

# Navigating in & around the Nose: Our Experience with Sinonasal & Nasopharyngeal Masses in Tertiary Care Centre in Central India

Madharia Astha<sup>1</sup>, Patel Seema<sup>2</sup>, Rekhade Tanvi<sup>3</sup>, Mahore Devendra<sup>4</sup>

<sup>1, 2, 3, 4</sup>Department of Otorhinolaryngology and Head & Neck Surgery, Government Medical College & Hospital, Nagpur, Maharashtra  
<sup>1</sup>Email: madharia. a [at] gmail.com

**Abstract:** Outpatient department of Otorhinolaryngology is flooded with patients presenting with complains involving sinonasal tract. The skill to identify the symptoms, diagnose the condition and plan appropriate management is of paramount importance to treating physician. This prospective study was carried out with 113 patients in tertiary care hospital, Central India from July 2020 to July 2022. All patients with nasal obstruction underwent clinical examination & radiological investigations. Those with masses were selected, histopathological diagnosis was done. They were stratified under different diagnoses, treated accordingly and data was analysed. Non neoplastic lesions were more commonly seen in the age group of 30-40 years, while benign lesions in the age group of 10-20 years. Malignant lesions were seen more commonly in the elderly age group of 60-70 years, closely followed by the age group of > 70 years. This was statistically significant. Male to female ratio was 1.3: 1.53.09% had non neoplastic lesions. The rest had benign 21.23% and malignant 25.66% lesions. Amongst non neoplastic lesions, almost all patients (51.32%) had sinonasal polyposis. Majority of patients amongst the benign neoplastic diseases in this study (21.23%) were diagnosed with JNA (15.04%). Ca Maxilla was found in 14.15% of patients. Majority of patients 74.33% underwent surgical excision endoscopically. Majority of patients 94.69% were found to be disease free at the end of follow-up interval of 1 month.

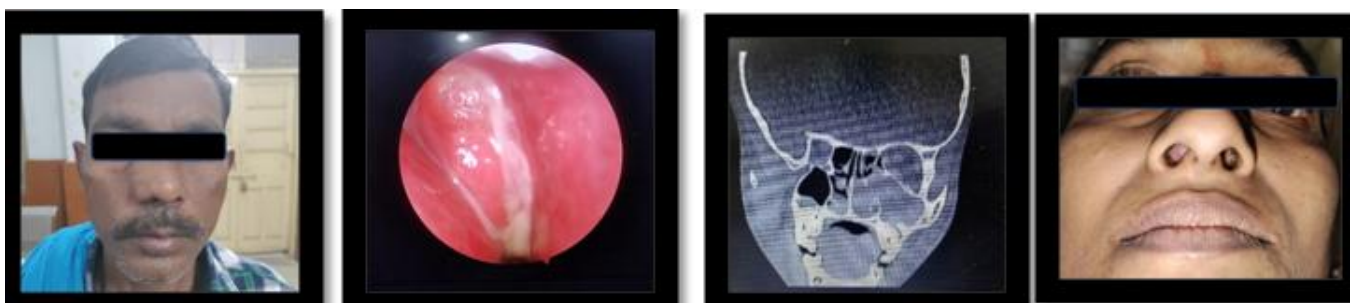
**Keywords:** Sinonasal malignancy, Juvenile nasopharyngeal angiofibroma, Diagnostic Nasal Endoscopy, Rhinorrhoea, Functional Endoscopic Sinus Surgery

## 1. Introduction

Sinonasal & Nasopharyngeal masses can significantly affect the quality of life, and place significant financial burden on society, directly as a result of outpatient appointments, prescriptions, investigations and hospitalization, and indirectly as work days are missed, and productivity at work decreases. Non Neoplastic sinonasal and nasopharyngeal masses include sinonasal polyps, mucocele, nasolabial cyst, while neoplastic masses range from benign entities like inverted papilloma, haemangioma, JNA, to malignant

lesions like squamous cell carcinoma, adenocarcinoma and so on. This prospective study aims to study varied clinical presentation of sinonasal & nasopharyngeal masses, assess the required diagnostic modalities and the management undertaken at tertiary care centre

**Clinical Presentation:** Lesions in the sinonasal and nasopharyngeal area present with overlapping and confusing symptoms, but can be discerned on the basis of location of origin, and size of lesion.



**Picture 1:** 59 year old male patient diagnosed with nasopharyngeal carcinoma of right side. **Picture 2:** Endoscopic view of nasal mass of same patient, mass arising from right maxillary sinus. **Picture 3:** CT scan (coronal view) of a 14 year old male patient showing soft tissue opacification in left nasal cavity, widening the ostium, occupying left maxillary sinus. **Picture 4:** 43 year old female patient with anterior rhinoscopy showing sinonasal polyp in right nasal cavity.

## 2. Materials and Methods

All patients presenting with nasal obstruction who satisfying the inclusion criterion mentioned were recruited in this study. This cross sectional study was set in ENT OPD at a tertiary care centre in Central Indian spanning 2 years (July 2020 to July 2022 with sample size of 113. All patients with

clinical diagnosis of sinonasal and nasopharyngeal masses were included in the study. Exclusion criteria comprised of patients with proven mucormycosis. Adenoids hypertrophy, septal abscess / haematoma, rhinolith were also excluded. Patients with non-specific rhinosinusitis were excluded. Patients were screened on the basis of history, examination and relevant investigations including endoscopic evaluation,

Volume 12 Issue 4, April 2023

[www.ijsr.net](http://www.ijsr.net)

Licensed Under Creative Commons Attribution CC BY

CT or MRI as and when required, and biopsy whenever indicated. Patient's particulars, antecedent illness, clinical presentation, physical examination, laboratory evaluation and radiological findings analyzed. Endoscopic biopsy specimen taken & sent for histopathological examination. Symptomatic treatment started based on provisional diagnosis. Benign cases like polyposis received medical management, such as intranasal corticosteroids. Response to treatment assessed & decision made to extend further management to surgical modality like endoscopic sinus surgery or curative excision with/outpost operative chemoradiation. Surgical specimen sent for histopathological evaluation. Patients were followed up after an interval of 1 and 3 months, check nasendoscopy done. Data was analysed. Appropriate test for statistical significance was applied and p-value obtained by Fisher's exact test. p-value<0.05 was considered as statistically significant after assuming all the rules of statistical tests.

### 3. Results

Among the 113 patients under this study, age of the patients varied from a minimum of 5 years to maximum of 79 years. Highest number of patients were found to be in the 4th decade (27.43%), followed by 2nd decade (15.93%). Most common age group that presented with non neoplastic lesions was 30-40 years, while benign lesions were more commonly seen in the age group of 10-20 years. Malignant lesions were seen more commonly in the elderly age group of 60-70 years, closely followed by the age group of > 70 years. The incidence was more in middle age group for non neoplastic lesions, decreased with age for benign lesions and increased with age for malignant lesions. This was found to be statistically significant with p-value<0.0001. Majority (56.64%) of the patients were men with male to female ratio of 1.3: 1. Ratio for non neoplastic lesions is 0.9: 1 and for malignant lesions is 1.23: 1, which is statistically not significant (p-value of >0.01). Male to female ratio for benign lesion was found to 3.8: 1, which was statistically significant (p-value = 0.012). This skewing is attributed to more number of JNA cases in our study which is seen almost exclusively in male patients.

Nasal symptoms were unanimously common presenting symptom for all patients in this study, comprising 100%. Other complaints were facial (33.63%), neurological (20.35%) and ocular (14.16%). 9.73% patients had oral symptoms also. Presenting symptoms were not mutually exclusive. All patients presented with nasal blockage as this was the eligibility criterion for the study. Next common most nasal symptoms were nasal mass (73.45%), followed by nasal discharge (62.83%) and difficulty in breathing (41.59%). Other nasal symptoms were recurrent cold (39.82%), excessive sneezing (34.51%), epistaxis (31.85%) and mouth breathing (25.66%). 16.81% patients complained of hyponasal voice while (15.04%) and (6.19%) reported altered sense of smell and pain respectively. Presenting symptoms were not mutually exclusive. Out of 71 patients with nasal discharge/bleed in this study of 113, 27.43% patients reported frank epistaxis, while 26.54% had spotting. 18.58% patients had blood stained nasal discharge, while mucoid discharge was seen in 23.89% and mucopurulent in 34.51%. Amongst symptoms not related to

nasal cavity, the most common were facial swelling (33.62%), followed by headache (20.35%). Ocular symptoms included proptosis (14.15%) and diplopia (9.73%). Other symptoms included facial tenderness and loosening of upper dentition, each 6.19%, and referred otalgia (4.42%)

Majority of patients presented with unilateral disease (63.72%), with left sided disease slightly more common (34.51%) than right sided disease (29.20%). Bilateral disease was found in almost one-third patients (36.28%). Majority of patients presented to clinic between 6months to 1 year of developing symptoms (42.48%), with majority lying in between 3 months to 1 year (61.06%) Almost half of patients in this study lived in rural areas (52.21%) while the other half in urban areas (47.79%). Almost half of the patients (53.09%) were diagnosed with non-neoplastic pathology. Amongst the malignant half, 21.23% patients had benign lesions while 25.66% had malignant lesions. Amongst 60 patients (53.09%) in this study of 113 patients, almost all patients (51.32%) had sinonasal polyposis, with 29.20% being ethmoidal polyps and 22.12% antrochoanal polyps. Only 1 patient of nasolabial cyst and 1 of rhinoscleroma were seen in this study. Majority of patients amongst the benign neoplastic diseases in this study (21.23%) were diagnosed with JNA (15.04%), with the youngest patient being 11 years old, and oldest being 23. Haemangioma and inverted papilloma were found to be 3.53% and 2.65% respectively. Ca Maxilla was found in 14.15% of patients. Carcinoma arising from nasal cavity was seen in 9.73% patients, while that from nasopharynx in 1.76%. No ethmoid carcinoma was found in this study. Amongst 25.66% of patients in this study with malignant lesions, majority (15.92%) had SCC of PNS/nasopharynx. 4.42% of patients had adenoid cystic carcinoma. Esthesioblastoma, Embryorhabdomyosarcoma and sinonasal undifferentiated carcinoma were seen in 2 patients (1.76%) each.

Majority of patients (74.33%) underwent surgical excision endoscopically, while (18.58%) patients were operated by open approach, i. e., partial maxillectomy. Benign cases like polyposis received medical management alongside surgery, such as intranasal corticosteroids. All patients with juvenile nasopharyngeal angiofibroma and haemangioma were treated with pre operative embolization of feeder vessel, followed by surgical excision. Two patients of JNA and all haemangioma patients underwent surgery by lateral rhinotomy approach, rest all JNA patients underwent endoscopic excision. Both cases of embryorhandomyosarcoma and sinonasal undifferentiated carcinoma were referred to curative chemoradiation. 25.66% of all patients in this study received chemoradiation as adjuvant or only treatment. Our centre deployed post operative radiotherapy involving Cobalt with 66.6Gy in 37 fractions (1.8Gy dose per fraction). Palliative chemotherapy combined docetaxel, cisplatin and 5 fluoro-uracil, while palliative radiation involved 25Gy in 4 fractions or 30Gy in 10 fractions, as per patient profile. Majority of patients (94.69%) in this study were found to be disease free at the end of follow-up interval of 6months. (4.42%) of patients had evidence of recurrent/residual disease which included 2 cases of sinonasal polyposis, 1 of JNA, 1 of inverted

papilloma and 1 of sinonasal carcinoma. 1 patient of maxillary carcinoma (SCC) died in late post operative period owing to cardiovascular co-morbidity. All patients were followed up for a period of 1 month and 3 months, when disease recurrence or residual was investigated for. Amongst the disease free patients, none of the patients had recurrence/residual on sequential follow ups. No death was encountered after sequential follow up period.

#### 4. Discussion

Due to the peculiar conformation of anatomy, , interventional treatment was limited compared to the diagnostic options for a long time in history. Chance of surgical drainage of the paranasal sinuses, starting with maxillary sinus, was considered only from the 17th - 18th century. The advent of endoscope and evolution of more promising surgical techniques, have aided in accurate management. Surgeons have come a long way and endoscopic sinus surgery is more and more researched upon, becoming an essential tool to alleviate nasal and paranasal ailments.

Age Group	No. of patients	Non Neoplastic	Neoplastic	
			Benign	Malignant
<10 years	4	0	2 (50%)	2 (50%)
10-20 years	18	2 (11.11%)	16 (88.88%)	0
20-30 years	10	9 (90%)	1 (10%)	0
30-40 years	31	30 (96.77%)	0	1 (3.22%)
40-50 years	15	9 (60%)	3 (20%)	3 (20%)
50-60 years	14	7 (50%)	1 (7.14%)	6 (42.85%)
60-70 years	10	1 (10%)	0	9 (90%)
>70 years	11	2 (18.18%)	1 (9.09%)	8 (72.72%)
Total	113	60	24	29
p-value		<0.0001	<0.0001	<0.0001

Type of Lesion	No. of patients	Male	Female	Male: Female Ratio	P-value
Non Neoplastic	60	29 (48.33%)	31 (51.66%)	0.9: 1	0.056
Benign	24	19 (79.16%)	5 (20.83%)	3.8: 1	0.012
Malignant	29	16 (55.17%)	13 (44.82%)	1.23: 1	0.854
Total	113	64	49	1: 3: 1	

**Picture 5:** Age & gender wise distribution of patients based on diagnosis

The present study was in concordance with similar studies carried out in the past decade on sinonasal and nasopharyngeal masses. Patients in the age group of 30-40 years were found to be the most common in this study (27.43%), followed by 10-20 years (15.93%). Manikanta et al <sup>(1)</sup> found 22.5% of patients in the range of 11-20 years, and 18.75% in the age group of 20-30 years. Kulkarni et al <sup>(2)</sup> found 22.95% patients in the age group of 30-40 years, followed by 22.13% in the age range of 20-30 years. This study observed a male to female ratio of 1.3: 1 which was similar to the ratio of 1.26: 1 observed by Manikanta et al <sup>(1)</sup>. Bakari et al <sup>(3)</sup> observed 1: 1.2. Nasal blockage remained the most common symptom with which patients presented in this study (100%), Gupta et al (94%) <sup>(4)</sup> and Swami et al (31.81 %). <sup>(5)</sup> Nasal mass was observed to be second most common symptom in this study (73.45%), rhinorrhea (90%) by Gupta et al, epistaxis (23.86%) by Swami et al.

Majority of patients in our study presented with unilateral disease (63.72%), with left sided disease slightly more common (34.51%) than right sided disease (29.20%). Bilateral disease was found in almost one-third patients (36.28%). Similar observation was done by Bakari et al <sup>(3)</sup>, with 31.60% on right side, 23.60% on left side, and almost half of patients (44.80%) on bilateral side. Gupta et al <sup>(4)</sup> observed 34.78% patients with lesions on right side, 48.90% on left side and 16.32% bilaterally. In our study, almost half of the patients (53.09%) were diagnosed with non-neoplastic pathology. Amongst the malignant half, 21.23% patients had benign lesions while 25.66% had malignant lesions. Bhat et al <sup>(6)</sup> and Kulkarni et al <sup>(2)</sup> observed similar trends with non neoplastic lesions 84% and 86%, benign lesions 7% and 11%, and malignant lesions 9% and 3% respectively. Amongst benign lesions, this study observed 70.83% of JNA cases comprising majority, followed by 16.66% of haemangioma. Jana et al <sup>(7)</sup> found 32% of benign cases in their study to be JNA, and 20% inverted papilloma.

As far as malignant lesions are concerned, this study found SCC to be most common (62.06%), followed by ACC (17.23%) as 2<sup>nd</sup> most common. This was in concordance with similar studies recently carried out in India. Dhanani et al <sup>(8)</sup> observed 33.7% SCC and 17.4% ACC, while Anjum et al <sup>(9)</sup> observed 56.7% SCC and 9.9% ACC. Das et al <sup>(10)</sup> observed 40% SCC and 13% ACC amongst malignant lesions in their study. Maxillary sinus was found to be the most common site of malignancy in sinonasal and nasopharyngeal region in this study (55.17%) as well as in the study by Dhanani et al <sup>(8)</sup> (47.8%), followed by nasal cavity (37.93% in this study and 35.3% in study by Dhanani et al). Similarly, Anjum et al <sup>(9)</sup> found more malignant lesions in maxillary sinus (51%) than nasal cavity (44%).

#### 5. Conclusion

Sinonasal and nasopharyngeal lesions are a diverse group of diseases with overlapping clinical presentation. It is imperative for the patient to be referred to an otorhinolaryngologist at an early stage for timely and accurate diagnosis. It is the duty of an otorhinolaryngologist to stay suspicious while dealing with seemingly non life threatening diseases as well as frank complicated cases. <sup>(11)</sup>

#### References

- [1] Manikanta V., Histopathological Study of Lesions in Nasal Cavity & Nasopharynx: An Experience at Tertiary Care Hospital. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), 2018; 17 (2); 47-51.
- [2] M Kulkarni A, G Mudholkar V, S Acharya A, V Ramteke R. Histopathological study of lesions of nose and paranasal sinuses. *Indian J Otolaryngol Head Neck Surg.*2012; 64 (3): 275-279. doi: 10.1007/s12070-011-0286-7
- [3] Bakari A, Afolabi OA, Adoga AA, Kodya AM, Ahmad BM. Clinico-pathological profile of sinonasal masses: an experience in national ear care center Kaduna, Nigeria. *BMC Res Notes.*2010; 3: 186. doi: 10.1186/1756-0500-3-186
- [4] Gupta R, Moupachi SS, Poorey VK. Sinonasal masses: a retrospective analysis. *Indian J Otolaryngol Head*

Neck Surg.2013; 65 (1): 52-56. doi: 10.1007/s12070-012-0602-x

- [5] Swami S, Birare S, Dalve K, Korade S, Clinicopathological study of non-neoplastic and neoplastic sinonasal lesions. IP J DiagnPatholOncol 2017; 2 (2): 40-43
- [6] T D, Bhat SP, Bhat VS, Aroor R, Bhandary B SK, MK G, KJ S. Different Faces of Sinonasal Mass Lesions. BJOHNS 2023; 28 (3): 193-7
- [7] Sonali Jana, Soma Mandal. Sinonasal tumour-a clinico-pathological study in a tertiary care hospital. International Journal of Contemporary Medical Research.2019; 6 (12): L1-L4.
- [8] Dhanani R, Faisal M, Shahid H, Malik KI, Jamshed A, Hussain R. Outcomes of Management of Sinonasal Malignancies at a Dedicated Cancer Institution: A Retrospective Study. Ann Maxillofac Surg.2021; 11 (1): 115-120. doi: 10.4103/ams.ams\_16\_21
- [9] Anjum W, Maken RN, Nisar H, Fatima I, Masood M, Shahid AB. Epidemiology and Treatment Outcomes of Sinonasal Tumors: A Single Institute's Experience in Pakistan. J Coll Physicians Surg Pak.2019; 29 (4): 356-360. doi: 10.29271/jcsp.2019.04.356
- [10] Das R, Sarma A. Clinico-histopathological study of sinonasal malignant tumours-A 5 years experience at a tertiary cancer institute. Journal of Medical Science And clinical Research.2018; 6.10.18535/jmscr/v6i11.56.
- [11] Patel SV, Katakwar BP. Clinico-pathological study of benign and malignant lesions of nasal cavity, paranasal sinuses and nasopharynx: A prospective study. Orissa J Otolaryngol Head Neck Surg.2009; 3: 11-5.