

Unilateral Nasal Mass: A Prospective Observational Study at Tertiary Care Centre-in Vidarbha

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Abstract: ***Background:** Unilateral Nasal masses are a common presentation due to wide variety of diseases ranging from simple acute inflammation to highly malignant diseases. Aim was to study the Clinicopathological profile and the Radiological findings of nasal masses. **Methods:** Prospective observational study conducted from July 2022 to September 2023 in department of Otorhinolaryngology at tertiary care center yielded 37 patients. Detailed history, clinical examination, diagnostic nasal endoscopy done along with the radiological investigations. Patients were managed on medical line along with surgery where required. Tissue was sent for histopathological examination. Final diagnosis was made after histopathology report. Data was collected and analysed statistically. **Results:** Out of 37 patients, 67.57% had non- neoplastic mass and 32.43% had neoplastic mass with M: F ratio of 1.5:1. Nasal obstruction was the most common presenting symptom. Ac polyp was the most common non neoplastic condition. Amongst neoplastic nasal mass, Capillary haemangioma was the commonest benign lesion and Neuroblastoma the commonest malignant lesion in this study. **Conclusion:** History, clinical examination, nasal endoscopic as well as radiological examinations plays an important role in diagnosis and consequently the management of nasal masses. However, histopathological confirmation remains obligatory.*

Keywords: Unilateral nasal mass, Polyp, Histopathology

1. Introduction

Nasal masses are common finding in an ENT outpatient department. The majority are due to inflammatory cause, and the remaining are either benign or malignant tumours [1]. Most patients present with complaints of nasal obstruction [2]. Besides nasal obstruction, there are various other symptoms associated depending on the nature and extent of involvement of the masses such as unilateral nasal discharge, epistaxis, facial pain, headache, diplopia, and cheek swelling [3, 4]. Nasal Polyps are the common cause of nasal obstruction in adults with a prevalence of about 4% in the general population [5] and 0.1 % in children. The presence of unilateral symptoms or pathology is regarded with caution as sinonasal neoplasms may mimic as inflammatory pathology during their early stages with subtle symptoms [6].

For proper evaluation of nasal mass, clinical, radiological and histopathological evaluation should be done, where radiology not only helps to make a diagnosis but also provides a road map to the endoscopic surgeons and warns of any existing or impending complications.

Tumours of the nose and paranasal sinuses account for less than 1% of all malignancies and about 3% of all head and neck cancers [5]. The most common benign sinonasal tumour is inverted papilloma, most frequently occurring in males, with a ratio of 3:1 [1]. Squamous cell carcinoma is the most common malignant sinonasal lesion occurring in 5th decade [7].

Aim of this study is to study the Clinicopathological profile and correlate the clinical, radiological and histopathological diagnosis of unilateral nasal masses.

2. Materials and Methods

All admitted cases of unilateral nasal mass were analysed from July 2022 to September 2023 at Government Medical

college and hospital, Akola. A total of 37 patients with unilateral nasal mass were included in the study.

Institutional Ethical Committee clearance and informed written consent was taken prior to study.

As per the protocol all patients of unilateral sinonasal symptoms were assessed by detailed history and clinical assessment followed by diagnostic nasal endoscopy. The patients with unilateral nasal mass/polyp were further assessed radiologically by X ray PNS or CT scan paranasal sinus as needed. Treatment protocol included medical line followed by surgical intervention. The patients were grouped as per their histopathological diagnosis as inflammatory and neoplastic. The data was collected and analysed statistically.

3. Results

The unilateral nasal mass was found in 37 patients over the study period. There were 22(59.5%) males and 15 (40.5%) females with M:F ratio of 1.5:1 . Age was ranging from 4 to 76 years with mean age of 37.3 ± 19.4 years. Left nasal cavity was most commonly involved (56.8%).

Table 1: Age and sex distribution of patients with unilateral nasal mass

AGE (years)	Male	Female	Total
0 – 10	2	1	3
11 – 20	5	1	7
21 – 30	4	3	6
31 – 40	2	2	4
41 – 50	3	4	7
51 – 60	4	2	6
>61	2	2	4
Total	22	15	37

The common presenting symptoms (Figure 1) was nasal obstruction 37 (100%), followed by nasal discharge 9 (24.32%), epistaxis 7 (18.91%), headache 5 (13.51%) and hyposmia 3 (8.1%). Facial deformity 2 (5.4%), ear discharge

1 (2.7%), dental complaints 1 (2.7 %) and neck swelling 1 (2.7 %) were seen in minority of patients.

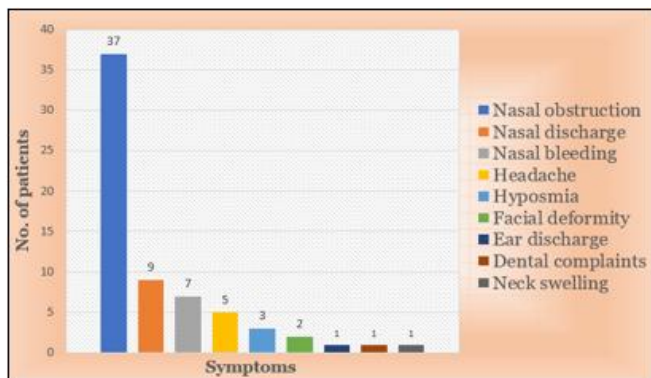


Figure 1: Presenting symptoms

The most common causes of unilateral nasal masses were non-neoplastic lesions (n=25, 67.57%) with mean age of 32.6 years. Malignant lesions were commonly seen in males with mean age of 55 years.

Table 2: Distribution of unilateral nasal masses

	Non-neoplastic (25)	Neoplastic mass (12)		Total
		Benign	Malignant	
Gender				
Male	15	4	3	22
Female	10	4	1	15
Mean Age (years)	32.6	43	55	37.3

After appropriate workup with nasal endoscopy and computed tomography and non-responsive to medical management, patient processed for surgical intervention. In present study, Functional Endoscopic Sinus Surgery was the main surgical mode of intervention used (62.25%) followed by Endoscopic Sinus Surgery (13.51%) and all excised tissue were sent for histopathological examination. A Histopathology report confirmed the diagnosis (Table 3). Among the non-neoplastic mass, majority of them account to AC polyp (n=15) followed by sinonasal polyposis. Capillary haemangioma was the most common benign tumour (n=3), while neuroblastoma was the commonest

malignant neoplasm (n=2) in this study as depicted in Table 3.

Table 3: Distribution of nasal mass as per the Histopathological findings

Types	N
Non-neoplastic	
AC Polyp	15
Sinonasal Polyposis	5
Inflammatory polyp /Fungal sinusitis	3
Rhinolith	1
Rhinoscleroma	1
Neoplastic (Benign)	
Capillary haemangioma	3
Haemangiopericytoma	1
Inverted Papilloma	2
Fibrous Dysplasia	2
Neoplastic (Malignant)	
CA Nasopharynx	1
SCC of nose	1
Neuroblastoma (ectopic and olfactory)	2

Among 37 patients, in 35 patients clinical diagnosis was consistent with histopathological diagnosis except in 1 case of sinonasal polyposis that was reported as inverted papilloma and 1 case of suspected neoplastic mass which came out to be rhinoscleroma.

All the patients had undergone CT scan except 4 cases with evident confined small lesions. Among 33 patients, in 30 patients, radiological diagnosis was consistent with clinical diagnosis and in 29 patients radiological diagnosis was consistent with histopathological diagnosis. In 3 patients clinically diagnosed as neoplastic mass reported as sinonasal polyp on radiology and in 4 patients with radiological finding of polyp, on histopathology it was diagnosed to be inverted papilloma, rhinoscleroma, ectopic neuroblastoma and olfactory neuroblastoma.

Table 4: Comparison of clinical , radiological and histopathological diagnosis

Clinical diagnosis	N	Radiology	N	Histology	N
AC polyp	15	AC Polyp	15	AC Polyp	15
Sinonasal polyposis	6	Sinonasal polyposis	6	Sinonasal polyposis	5
AFRS	3	AFRS	3	Inverted papilloma	1
Nasal haemangioma	4	Not done*	-	Inflammatory polyp /Fungal sinusitis	3
Rhinolith	1	Sinonasal angiomatous polyp	1	Capillary haemangioma	3
Inverted Papilloma	1	Not done*	-	Haemangiopericytoma	1
CA Nasopharynx	1	Inverted Papilloma	1	Rhinolith	1
SCC of nose	1	CA Nasopharynx	1	Inverted Papilloma	1
? Neoplastic mass	5	Malignancy	1	CA Nasopharynx	1
		Fibrous Dysplasia	2	SCC of nose	1
		Sinonasal polyp	2	Fibrous Dysplasia	2
		Mild Heterogenously enhancing polyp	1	Rhinoscleroma	1
				Ectopic Neuroblastoma	1
				Olfactory Neuroblastoma	1

4. Discussion

Nasal masses display a complex and interesting spectrum of clinical, radiological and histopathological features. Our

results showed that unilateral sinonasal masses were more in males than in females. This is consistent with prior studies^[1,8,9,10].

However, in a retrospective study by Nair et al., based on the patients' gender, 27 (61.3%) were females and 17 (38.7%) were males in the non-neoplastic group.

In the study by Kucur et al., the age has ranged from 1-74 years with a median age of 41.74 years^[10]. In a study by Nair et al., The age of the females and males groups were of (16-68 years, mean 32.7 years) and (18-77 years, mean 41.2 years), respectively. The most commonly observed symptom was nasal obstruction among the various patients' symptoms. Neoplasms were observed more in males and in age above 50 years^[4]. Our finding was comparable to the above-mentioned studies.

In a study by Kahveci et al. on 127 cases, 25.2% of the cases with unilateral sinonasal masses were found to be concerning neoplastic while 74.8% were about non-neoplastic causes^[11]. However, in our study 32.4% neoplastic and 67.7% non-neoplastic lesions were detected in a total of 37 patients.

In a retrospective study of 73 cases of unilateral sinonasal mass by Kucur et al., they have reported that inflammatory polyps as the most common non-neoplastic mass. Inverted papilloma was the most common benign tumour^[10]. It is not consistent with our study. In a study by Ibrahim et al., the non-neoplastic cases were 22 out of 34. The simple inflammatory polyp was the most common non-neoplastic mass in 59.9%. The neoplastic cases were 12 out of 34. The commonest benign tumor was inverted papilloma, 6 out of 12 (50%). The most common malignant tumours were non-Hodgkin's lymphoma (3 out of 12)^[9]. In our study, the non-neoplastic cases were 25 out of 37. AC polyp was the most-commonest non-neoplastic mass in 60 %. The neoplastic cases were 12 out of 37. The commonest benign tumour was haemangioma, 4 out of 8. The most common malignant tumours were neuroblastoma, 2 out of 4.

The use of nasal endoscope represents a significant advance in understanding intranasal anatomy, but specific pathological findings may not be detected. In these patients, radiographic studies often reveal unilateral sinus opacification to varying degrees, and sometimes erosion or destruction of the bony structures can be observed. CT scan of the paranasal sinus has improved the visualization of the intricate anatomy and has allowed greater accuracy in evaluation of paranasal diseases. 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^[12]. FESS was the most commonly used surgical intervention (62.25%) in our study.

Comparison of clinical and radiological and histopathological findings (Table 4) in our study showed in 90.9 % cases the radiological findings were consistent with that of clinical suspicion and in 87.9 % cases radiological diagnosis was consistent with histopathological diagnosis. In 94.6 % cases clinical diagnosis was consistent with histopathological diagnosis. A previous study by Diamantopoulos et al.^[13] on 2021 patients reported that 1.1 % of their patients had histopathological findings which were different from their clinical diagnosis and led to

alteration in management. However, histopathology still remains the gold standard for diagnosis in most cases. Kale et. al.^[14] studied 344 cases and found clinico-histopathological correlation in 99.7 % cases and Diamantopoulos et al. 2,021 in 98.9 % cases among 2,021 specimens.

5. Conclusion

Nasal obstruction followed by rhinorrhea is the most common presenting symptom of nasal masses. In our study, AC polyp is the most common non-neoplastic mass occurring in 11-20 years age group. The most common benign and malignant mass is the haemangioma and neuroblastoma respectively. Malignancy was most commonly seen in males in 51–60 years age group. In most cases clinical diagnosis was consistent with the radiological diagnosis and also with post procedure histopathological evaluation. The presenting symptoms, nasal endoscopy and advanced imaging technique helps to draw a provisional diagnosis and consequently the management of nasal masses but histopathological examination remains the gold standard to state definitive diagnosis.

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