses based on histopathology reports

	IP	AF	NCA	RH	HP	INP	AP
No	25	5	4	4	2	1	1
%	59.52	11.90	9.52	9.52	4.76	2.39	2.39

IP: Inflammatory polyp; AF: Angiofibroma; NCA: Nasopharyngeal carcinoma; RH: Rhinosporidiosis; HP: Hemangiopericytoma; INP: Intermediate neoplastic masses; AP: Antrochoanal polyp

**Table 2:** Symptoms associated with sinonasal masses

Symptoms	Present	Absent
Nasal blockage	100% (42 cases)	
Rhinorrhea	73.8% (31 cases)	26.2% (11 cases)
Headache	61.90% (26 cases)	38.1% (16 cases)
Epistaxis	45.27% (19 cases)	54.73% (23 cases)
Anosmia	4.7% (2 cases)	95.3% (40 cases)

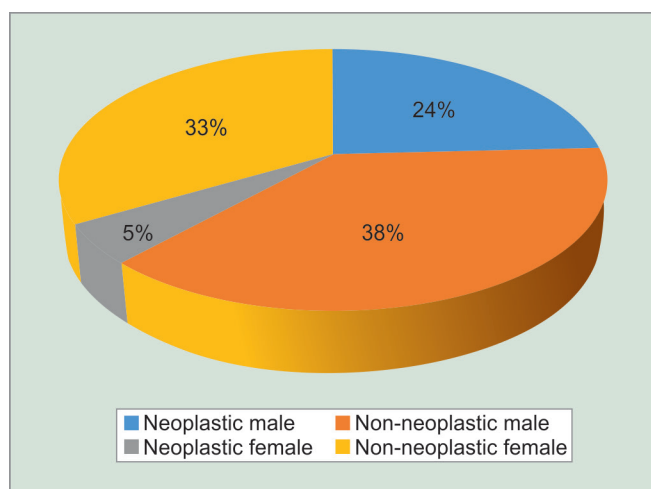
carcinoma each, 4.76% (2 out of 42) were hemangiopericytoma, and 2.39% (1 out of 42) were inverted papilloma (Table 2).

**Observation**

According to the present study, male predominance existed in case of both non-neoplastic and neoplastic sinonasal masses (Graph 1). In case of non-neoplastic lesions, male:female (16:14) ratio was 1.14:1, whereas in case of neoplastic lesions, the ratio was 5:1 (10:2). Malignant tumors were found to be more common in males.

Both non-neoplastic and neoplastic sinonasal masses were most commonly found in the age group 16 to 30 years; 43.33% (13 out of 30) of all non-neoplastic lesions and 33.33% (4 out of 12) of all neoplastic masses fall under this age group, while 75% (3 out of 4) of malignant tumors occur above 45 years of age.

Nasal blockage was the commonest complaint of the patients. Majority of the patients gave history of nasal obstruction ranging for a duration of 1 to 6 months (19 out of 42, i.e., 45.23%), out of which 63.15% (12 cases) were non-neoplastic and 36.84% (7 cases) were neoplastic. Rhinorrhea was commonly associated with non-neoplastic lesions (70.96%, 22 out of 31). Epistaxis was more commonly found in non-neoplastic sinonasal masses (52.6%, 10 out of 19). Incidence of headache was 76.92% (20 out of 26) in case of non-neoplastic lesions and 23.08% (6 out of 26) in neoplastic masses. Anosmia was present in two cases (4.7%), each belonging to either group.



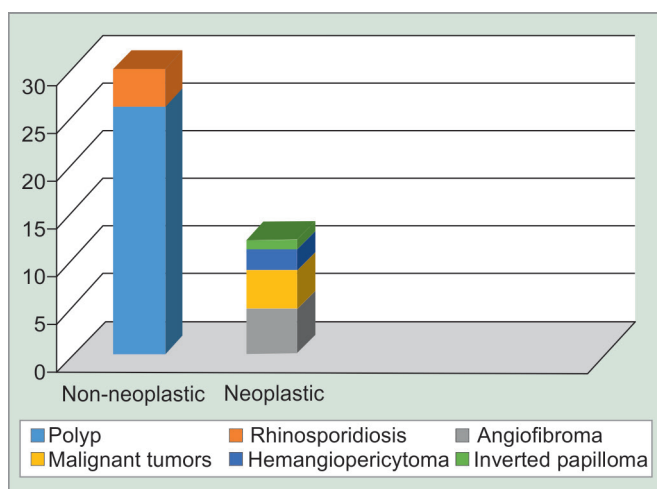
**Graph 1:** Incidence of neoplastic and non-neoplastic masses based on gender

In the present study, out of 42 cases, 71.43% (30 out of 42) were non-neoplastic lesions and 28.57% (12 out of 42) were neoplastic masses. Commonest non-neoplastic lesion was nasal polyps accounting for 61.91% (26 out of 42 cases) of all nasal masses, followed by rhinosporidiosis (9.52%; 4 out of 42 cases). Among the nasal polyps, 73.07% (19 out of 26) were antrochoanal, and 26.93% (7 out of 26) were ethmoidal polyps. All of the antrochoanal polyps were inflammatory in nature. In case of ethmoid polyps, 85.71% (6 out of 7) were inflammatory, and 14.29% (1 out of 7) were allergic. Benign neoplastic lesions consisted of 11.9% (5 out of 42 cases) of angiofibroma, intermediate neoplastic mass included 2.39% (1 out of 42 cases) of inverted papilloma, whereas malignant neoplasm included 9.52% (4 out of 42) of carcinomas and 4.76% (2 out of 42 cases) of hemangiopericytoma. Three out of four cases of malignant sinonasal tumors were squamous cell carcinoma and one case was diagnosed to be adenoid cystic carcinoma (Graph 2).

In the present study, 50% of the studied subjects had computerised enhanced CT PNS report. Bone erosion was found in four patients (19.05%). Out of this four cases, two were diagnosed to have angiofibroma and two suffered from carcinoma.

## DISCUSSION

In the present study, 42 cases of sinonasal masses were studied. Based on histopathological report, the masses were divided into two broad heads, namely neoplastic and non-neoplastic. Non-neoplastic lesions were more prevalent than neoplastic lesions. Nasal polyps were the commonest non-neoplastic sinonasal masses followed by rhinosporidiosis. This is similar to the study conducted by Nepal et al.<sup>6</sup> Most common benign neoplastic lesion was angiofibroma (11.9%), whereas malignant lesions included 9.52% of all nasal masses (75% of squamous cell carcinoma and 25% of adenoid cystic carcinoma). According to the



**Graph 2:** Non-neoplastic and neoplastic sinonasal masses based on histopathology reports

study by Sachan et al,<sup>7</sup> commonest non-neoplastic lesion was also nasal polyps (83%), followed by rhinosporidiosis (2%), angiofibroma being the commonest benign neoplastic lesion (7%), and malignant masses accounting for 5% of the total study subjects. Male predominance was found in case of both neoplastic and non-neoplastic sinonasal masses, but the difference was less in case of non-neoplastic lesions (non-neoplastic: 16 males, 14 females to neoplastic: 10 males, 2 females). The highest incidence of the sinonasal masses was between 16 and 30 years of age, which is similar to the study result of Nepal et al.<sup>6</sup> Contrast-enhanced computed tomography PNS was done in 50% patients, which revealed bony erosion in two cases of angiofibroma and two cases of malignant sinonasal tumors.

## CONCLUSION

The ENT surgeon may consider nasal polyps to be a trivial disease, as the diagnosis is easy to make by endoscopy and the treatment consists of corticosteroids and surgery. The symptoms of both neoplastic and non-neoplastic sinonasal masses are overlapping, so thorough examinations and investigations of the patient are of utmost importance for prompt diagnosis and timely intervention. The present study reveals X-ray PNS to be of some value when disease was limited to nasal cavity and maxillary antrum only, but hardly conclusive regarding other sinus involvement or any bony erosion. On the contrary, CT scan was more confirmatory in the diagnosis of a nasal mass and also provided information regarding its extent, vascularity, and bone erosion, thus indicating any intracranial extension, which were important for planning the nature of management. All the cases of sinonasal masses should be subjected to histopathological examination for diagnosis. The management of the patient is planned on proper evaluation and extent of the disease. Surgery is usually the primary mode of treatment with disease-specific medication supplement. The effect of surgery is prompt relief of the obstructive symptoms and restoration of functions. Medicine not only has a role in cure but also prevents recurrence.

Thus, proper evaluation and specific treatment are main goals of managing nasal masses.

## REFERENCES

1. Mygind, N.; Lund, VJ. Nasal polyposis. In: Scott Brown's otorhinolaryngology and head and neck surgery. 7th ed., Vol. 2. Part 13, Chapter 121. p. 1549-1556.
2. McMonagle, BA.; Gleeson, M. Nasal cavity and paranasal sinus malignancy. In: Part 17, Chapter 186. Scott Brown's otorhinolaryngology and head and neck surgery. 7th ed., Vol. 2. London: Edward Arnold Publishers Ltd.; 2008. p. 2417-2436.
3. Vancil ME. A historical survey of treatments for nasal polyposis. *Laryngoscope* 1969 Mar;79(3):435-445.

4. Drake-Lee, AB. Nasal polyps. In: Kerr AG, Mackay AS, Bull TR, editors. *Scott-Brown's otolaryngology*. 6th ed., Vol. 4. Rhinology, Oxford: Butterworth-Heinemann; 1997.
5. Dhingra, PL.; Dhingra, S. Nasal polyp. In: *Anatomy of nose; disease of ear, nose, throat and head and neck surgery*. 6th ed. Section II, Chapter 32. p. 172.
6. Nepal A, Chettri ST, Joshi RR, Karki S. Benign sinonasal masses: a clinicopathological and radiological profile. *Kathmandu Univ Med J* 2013 Jan-Mar;41(1):4-8.
7. Sachan MK, Jain AK, Nigam R, Freni JK. Sinonasal masses: a clinico pathological study at tertiary care centre. *J Evol Med Dent Sci* 2014 Jul;3(29):8023-8026.