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Malignancy in nasal polypoidal mass: a study of 96 patients of nasal polypoidal mass attending in tertiary care hospital at NMCH, Patna, Bihar, India

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ABSTRACT

Aims and objective: Nasal polypoidal masses are seen frequently in patients of all age groups attending the ENT OPD clinic. Generally nasal polyps are non-neoplastic or benign in nature in most cases, but clinically, it is quite impossible to distinguish non-neoplastic or benign lesion from the malignant nasal polyps. Histopathological examination of nasal polypoidal masses, are of immense importance to establish the etiopathology whether non-neoplastic or neoplastic (benign or malignant). **Material and method:** A total 96 cases of nasal polypoidal mass of all age groups and both sexes were included in study. From all the patient's specimen of nasal polypoidal masses were sanded from the ENT department to our department for histopathological evaluation. **Results**: Out of 96 cases of nasal polypoidal masses, 16.66% were malignant in nature, and the majority of malignant cases 11.46% were found after 30 years of age and onwards. **Conclusion**: Malignancies, arising from the nasal cavity, paranasal sinuses and nasopharynx should be distinguished from other non-neoplastic as well as benign neoplastic conditions as early as possible. Clinically, lack of differentiation between non-neoplastic and neoplastic (benign & malignant) conditions, causes delay in diagnosis and treatment. Histopathological examination is remaining the best methods for the final diagnosis of the lesion.

Key words: Nasal polypoidal mass, malignancy, histopathological evaluation.

Introduction:

Nasal polypoidal masses are seen frequently in patients of all age groups attending the ENT OPD clinic. The nasal cavity, paranasal sinuses and nasopharynx form the functional unit of nose, and all these three regions provide a variety of elements such as epithelial, glandular, lymphoid, cartilage, bone and other mesenchymal components. These tissues are regular exposed to a different type of pathological conditions such as infections, tumor like non-neoplastic as well as true neoplastic conditions which present clinically as nasal polypoidal masses. Generally nasal polyps are non-neoplastic or benign in nature in most cases, but clinically, it is quite impossible to distinguish non-neoplastic/benign lesion from the malignant nasal polyps. As it has been seen that many malignant neoplastic polypoidal masses mimics as non-neoplastic/benign nasal polyps especially in older patients. This is why, histopathological examination of all the nasal polyps must be considered to establish the exact nature as the dreaded malignant lesions in nasal polyps are found in all the age groups.

Histopathological examination of nasal polyp was first stated in 19th century by Billroth (1855), who described the normal histology of nasal polyps. (Quoted by N C Lyngdoh et al, 2006).

Malignancies in nasal polyps are predominantly a disease of adults and elder age groups, although it is found in all age groups, reporting to the OPD clinics of ENT Department. Histopathological examination of nasal polypoidal masses, are of immense importance to establish the etiopathology whether non-neoplastic or neoplastic (benign or malignant). As in many non-malignant conditions, there are recurrences of polyps even after removal and in many benign lesions, there are chances of dysplastic changes/malignant transformation.

Material and method:
The present study was conducted in the Department of Pathology, Nalanda Medical College and Hospital, Patna with the help of Department of ENT during the period from July 2020 to June 2023. A total of 96 cases of nasal polypoidal mass of different age and sexes were included in the study. The clinical and pathological records of all the patients were thoroughly reviewed retrospectively. All the specimen of nasal polypoidal masses were sanded in our department for histopathological examination.

After proper histopathological procedures, fixation, tissue processing, embedding and section cutting by the microtome, slides were stained by H&E stain and examined under the microscope. Histopathological study was done considering particular attention to cytomorphological changes in epithelial characters like hyperplasia, metaplasia, dysplasia, neoplasia or denudation and changes in basement membrane status like normal looking, thickened, eroded or absent. Stromal changes such as oedema, inflammatory cell infiltration, status of blood vessels and lymphatics, presence or absence of fibrosis, assessment of eosinophils per HPF, any invasion of neoplastic components or any other relevant microscopic findings within the stroma are also taken in consideration.

Results:
All results were shown in tabulated form-

Table-1shows: Age incidence of non-neoplastic and neoplastic (benign & malignant) nasal polypoidal masses (N=96)

Age in years	Non-neoplastic cases(n=52)	% of Non-neoplastic cases	Neoplastic benign cases (n=28)	% of Non-neoplastic benign cases	Neoplastic malignant cases (n=16)	% of Non-neoplastic malignant cases
Up to 10	08	8.33	01	1.04	--	--
11-20	12	12.50	05	5.21	02	2.08
21-30	16	16.67	05	5.21	03	3.13
31-40	08	8.33	06	6.25	01	1.04
41-50	04	4.17	06	6.25	01	1.04
51-60	03	3.13	03	3.13	06	6.25
>60	01	1.04	02	2.08	03	3.13
Total (96)	52	54.17	28	29.17	16	16.66

(*Age incidence of nasal mass up to 30 years: 54.17%)

Table-2 Shows sex distribution of nasal polypoidal mass (non-neoplastic + neoplastic (N=96)

Sex	No. of cases	% of cases
Male	69	71.87
Female	27	28.13
Total	96	100

Table-3 Shows sex distribution of neoplastic (benign & malignant) nasal polypoidal mass (N=96)

Sex	No. of benign nasal polyp cases	% of benign nasal polyp cases	No. of malignant nasal polyp cases	% of malignant nasal polyp cases
Male	19	19.80	09	09.37
Female	09	09.37	07	07.29
	28	29.17	16	16.66

Table-4 Shows incidence of non- neoplastic nasal polypoidal mass with histological diagnosis(N=96)

SNo.	Histological diagnosis	No. of cases	% of cases
1	Allergic polyp with CNSI	31	32.29
2	Chronic Inflammatory polyp with RF	12	12.50
3	Chronic granulomatous lesion	03	03.13
4	Chronic Inflammatory polyp with RF+FBR	05	05.21
5	Rhinosporidiosis	01	01.04
		52	54.17

The table- 3 shows 54.17% cases as non-neoplastic nasal polyp.

Table-5 Shows Incidence of benign nasal polypoidal mass with histological diagnosis(N=96)

% of cases	Sl.No.	Histological diagnosis	No. of cases
15.62	1	Angiofibroma	15
03.13	2	Granuloma pyogenicum	3
04.17	3	Squamous papilloma	4
03.13	4	Inverted squamous papilloma	3
03.13	5	Haemangioma	3
29.17			28

Table-6 Shows Incidence of malignant nasal polypoidal mass with histological diagnosis(N=96)

SNo.	Histological diagnosis	No. of cases	% of cases
1	Round Cell Tumor: neuroblastoma.	04	04.17
2	Fibrosarcoma: poorly differentiated	03	03.13
3	Nasopharyngeal carcinoma	02	02.08
4	Squamous cell carcinoma	02	02.08
5	Undifferentiated small cell carcinoma	01	01.04
6	Malignant Transformation in Inverted Papillomatous Lesion	01	01.04
7	Poorly differentiated carcinoma: grade iii	01	01.04
8	Poorly differentiated sarcomatous lesion	01	01.04
9	Malignant melanoma	01	01.04
	Total	16	16.67

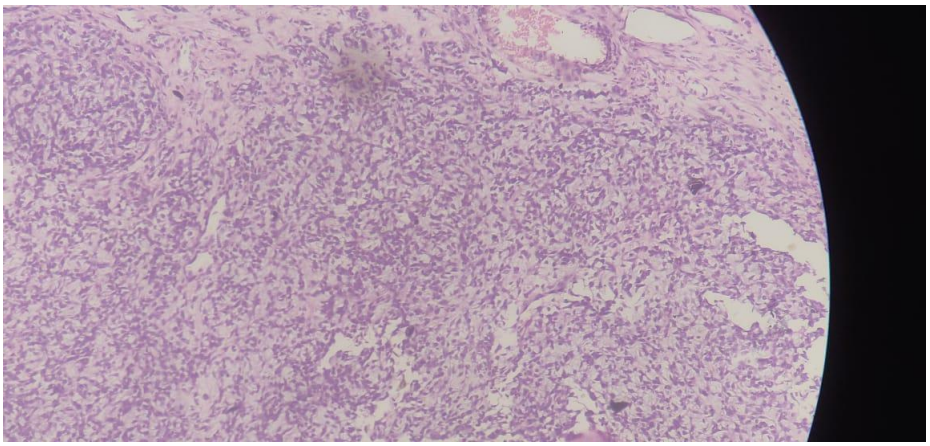
Table -7 Shows Origin and Incidence of Malignant nasal polypoidal mass with Histological Diagnosis (N=96)

Sl.no.	Site of origin	Histological diagnosis, no. Of cases & % of cases		
		Histological diagnosis	No. Of cases	% of cases
1	Nasal cavity	Fibrosarcoma	3	03.13
		Round cell tumor: neuroblastoma	4	04.17
		Squamous cell carcinoma	2	02.08
		Malignant melanoma	1	01.04
		Poorly differentiated sarcomatous lesion	1	01.04
		Total	11	11.46
2	Nasopharynx	Histological diagnosis	No. Of cases	% of cases
		Nasopharyngeal carcinoma	2	02.08
		Poorly differentiated carcinoma	1	01.04
			3	03.12
3	Paranasal sinuses	Histological diagnosis	No. Of cases	% of cases
		Undifferentiated small cell carcinoma	1	01.04
		Malignant transformation in inverted papilloma	1	0041
			2	02.08

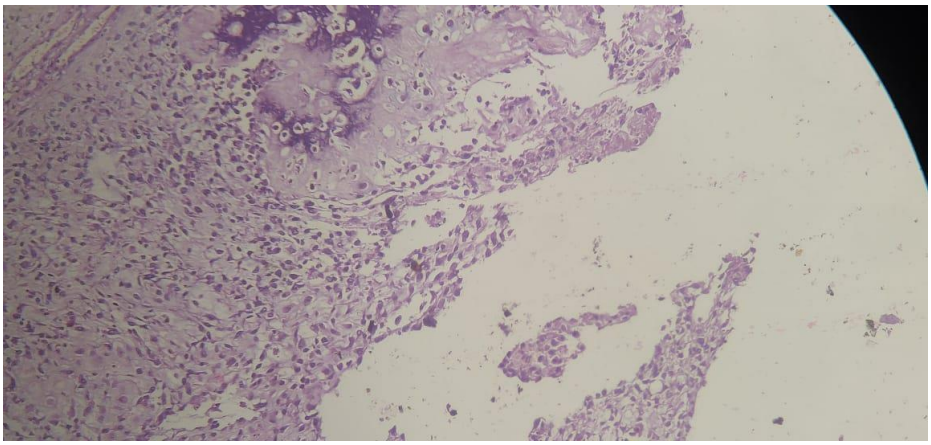
Table-8 Shows Age-wise Incidence of malignant nasal polypoidal mass with histological diagnosis(N=96)

Sl.no.	Histological diagnosis	No of cases in upto 30 yrs	No. of cases in 31-60 yrs	No. of cases in >61 yrs
1	Round cell tumor: neuroblastoma.	04	--	--
2	Fibrosarcoma: poorly differentiated	--	03	--
3	Nasopharyngeal carcinoma	--	--	02
4	Squamous cell carcinoma	--	02	--
5	Undifferentiated small cell carcinoma	--	01	--
6	Malignant transformation in inverted Papillomatous lesion	--	01	--
7	Poorly differentiated carcinoma: grade iii	--	01	--
8	Poorly differentiated sarcomatous lesion	01	--	--
9	Malignant melanoma	--	--	01
	Total	05 (05.21%	08 (8.33%	03 (3.13%)

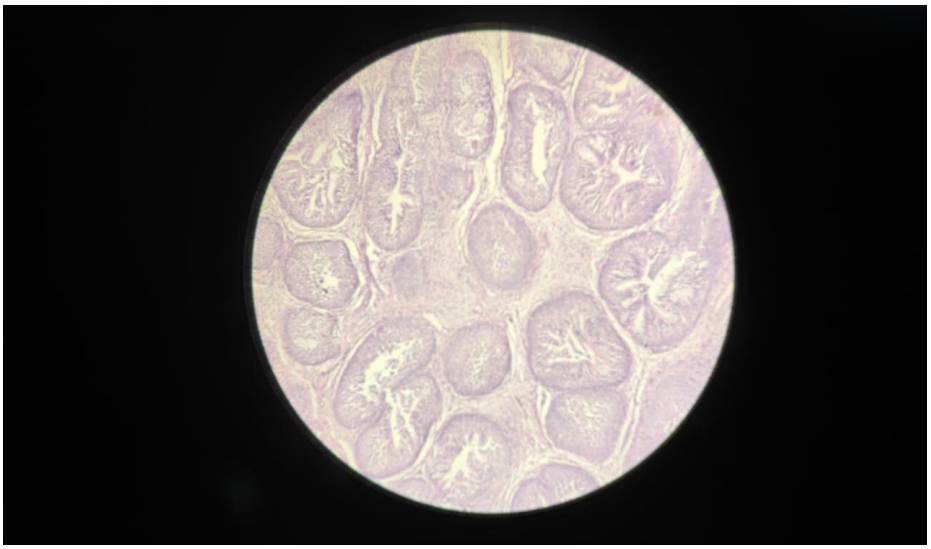
(*age incidence of malignancy among malignant cases: 50% cases in 31-60 years age group)



Picture -1 shows Aggressive Small round cell tumor (with few areas showing Neuroblastoma differentiation



Picture -2 shows Sarcomatous areas with malignant spindles cells



Picture -3 shows Benign nasal polyp with chronic inflammation

Discussion:

In the present study, the maximum number of patients of nasal polyp were found up to the age of 30 years, comprising 54.17%; although the maximum malignant cases were found in 31-60 years age group 8.33% (out 16 malignant cases, 50% total malignant cases were in 31-60years age group). Sirola R (1966) found the maximum cases incidence of nasal polypoidal mass in 2nd decade of life[8]. In the present study, the sex incidence was found as male to female ratio 2.55:1. Overall incidence of nasal polyp as sanded for biopsy in our department from ENT department, was found as 2.2%. Archana Ramole et al (2015) described in their study as approximate 1-4% incidence of nasal masses especially nasal polyps[9].

In the present study, all the conditions comprising of non-specific inflammatory cell infiltration, abundance of eosinophilic infiltration in stroma, chronic granulomatous lesion and cases of Rhinosporidiosis has been kept under the category of non-neoplastic nasal polypoidal masses (54.17%). Among all the nasal polypoidal masses, allergic polyps with chronic non-specific inflammation (CNSI) were 32.29%; and among the total non-neoplastic nasal polyps, the allergic polyps with CNSI were 59.61%. Korkis F B (1959) found allergy as well as allergy with infection in 57.1% in nasal polypoidal mass. Tondon et al (1971) observed 60% cases showing eosinophilic abundance in favour of allergic polyp as compared to other inflammatory conditions[5].

In present series of 96 cases of nasal polypoidal masses, 45.83% cases were found as neoplastic nasal masses. Satarkar R N et al (2016) found 43.6% cases as neoplastic nasal polypoidal mass in study of 206 cases[4].

In the present study, the maximum number of patients of nasal polyp were found up to the age of 30 years, comprising 54.17%; although the maximum malignant cases were found in 31-60 years age group 8.33% (out 16 malignant cases, 50% total malignant cases were in 31-60years age group). Sirola R (1966) found the maximum cases incidence of nasal polypoidal mass in 2nd decade of life[8]. In the present study, the sex incidence was found as male to female ratio 2.55:1.0. In present study, out of 96 cases, 16.66% were malignant in nature; and the majority of malignant cases 11.46% were found after 30 years of age and onwards. Frazell and Lewis (1963) reported majority of nasal polyp malignancies in 5th to 7th decade of life[1].

In present study, out of 16 cases; 56.25% were male patients and with male: ratio 1.3:1. Jackson and Jackson (1959) observed in their study that 2/3rd cases of all malignant nasal polyps were male patients and 1/3rd female patients[2].
In present study, among the malignant lesions, round cell tumor (Neuroblastoma, Non-Hodgkin's Lymphoma) found in majority of cases up to the age of 30 years (25% of total malignancies) and squamous cell carcinoma and other undifferentiated carcinoma found in majority of cases after the age of 30 years (37.5%).

Research of Anjali dasgupta et al (1997) found that squamous cell carcinoma as the commonest malignant lesion (36.6%), adenoid cystic carcinoma in (19.5%), anaplastic carcinoma in (17.1%), transitional cell carcinoma (12.2%), adenocarcinoma (4.9%), mucoepidermoid carcinoma in (2.4%), Non-Hodgkin's Lymphoma (4.9%), and embryonal rhabdomyosarcoma (2.4%) respectively[3].

Archana Ramola et al (2015) found squamous cell carcinoma as the most common malignant lesion (57%), and Hopkin et al found squamous cell carcinoma as the commonest malignant lesion (36%), followed by undifferentiated carcinoma (17%) in their studies.

In present study, nasal cavity was the most common involved area for malignancy (68.75%) followed by nasopharynx (18.75%) and paranasal sinuses (12.5%). Satarkar R N et al (2016) found maxillary sinus as the most common involved site (78.8%) followed by nasal cavity (19%).

The accurate determination of the site of origin of the tumor is very difficult, sometimes impossible as the nose and paranasal sinuses are complexly related to each other and the adjacent structures. When the cancer arises in these regions, they are prone to overgrow its natural boundaries. At the time of diagnosis or surgical removal, these lesions are rarely confined to a single zone only i.e., Nasal cavity, paranasal sinuses or nasopharynx.

Archana Ramola et al (2015) found squamous cell carcinoma as the most common malignant lesion (57%), and Hopkin et al found squamous cell carcinoma as the commonest malignant lesion (36%)[6], followed by undifferentiated carcinoma (17%) in their studies.

Conclusion:
Nasal masses presenting with symptoms of nasal obstruction are common findings in ENT OPD. Lack of differentiation between non-neoplastic and neoplastic (benign& malignant) conditions, causes delay in diagnosis and treatment. Malignancies, arising from the nasal cavity, paranasal sinuses and nasopharynx should be distinguished from other non-neoplastic as well as benign neoplastic conditions as early as possible. Recent advanced imaging techniques, computed tomography (CT SCAN) and/or magnetic resonance imaging (MRI) help to reach a presumptive diagnosis; although Histopathological examination still remains the only mainstay for the final definitive diagnosis to establish the exact nature of the lesion.

Declaration of the patient consent:
The authors certify that they have obtained all the appropriate consent of patients in consent form and have given their consent for the reporting of clinical information to the journal. The patients understand that their names will not be published and due efforts will be made to conceal their identity

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