

A study on clinico-pathological profile of sinonasal masses: A retrospective study at tertiary hospital

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ABSTRACT

Introduction: Masses in sinonasal area is a common entity and occurs amongst patients of all age groups. A correct diagnosis is important for correct treatment and effective recovery. The purpose of this retrospective study to analyze various clinic-pathological features that is present in sinonasal masses. **Methods:** Our study is a retrospective observational type of study done on 80 patients of Sinonasal masses (SNM) who visited the OPD of department of ENT and Head & Neck surgery, A.B.V Govt Medical College Vidisha (M.P) India duration of 1 year from August 2019 to August 2020. Their clinical, pathological, profiles were analyzed. **Results:** SNM were predominately presents in male gender 63%, non-neoplastic was found most common 60%, & among that nasal polyp 48.3% was most common then neoplastic. Nasal obstruction was common symptoms followed by nasal discharge and intermittent epistaxis. 2nd to 3rd decade most commonly affected in non neoplastic & in neoplastic 5th to 6th decade was common. Among neoplastic maxillary carcinoma was common in malignant and angiofibroma was common in benign group, histopathological squamous cell carcinoma was common. **Conclusion:** Early diagnosis is important. Nasal endoscopy examination and CT scan can diagnose sinonasal masses at an early stage. Many etiological factors was analyzed, chronic sinusitis, allergic rhinitis, occupational work and addiction especially cigarette was found to be important risk factors for origin of sinonasal masses (SNM).

Keywords: Sinonasal masses (SNM), Diagnostic nasal endoscopy (DNE), nasopharyngeal carcinoma (NPC)

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Introduction

Sino nasal masses were common clinical entity in field of otorhinolaryngology that occurs amongst all age group patients with wide variety of pathology from non neoplastic to neoplastic in nature [1]. The masses can be congenital or acquired. Congenital include nasal glioma, dermoid cyst, nasolabial cyst, encephaloceles may extends intranasal or intracranial. Acquired sinonasal masses whether neoplastic or non-neoplastic occurs due to end stage of chronic inflammatory disease of sinonasal tract leads to edematous hypertrophied sinus or nasal mucosa. Etiologies were chronic rhinosinusitis with nasal polyposis, allergic rhinosinusitis, fungal rhinosinusitis, rhinoscleroma, sicca rhinoscleroma, and inverted papilloma, angiofibroma, traumatic or granulomatous in nature [2]. Sino nasal masses can presents from nasal cavity, Nasopharynx to paranasal sinus. There presenting features depends upon extends of spread & type of pathology, being nasal obstruction most common followed by nasal discharge, intermittent epistaxis, orofacial swelling, loosening of teeth, orbital features (proptosis/ epiphora/ diplopia), loss of smell to cranial nerve palsy & aural symptoms (hearing loss) due to Eustachian tube blockage to metastatic cervical lymphadenopathy [3]. Mostly sinonasal masses arises from maxillary ostium due to blockage of osteomeatal complex followed by ethmoidal sinus and very few from sphenoid & frontal sinus [4].

It is difficult to identify exact nature of disease, hence it is important to take proper history, nasal endoscopy, radiology, and histopathology (to decide the nature of disease) are used conjointly to reach the diagnosis, So that timely intervention can be done. Our aim in the study is to do a retrospective observational study and analyze various clinical and pathological nature of sinonasal masses.

Material and Methods

This was a retrospective observational study, where 80 patients of sinonasal masses were included visiting the department of ENT and Head & Neck Surgery at A. B.V. Govt Medical College Vidisha M.P, India over a period of 1 year from August 2019 to August 2020. Complete workup was done in all cases that included detailed history, clinical assessment, DNE, radiological investigations including CT SCAN of Para nasal sinuses coronal as well as sagittal view, MRI SCAN (as per requirement). HPE was sent either by biopsy or surgically excised specimen was carried out in most of cases. A provisional diagnosis was made on clinical assessment but definitive diagnosis was made after HPE report. Previously treated cases of sinonasal disease, patients with recurrence and patients who were not given consent for examination and treatment are excluded from study.

Results

During the study period, 80 patients with sinonasal masses presented to the ENT and Head & Neck Surgery Department and were included in the study. Following observations and results were noted.

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Table 1: gender distribution

Category	No.	N=80	Percent (%)
Male	63	63/80	78.75%
Female	17	17/80	21.25%
Total	80		100%

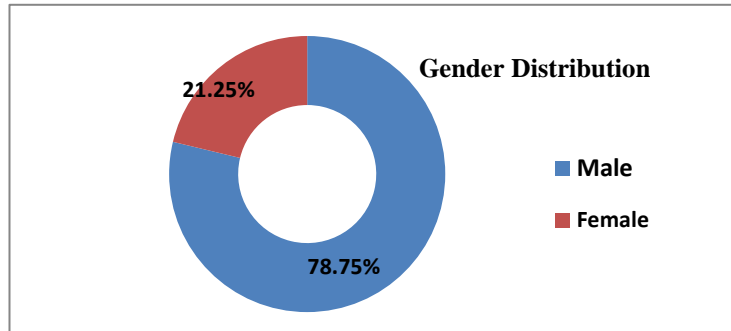


Fig 1: Gender distribution

Out of 80 patients, 63 was male (78.75%) and 17 was female (21.25%).

Table 2: Clinical presentations

S.No.	Mode of Presentation	No. of Cases (n=80)	Percent (%)
1	Nasal Obstruction	71	88.75%
2	Nasal Discharge	58	72.50%
3	Nasal Mass/polyp	25	31.25%
4	Epistaxis (Intermittent)	33	41.25%
5	Headache	31	38.75%
6	Hyponasality	02	02.50%
7	Hypoanosmia / anosmia	43	53.75%
8	Facial Swelling	12	15.00%
9	Proptosis/Diplopic/Epiphora	03	03.75%
10	Facial Pain	01	01.25%
11	External Nose deformity	05	06.25%
12	Aural symptoms	06	07.50%

In our study, mostly patients presents with complain of nasal obstruction (88.75%), followed by nasal discharge (72.5%), blood stained discharge (38.75%). Nasal polyp was seen in majority of patients, headache (38.75%), olfactory involvement (53.75%), orofacial involvement (15%), aural symptoms(hearing loss) 7.5%, facial pain and change in voice (hypo nasality) seen in few patients (1.25%).



Fig 2: Sinonasal Mass seen on the left

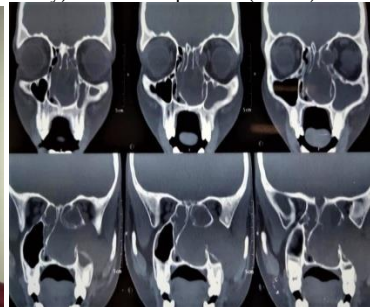


Fig 3: Mass seen on CT scan of side of face

Table 3: Age Distribution

Age Group (in years)	Non-neoplastic	Neoplastic		Total
		BENIGN	MALIGNANT	
0-10	09	02	00	11
11-20	15	05	00	20
21-30	13	04	00	17
31-40	20	02	01	23
41-50	01	02	01	04
51-60	02	00	02	04
61 and above	00	00	01	01
Total	60	15	05	80

Table 4:Types of Lesion

Type of Lesion	No. of Cases (n=80)	Percent (%)
Non-neoplastic	60	75%
Neoplastic	20	25%
a.Benign	15	75%
b.Malignant	5	25%

In our study, among non-neoplastic group 60 patients out of 80(75%) 4th decade mostly affected, followed by 3rddecade, non-neoplastic lesion were very rare in an elderly age group. Among neoplastic group20 patients out of 80 (25%) benign masses 15/25(75%) was seen most commonly around 2nd decade. In our study only 5 cases was malignant out 25 (25%).

Table 5:Distribution of cases according to type of pathology

Diagnosis	No. of Cases	Percent (%)
I.Non-neoplastic	60	
Adenoid hypertrophy	15	25%
Nasal polyp	29	48.33%
Rhinolith	01	01.66%
Atrophic Rhinitis	02	03.33%
Fungal Nasal Mass	05	08.33%
Dentigenous cyst	01	01.66%
Septal Hematoma	01	01.66%
Septal Abscess	01	01.66%
Tubercular	05	08.33%
II.Neoplastic	20	
a.Benign Lesion	15	
Angiofibroma	05	33.33%
Inverted Papilloma	01	06.66%
Hemangiomas	04	26.66%
Septal Angioma	05	33.33%
b.Malignant cases	05	
Maxillary Carcinoma	03	60.00%
Malignant Melanoma	01	20.00%
NPC	01	20.00%
Total	80	

Among non-neoplastic masses nasal polyp was commonly seen around (48.3%), followed by adenoid hypertrophy 25% ,fungal infection induced mass & tubercular mass each 8.33%, Rhinolith, septal abscess, septal hematoma each 1.66%. Among neoplastic, benign tumours was commonly present. Angiofibroma followed by hemangiomas common 33.33%, 26.66% respectively. Maxillary carcinoma most common among malignant group (60%), followed by nasopharyngeal carcinoma 20%.

Discussion

This study evaluated the clinic-pathological profile of patients with sinonasal masses, the study was conducted on 80 patients , where in males predominated with the male: female ratio being 3.7:1, which is similar to other studies done by Abdurrahman Burga et al[6,7]study conducted by Fasnula AJ and Ogunkeyede SA females was predominant.Majority of patients came from rural community and had a history of long term exposure of environmental /wood dust, industrial pollutant,smoking,welding fumes which are the risk factors for occurring sinonasal masses.Binazzi A et al revealed significant association between exposure and pathogenesis of nasal mass[8]. Among sinonasal masses, in our study non neoplastic lesion 75% followed by neoplastic lesion 25% (benign -75% & malignant -25%), which is similar to study done by P. Agarwal et al[9] , N.Khan et al, S.S Bist et al & Patel SV et al[10].In our study , non neoplastic predominant over neoplastic affect age group 30 to 40 years , supported by study done by P.Agarwal et al (4th decade) & U.Zafar et al (3rd decade), Alok Bose et al(2nd to 4th decade)[11] J.Bhattacharya et al [12],Shaila N. Shah et al (3rd decade)[13].Among neoplastic, benign lesion was common and adolescent(juvenile angiofibroma) age group was commonly affected , accordance to study done by Jaison et al[14]angiofibroma followed by Hemangiomas 26.6% and then inverted papilloma 6.67%.Study done by Lathi A et al & Anjali DG et al(43.6% Hemangiomas& 30.7% inverted papilloma), found similar results

Clinical presentation vice, in our study majority patients presents with nasal obstruction 88.75% followed by nasal discharge, followed by loss of smell 53.75% & blood stained discharge 41.25%. study done by Narayan swamy et al[15], Humayun AH et al[16] found similar symptoms .study done by Iqbal SM et al[17]found facial swelling most common presenting sign .In our study nasal polyposis48.3% was seen in almost all patients on clinical as well as on performing DNE.DNE is an advanced diagnostic tool and helps in detection of nasal pathology in an early stage which many times missed on anterior rhinoscopy. Nasal polyp was common among non-neoplastic in study done by Somani S et al , N. Khan et al, Tandon PL et al,[18] Anjali et al[19]. In neoplastic lesion due to extension of disease sinonasal mass causes stretching of optic nerve or when there was intracranial extension of mass involving the optic nerve pathway causes loss of vision .orbital symptoms are seen especially proptosis suggestive of neoplastic lesion according to Das et al[20]and cranial nerve palsy. Cranial nerve first olfactory was most commonly affected leads to loss of smell perception.Cranial nerve sixth palsy causes diplopia because of lateral rectus palsy.In malignant lesions, maxillary carcinoma accounts 60% followed by nasopharyngeal carcinoma 20%. Study of Jaison et al & P. Agarwal et al found similar results. In contrary study done by N. Khan et al found NPC most common.CT scan PNS was advised in all patients as it depicted better anatomy of nose and PNS , but sometimes it gives false positive findings as in inflammatory or thickened secretions in sinus mucosa which alter TNM staging and therefore MRI is useful to

reveals differential between infiltration into orbit secondary to metastasis or due to obstruction in draining sinuses. Different modalities of treatment were used to treat different lesions like medical treatment, atrophic rhinitis, radiotherapy to malignant melanoma. Nasal polyp was surgically excised from simple polypectomy to functional endoscopic sinus surgery, one case of dentigerous cyst excised through Caldwell-Luc approach, septal hematoma & abscess managed by simple incision & drainage of particular area of septum followed by antibiotic ointment packing. In Symptomatic adenoid hypertrophy adenoidectomy was performed. Hemangiomas are simply excised followed by electrocauterization along its base. Large angiofibroma (external carotid artery ligation), papilloma was excised by using lateral rhinotomy approach. 3 cases of maxillary sinus malignancy lateral rhinotomy approach with hemimaxillectomy with chemo or radiotherapy. 1 case of malignant melanoma due to an elderly age group cryotherapy was done followed by chemotherapy. HPE was carried out in all cases; among malignant lesions squamous cell carcinoma was most common.

Conclusion

Sino nasal masses is a very common entity in a community, various etiological factors are associated with its origin. Because of varied presentations, clinical diagnosis is often difficult and has to rely on histopathological examination of biopsy specimen. Management is also difficult because of lack of definite protocol. Malignant Sino nasal masses are aggressive in nature, extend to adjacent vital structures, even with multimodality approach prognosis is poor. Timely diagnosis (diagnostic nasal endoscopy & CT scan) & early treatment will decrease the burden of disease as well as mortality & morbidity, with advancement of newer surgical, medical, & radiological interventions has given advantage while dealing with these patients.

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