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Original Article

Clinico-pathological Study and Management of Sinonasal Masses

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Abstract:

Background: The Sino nasal tract and para nasal sinuses, in spite of being an anatomically smaller region, have a complex variety of lesions ranging from non- neoplastic to neoplastic. The purpose of this study was to classify various types of non- neoplastic and neoplastic lesions presenting as sinonasal masses at Gajanan ENT Hospital and management of these cases. **Methodology:** Patients with sinonasal masses, diagnosed at the institute, were included in the study. Previously treated cases, congenital lesions were excluded. Study factors were demographics, diagnostic nasal endoscopy, CT scan PNS, MRI with contrast and histopathology. The data was presented as descriptive statistics with comparing the diagnosis on DNE, CT scan PNS, MRI and histopathology. Diagnosis on histopathological examination was considered to be definitive. **Results:** A total of 80 patients were included in the study. Demographic data showed equal female and male predominance, with most patients from age group 31-40 years. Nasal obstruction was the most common presenting symptom. 56 patients had non-neoplastic lesions; 20 patients had neoplastic benign lesions while 4 patients had neoplastic malignant lesions. **Conclusion:** Large number of patients present with different symptoms but need careful examination and appropriate diagnosis. Clinical suspicion and appropriate investigations can guide in timely intervention and management of these patients reducing the morbidity and mortality in these patients. Treatment is to be individualised. Few cases with extensive diseases were managed by medial maxillectomy & Draf 3 procedure.

Key words: Sinonasal masses, Diagnostic Nasal Endoscopy, Ct scan PNS, Histopathological diagnosis in sinonasal masses, Draf 3

Introduction:

Otorhinolaryngologists encounter nasal masses very often in their routine Out Patient Department (OPD) practice. Hence, it becomes essential to timely diagnose them and prevent any further untreatable complications.

The symptoms of sinonasal masses encompass a wide range of symptoms like nasal obstruction, sneezing, epistaxis, disturbance in smell; orbital swelling, decreased vision, ear ache,etc.[1] Anatomically, the sinonasal pathway being in close proximity to vital structures such as the eyes and the brain, it necessitates the need for its appropriate classification so as to treat them accordingly.

A thorough clinical examination is to be done, when an otorhinolaryngologist comes across a sinonasal mass. This examination allows surgeon to judge the nature of lesion in terms of consistency, bleeding, attachments to surrounding structures, extent, tenderness, colour etc.

Radiological intervention like Computed Tomography (CT) of para nasal sinuses (PNS) provides the best visualization of sinuses, their pathways, the walls of the sinus and the nasal anatomy. Along with the normal structural anatomy, it also guides us in classifying the lesion as benign or malignant as well as its origin, extent or any bony involvement. In cases causing complications such as intra cranial extent is best analysed in MRI with contrast. There was 90% correlation between nasal endoscopy and CT findings when combined together than either of them used alone.[2]

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The clinical features, Diagnostic Nasal Endoscopy, CT-PNS and MRI guide us in reaching a provisional diagnosis of the sinonasal lesion.[3] However histopathological examination still remains the gold standard for making the final diagnosis.

Methodology:

- A hospital-based analytical observational study was conducted at Gajanan Hospital, Advanced Endoscopic ENT Surgery & Snoring Treatment Centre, Ahmednagar from February 2022 to December 2022.
- *The inclusion criteria:* patients with clinical diagnosis of sinonasal mass.
- Patients with congenital masses, recurrence of previously treated sinonasal mass were excluded from the study. Formal written informed consent was obtained from all patients in the local dialect.
- The various factors collected from the subjects included demographics, chief complaints, past history and allergies. Patient were evaluated using diagnostic nasal endoscopy, computed tomography of nose and paranasal, MRI with contrast in some patients and data from the evaluation was collected for statistical evaluation.
- Radical FESS, FESS were done for most of the nasal polyps. Excision withCoblator was done in cases of Angiofibromas. DRAF 3 procedure was carried out for mass involving frontal sinus.
- *Statistical analysis:* The baseline demographics and clinical features were presented as mean, Standard deviation (SD) and range and in tables and charts. Comparative analysis among non-neoplastic, neoplastic benign and neoplastic malignant lesions was done.

Results:

A total of 80 patients were included in the study, where mean age of the patients was 37±13.97 years. Majority of the patients were in the age group 31-40 years (26.25%) and male: female ratio was 1:1. Nasal obstruction was the most common presenting complaint(91.25%). Amongst the 80 patients, 52 patients (65%) had inflammatory lesions, 20(25%) had benign neoplastic lesions and 4(5%) patients had malignant neoplastic lesions.

Table no.1: Age wise distribution of study subjects according to the type of disease (n=80)

Age group (in years)	Non neoplastic		Neoplastic				Total	
	Inflammatory		Benign		Malignant			
	N	%	N	%	N	%	N	%
11-20	08	15.38	05	25	00	00	13	17.5
21-30	10	19.23	01	5	00	00	11	13.75
31-40	14	26.92	07	35	00	00	21	26.25
41-50	16	28.57	04	20	00	00	20	25.00
51-60	06	11.53	02	10	02	50	10	12.5
>60	02	3.85	01	5	02	50	05	6.25
Total	**56**	**100**	**20**	**100**	**04**	**100**	**80**	**100**

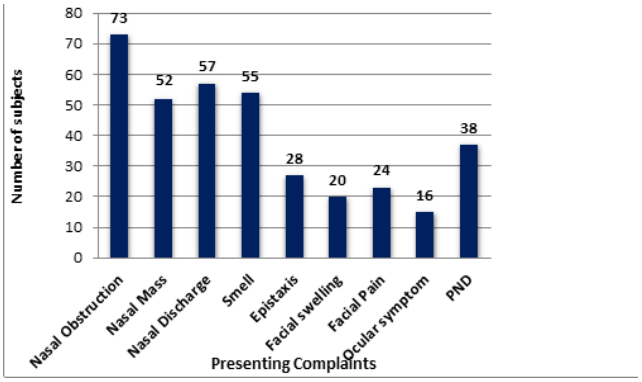
Table no.2: Gender wise distribution of study subjects according to the type of diseases (n=80)

Gender	Non neoplastic		Neoplastic				Total	
	Inflammatory		Benign		Malignant			
	N	%	N	%	N	%	N	%
Male	23	41.07	14	70	3	75	40	50
Female	33	58.93	06	30	1	25	40	50
Total	**56**	**100**	**20**	**100**	**04**	**100**	**80**	**100**

Table no.3: Distribution of sinonasal mass in study subjects according to type of disease on histopathology examination (n=80)

Type of disease on histopathology			Frequency (N)	Percentage (%)
Non neoplastic 56 (70%)	Inflammatory	Inflammatory Polyps	45	56.25
		Fungal Sinusitis	7	8.75
	Total		52	65
	Non-Inflammatory	Rhinolith	3	4.00
		Mucocele	1	1.33
	Total		4	5.00
Neoplastic 24 (30%)	Benign	Fibrous dysplasia	1	1.25
		Osteoma	1	1.25
		Inverted Papolloma	2	2.50
		Capillary Haemangioma	9	11.25
		Juvenile Nasopharyngeal angiofibroma	4	5.00
		Nasolabial cyst	1	1.25
		Schwanoma	2	2.50
	Total		20	25
	Malignant	Squamous cell carcinoma	2	2.50
		Non-Hodgkins lymphoma	1	1.25
		Malignant spindle cell carcinoma	1	1.25
	Total		4	5.00
Total			80	100

Chart no.1: Distribution of study subjects according to presenting complaints (n=80)



Nasal obstruction was found to be the most common presenting complaint (91.25%) followed by Nasal discharge (71.25%).

Among non-neoplastic lesions, 45 patients had inflammatory lesions and 7 had fungal sinusitis with polyp. Non neoplastic lesions were most common among the age group 41 to 50 years with incidence higher in females compared to males.

Among 20 subjects having benign neoplastic lesions, 2.50% had inverted papilloma, 11.25% had capillary haemangioma, 5% had juvenile nasopharyngeal angiofibroma,1.25% had nasolabial cyst and Schwanoma was 2.50%.

Neoplastic lesions were seen commonly in age group 31-40years (35.00%) with higher incidence in males compared to females. Among 4 patients having neoplastic malignant lesion 50% had Squamous cell carcinoma, 25% had Non-Hodgkin's Lymphoma and25% had Malignant spindle cell carcinoma. Malignant lesions were more common in patients more than 50 years of age with incidence higher in males as compared to females.

Discussion:

Sino nasal masses are very common presentation in the Otorhinolaryngology outpatient department. The presenting features of sinonasal masses are nasal obstruction, rhinorrhoea, blood-stained nasal discharge, epistaxis, facial swelling, orbital symptoms, (epiphora, proptosis, diplopia and visual disturbances) & ear symptoms. Facial swelling, pain headache and snoring with sleep apnoic spells are not infrequent findings in patients with massive sinonasalmasses.[4] In present study, majority of patients (28.57%) of study subjects were in age group 41-50 years of life which was similar to the findings in studies by Vaghela K *et al*[5], Maheshwari A *et al*[6] and Mane *et al.*[7]

Nasal obstruction was found to be the most common presenting complaint(91.25%) followed by Nasal discharge (71.25%) which was consistent with the findings in studies from Lathi A *et al*[11], Bist *et al*[10], Maheshwari *et al*[6].

In present study, out of 56 non-neoplastic cases,45(60%) cases had inflammatory Polyps on HPE followed by 7(9.33%) cases with fungal Sinusitis with polyp on histopathology. Also 3(4%) cases had Rhinolith and 1 case of Nasolabial cyst. 20 subjects were found to have Neoplastic Benign lesions,02(2.50%) case had inverted Papilloma on histopathology followed by 04(5.00%) cases with Juvenile Nasal Angiofibroma. There were 9 cases of capillary haemangioma. It was found that 4 subjects had sinonasal malignant lesions, of these cases 2(50%) cases had Squamous cell carcinoma, 01(25%) Malignant Spindle cell carcinoma on histopathology followed by 01(25%) case of Non-Hodgkin's Lymphoma.

- In the present study, endoscopic sinus surgery was the most frequently used surgical procedure.
- Excision of Angiofibromas was done by endoscopicallywith medial maxillectomy and hemostasis and dissection was done with the help of coblation, which reduced the bleeding significantly without embolization.
- In a patient of fronto-ethmoidal polyp after excison of polyp, Encephalocele was noticed and there was CSF Leak which was repaired with Draf 3 procedure also known as the “microscopically performed modified Lothrop" in whichbilateral frontal sinus floors, the superior aspect of nasal septum and inferior aspect of intersinus septum is removed and a septal window created is made for easy approach.[14]

- 2 patients of Squamous cell carcinoma had extension to the orbit and signs of metastasis were inoperable and sent for chemoradiotherapy after confirmation from biopsy.

Conclusion:

In the present study, of the clinical profile of Sinonasal masses, a large number of patients presented with trivial symptoms such as nasal obstruction or nasal discharge, but often requires a careful examination for a prompt and appropriate diagnosis. Management of these patients is challenging as the patient shows up with varied presentations. The findings must be interpreted in the light of great clinical suspicion, and complete ENT examination including radiologic, endoscopic studies and histopathological reports. The utmost need of timely intervention and management is of great importance as it reduces the burden of morbidity and mortality in such patients. Treatment is always individualized according to the indication in every patient. Emergence of newer surgical, medical and radiological intervention have opened up a new chapter while dealing with such patients.

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