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RESEARCH ARTICLE

INCIDENCE AND PATTERN OF NOSE, SINONASAL TRACT AND NASOPHARYNX TUMORS- A 5 YRS RETROSPECTIVE STUDY IN A TERTIARY CARE HOSPITAL

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ABSTRACT:

Nose is an important organ of perception. The nose, sinonasal tract and nasopharynx have both general and specific functions. The peculiarity are that they are the site of origin of histologically diverse group of tumors. This is a retrospective type of study showing the incidence of nose, paranasal sinuses and nasophraynx lesions conducted in IPGMER & SSKM Hospital, Kolkata from 2011 to 2015. All specimens sent from ENT Department for histopathological examination are included in this study and more informations are gathered from record section of this hospital. Total 362 cases are studied of all age groups. The study showed that non-neoplastic lesions are more common than neoplastic lesions, polyp being most common. Among the neoplastic lesions benign lesions are more common than malignant ones. The lesions are more common in males but malignant lesions showed equal preponderance for both male and female. It mostly affects the adolescent and young adults but also found in paediatric age groups. Most common presenting complaint is nasal obstruction. Histopathology played the vital role in diagnosis.

KEY WORDS: paranasal sinus, nasopharynx , histopathology

INTRODUCTION

The nose is most prominent and one of the important organ with aesthetic and functional significance. Although nose, nasal cavity, paranasal sinus and nasophrynx comprise a very small part of our body, they are the site of origin of histologically diverse group of

tumors. These include tumors arising from epithelium(squamous, mucosal, seromucinous glands), mesenchymal(soft tissue, bone, cartilage), neural tissue, haematolymphoid cells and odontogenic apparatus. Some of the tumours are specific for the site like olfactory neuroblastoma and nasopharyngeal carcinoma. External nose comprises of bony framework lined by stratified squamous epithelium and the dermis consists of skin appendages. The nasal cavity and paranasal sinuses are lined by Schneiderian mucosa, consisting of pseudostratified columnar ciliated epithelium with interspersed goblet cells. The lamina propria within the paranasal sinuses, is loose and well vascularised with seromucinous glands. The nasopharynx is covered by respiratory type ciliated epithelium, but variable amount of squamous epithelium are common. The stroma of nasophrynx is rich in lymphoid tissue and some seromucinous glands.

A variety of non-neoplastic and neoplastic conditions arise from these sites. Non-neoplastic lesions are mostly inflammatory which may be allergic, infective, traumatic. The commonest nasal mass is the polyp. With increasing industrialization and with increase in the burning of additional fossil fuels and rising air pollution rates, we are likely to see an increasing incidence of sinonasal tumors.(1). Some dietary factors like alcohol, salted/ smoked foods are also associated with increased risk whereas fruits and vegetables decrease the risk.(2)

The nose and paranasal sinuses are very rare sites of origin of head and neck tumors. Neoplasms of nasal cavity and sinuses account for 0.2-0.8% of all neoplasms, only 3% of those occur in the upper aerodigestive tract.(2)

The most common symptoms with which the patients present are nasal obstruction,epistaxis, proptosis, epiphora, diplopia,facial pain and swelling, loose teeth, buccal and palatal swelling.(3) key indicators of malignancy such as cranial neuropathies and proptosis are uncommon at initial presentation and signify advanced disease.(4) The presence of nodal involvement drastically reduces the prognosis and 5 years survival rate come down from 27.2% to 6.8%. The most common site of distant metastases is bone. Metastases may also occur in the lungs, liver, brain and kidney**(5)**

The clinical presentation and advanced imaging technique help us to reach a presumptive diagnosis but the mainstay of definitive diagnosis is histopathology.(6) Few cases may require immunohistochemistry study.

MATERIALS AND METHODS:

Type of study: retrospective

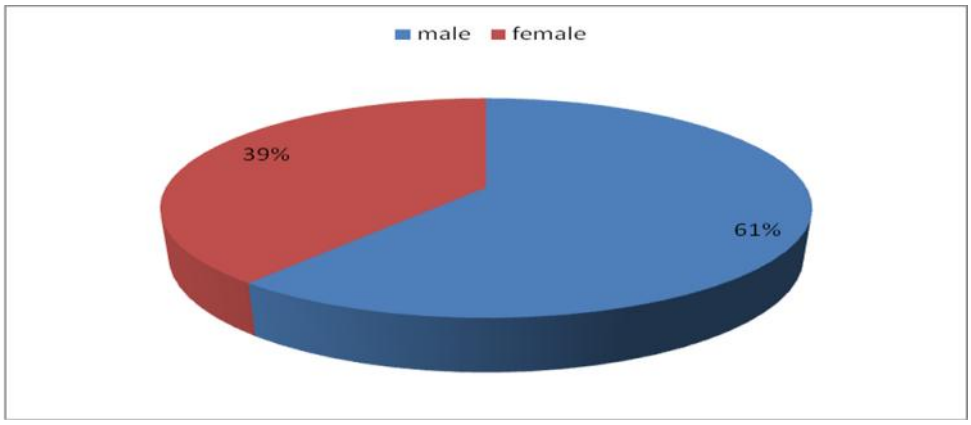
Study period: January 2011 to January 2016(five year)

Place of study: Department of Pathology, IPGMER & SSKM Hospital, Kolkata. Patient of all age groups presenting with sinonasal and nasophryngeal mass in ENT OPD who are being operated and the specimen sent for histopathological examination in department of pathology.

Clinical presentation, preoperative investigations(complete blood count, radiological investigations) and operative procedure are gathered from record section of this hospital. Surgical biopsy morphology is studied. Immunohistochemistry is done where required. Total 362 cases were included in this study. Any mass showing local invasion from adjoining areas, non availability of proper history and imaging are excluded from this study.

RESULTS:

1. SEX DISTRIBUTION OF NEOPLASTIC AND NON-NEOPLASTIC LESIONS:



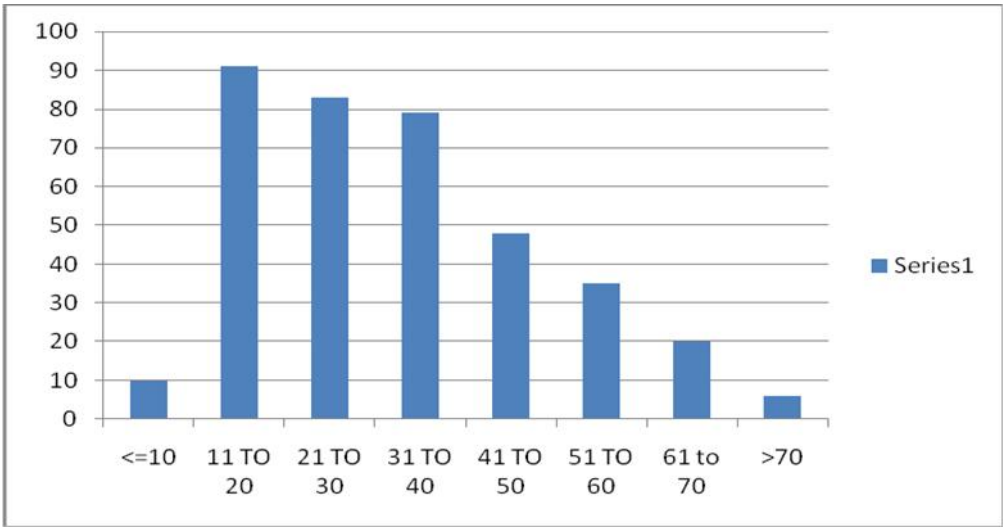


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TABLE:1 AGE DISTRIBUTION OF NEOPLASTIC AND NON-NEOPLASTIC LESIONS:

SL NO.	AGE (YEARS)	N0. 0F CASES BENIGN MALIGNANT	PERCENTAGE (%)
1.	<10	09 01	2.76
2.	11- 20	90 01	25.13
3.	21-30	70 03	20.16
4.	31-40	71 08	21.8
5.	41-50	40 08	13.25
6.	51-60	26 09	9.66
7.	61-70	10 10	5.52
8.	>70	05 01	1.65
TOTAL		**321**	**41**

TABLE:2 DISTRIBUTION OF VARIOUS TYPES OF LESIONS:

SL. NO.	TOTAL NO. OF VARIOUS HISTOPATHOLOGICAL SPECIMENS RECIEVED.	EXTERNAL NOSE, SINONASAL & NASOPHYRANGEAL MASSES RECIEVED.	NON-SPECIFIC BENIGN LESIONS.	NON-NEOPLASTIC MASSES	NEOPLASTIC MASSES BENIGN	NEOPLASTIC MASSES MALIGNANT
1.	**28960**	**362 (0.8%)**	**10 (2.76 %)**	**239(66.02 %)**	**72 (19.88%)**	**41 (11.32%)**

TABLE:3 SITE OF VARIOUS LESIONS:

SL. NO.	**SITE**	**TOTAL LESIONS**
1.	Left nasal cavity	140 (38.67%)
2.	Right nasal cavity	138 (38.12%)
3.	Maxillary sinus	40 (11.04%)
4.	Ethmoidal sinus	5 (1.38%)
5.	Sphenoidal sinus	2 (0.55%)
6.	Multiple sites	10 (2.76%)
7.	Nasopharynx	25 (6.90%)
8.	Site not known	2 (0.55%)
	TOTAL	**362**

TABLE:4 DISTRIBUTION OF EXTERNAL NASAL MASS:

SL. NO.	TYPES OF LESIONS	INCIDENCE OF LESIONS(n=24)
1.	Nasolabial cyst	09 (37.5%)
2.	Intradermal nevus	06 (25%)
3.	Dermoid cyst	01 (4.16%)
4.	Spindle cell lipoma	01 (4.16%)
5.	Basal cell carcinoma	07 (29.16%)
	TOTAL	**(6.62%)**

TABLE:5 INCIDENCE OF NON-NEOPLASTIC LESIONS IN SINONASAL TRACT AND NASOPHRYNX:

SL. NO.	TYPES OF LESIONS	NO. OF LESIONS(n=239)
1.	INFLAMMATORY POLYPS	182 (76.15%)
2.	ALLERGIC POLYPS	20 (8.36%)
3.	RHINOSPORIDIOSIS	30 (12.55%)
4.	ASPERGILLOSIS	04 (1.67%)
5.	CANDIDIASIS	03 (1.25%)
TOTAL		**239 (66.02%)**

TABLE:6 DISTRIBUTION OF BENIGN NEOPLASTIC LESIONS IN SINONASAL TRACT AND NASOPHRYNX:

SL.NO.	TYPES OF LESIONS	NO. OF LESIONS(n=68)
1.	INVERTED PAPILLOMA	18 (26.47%)
2.	HEMANGIOMA	12 (17.64%)
3.	VASCULAR MALFORMATION	05 (7.35%)
4.	OLFACTORY NEUROFIBROMA	02 (2.94%)
5.	SCHWANNOMA	01 (1.47%)
6.	DERMATOFIBROMA	01 (1.47%)
7.	MYXOFIBROMA	01 (1.47%)
8.	ANGIOLEIOMYOMA	01(1.47%)
9.	FIBROEPITHELIOMA	O2 (2.94%)
10.	VERRUCOUS HYPERPLASIA	01(1.47%)
11.	BENIGN FIBROUS HISTIOCYTOMA	01(1.47%)
12.	ANGIOFIBROMA	13 (19.11%)
13.	NON-SPECIFIC LESION	10 (14.70%)
TOTAL	**68 (18.78%)**	

TABLE:7 INCIDENCE OF MALIGNANT LESIONS IN SINONASAL TRACT AND NASOPHRYNX:

SL. NO.	TYPES OF LESION	NO. 0F LESIONS(n=34)
1.	VERUCCOUS CARCINOMA	01(2.94%)
2.	SQUAMOUS CELL CARCINOMA 1. KERATINISING TYPE 2. NON KERATINISING TYPE 3. BASALOID TYPE	 05(14.70%) 03 (8.82%) 01(2.94%)
3.	SINONASAL UNDIFFERENTIATED CARCINOMA	05(14.70%)
4.	ADENOCARCINOMA	01(2.94%)
5.	ADENOID CYSTIC CARCINOMA	03(8.82%)
6.	MUCOSAL MALIGNANT MELANOMA	01(2.94%)
7.	EMBRYONAL RHABDOMYOSARCOMA	01(2.94%)
8.	GIANT CELL TUMOUR MAXILLA	01(2.94%)
9.	OLFACTORY NEUROBLASTOMA	02(5.88%)
10.	NON HODGKIN LYMPHOMA	01(2.94%)
11.	HODGKIN LYMPHOMA	01(2.94%)
12.	NASOPHARYNGEAL CARCINOMA	02 (5.88%)
13	NASOPHARYNGEAL UNDIFFERENTIATED CARCINOMA	05(14.70%)
14.	METASTATIC CARCINOMA	01(2.94%)
		TOTAL: 34(9.39%)

Five years of retrospective study showed male is more affected than female (M:F=1.55:1). Hindu patients predominated muslims ratio being 2:1. Benign cases comprises 71.96% of total cases and it mainly occurred in 2nd, 3rd and 4th decade. Malignant cases comprises of 24.4% of total cases and it mainly occurred in 7th decade. Non –neoplastic masses comprises of 66.02% and neoplastic masses comprises of 31.2%. Most common site is left nasal cavity(38.67%).External nasal mass comprises of 6.62% of total lesions. Most common lesion of external nose is nasolabial cyst (37.5%) followed by basal cell carcinoma(29.16%). Most common non-neoplastic lesion of sinonasal tract and nasopharynx is inflammatory polyp(76.15%) followed by Rhinosporidiosis(12.55%). Most common benign neoplastic lesion of sinonasal tract and nasopharynx is inverted papillomas(26.47%) followed by hemangioma. Most common malignant lesion of sinonasal tract is squamous cell carcinoma(26.46%) and of nasopharynx is nasophayrangeal undifferentiated carcinoma(14.7%).Among the total lesions of sinonasal tract and nasopharynx 9.39% lesions are malignant.

DISCUSSION:

TABLE 8:

Sl no.	Authors	Total cases	Site of lesion	Sex ratio	Sex ratio for benign lesions	Sex ratio for malignant lesions	Age period of benign lesions	Age period of malignant lesions
1.	Nayak M et al	134	-----	1.8:1	1.7:1	2.3:1	2nd to 4th decade	5th to 7th decade
2.	Ramole A et al	67	Ethmoidal sinus (42%)	1.5:1	1.1:1	1.3:1	2nd to 4th decade	6th decade
3.	Majumdar AB et al	139	Middle meatus (60.43%)	1.6:1	3.2:1	4:1	2nd and 3rd decade	4th to 6th decade
4.	Chatterjee P et al	200	Maxillary antrum (99%)	1.6:1	-----	------	2nd to 4th decade	4th decade onwards
5.	Panchonia A et al	90	-----	2.2:1	-----	------	2nd decade	5th decade onwards
6.	Bhattacharya J et al	94	-----	Male preponderance was seen among all groups of lesions.			2nd decade	5th decade
7.	Nepal A et al	331	------	3:2	-----	-----	3rd and 4th decade	-----
8.	Present study	362	Left nasal cavity	1.6:1	2:1	1:1	2nd, 3rd & 4th decade	4th decade onwards

TABLE 9:

Sl no.	Authors	Presenting complaint	Total non neoplastic lesions	Total benign lesions	Total malignant lesions	Most common non neoplastic lesion	Most common benign lesion	Most common malignant lesion
1.	Nayak M et al(7)	-----	73 (54.47%)	38 (28.35%)	23 (17.16%)	-----	-----	------
2.	Ramole A et al(8)	Nasal blockage	45 (67.16%)	15 (22.38%)	07 (10.44%)	Polyp	Capillary haemangioma	Squamous cell carcinoma
3.	Majumdar AB et al(9)	Nasal obstruction	95 (68.34%)	34 (24.46%)	10 (7.19%)	Allergic polyp	Haemangioma	Squamous cell carcinoma
4.	Chatterjee P et al(11)		116 (58.00%)	64 (32.00%)	20 (10 %)	Inflammatory polyp	Angiofibroma	Squamous cell carcinoma
5.	Panchonia A et al(10)	Nasal obstruction	54(60%)	19 (21.11%)	14(15.55 %)	Polyp	Squamous papilloma	Squamous cell carcinoma
6.	Bhattacharya J et al(12)	Nasal obstruction	49 (52.12%)	17 (18.08%)	24 (23.4%)	Antrachoanal polyp	Inverted papilloma Lobular capillary haemangioma	Non keratinising nasopharyngeal carcinoma
7.	Nepal A et al(13)	Nasal discharge	293 (88.51%)	38 (11.48%)	-----	Polyp	Squamous papilloma	-----
8.	Present study	Nasal obstruction	239(66.02 %)	82(22.64 %)	41(11.32 %)	Inflammatory polyp	Inverted papilloma	Squamous cell carcinoma

The retrospective study was carried on 362 cases. The most common site for lesion in this study was left nasal cavity. The most common site for Ramole A et al is ethmoid sinus(42%). Majumdar AB et found middle meatus to be the most common site(60.43%). Chatterjee P et al found maxillary antrum to be the most common site.

Among total cases male preponderance is seen in all the studies along with the present study. Sex ratio for malignant lesions by Nayak M et al is2.3:1, Ramole A et al is1.3:1 &

Majumdar AB et al is 4:1 i.e their is male prepondarence but present study showed equal preponderance of male and female in malignant cases. The most common age group of benign lesions 2nd , 3rd and 4th decade which corroborated with Nayak M et al & Ramole A et al. Present study showed malignant cases from 4th decade onwards which corroborated with Majumdar AB et al & Chatterjee P et al. Nayak M et al, Panchonia A et al & Bhattacharya J et al found malignant cases from 5th decade onwards. Ramole A et al found malignant cases 6th decade onwards.

The most common presenting complaint stated in Nepal A et al is nasal discharge but rest of the studies along with the present one showed nasal obstruction to be the most common one. Total non-neoplastic cases stated by Nepal A et al is 88.5% of total but in present study it is 66.02%. total malignant cases sated in Bhattacharya J et al is 23.4% but our present study showed 11.32%. Chatterjee P et al stated total benign cases to be32% but present study showed 22.64%.

Most common non-neoplastic lesion for all study is polyp. Majumdar AB et al stated allergic polyp to be the most common one, present study showed inflammatory polyp to be the commonest one. Most common benign lesion stated in Ramole A et al is capillary haemangioma, for Chatterjee P et al it is angiofibroma, Majumdar AB et al it is haemangioma but for rest of the studies along with the present one it is inverted papilloma. Present study along with the other studies except Bhattacharya J et showed squamous cell carcinoma to be the most common malignant lesion.

CONCLUSION:

Though diversity of lesions occur in nose, sinonasal tract and nasopharynx non-neoplastic lesions are more common than neoplastic. Among the neoplastic lesions benign are more common than malignant one. Overeall males are more affected. Though malignant case was found in first decade, number of malignant cases increased with age. The most common site being nasal cavity and presenting complaint is nasal obstruction.

REFERENCES:

1. Calderon- Garciduenas L, Delgado R, Calderon- Garciduenas A, Meneses A, Ruiz LM, De LA Garza J et al. Malignant neoplasms of the nasal cavity and paranasal sinuses: A series of 256 patients in Mexico city and Monterre. Is air pollution the missing link? Otolaringol head neck surgery 2000; 12:499-508.
2. Christensen FC and Hoover LA. Malignant tumors of the nasal cavity. *Am. J. Rhinol.* 1994;8(3):129-137.
3. Hillman JE: Otolaryngologic manifestations of pregnancy - The Baylor College of Medicine in Houston, Texas Grand Rounds Archive. 1995.
4. Jayachandran S and Meenakshi R. Cemento-ossifying fibroma. *Indian J Dent Res* 2004;15:35-9.
5. Rhowedder J. Upper respiratory tract tuberculosis. Sixteen cases in a general hospital. *Ann Intern Med.* 1974; 80:708-13.
6. Waldman SR, Levine HL and Sebek BA. Nasal tuberculosis: A forgotten entity. *Laryngoscope* 1981;91:11-16.
7. Nayak M, Roul B, Agarwal K, Nayak S. Clinicopathological study of lesions of sinonasal tract & distribution of sinonasal tract lesions in different age groups and sex. International Journal of Advanced Research 2015; 3(4):726-33.

8. Ramole A, Ramole Y,Bhimte B. Incidence, prevalence and histopathological categorization of tumour and tumour like lesions of nasal cavity at Central India. International journal of current research and academic review 2015;3(8): 248-55.
9. Majumdar AB, Sarker G, Biswas D et al. Clinicopathological study of sinonasal masses. National journal of otorhinolaryngology and Head % Neck surgery 2014; 2(11): 19-22.
10. Panchonia A, Kulkarni CV,Singh R. Histological correlation of nasal mass: a five year retrospective and prospective study.international journal of research in medical sciences 2014;2(3):842-46.
11. Chatterjee P, Sharma P, Khanna S. A Clinicopathological and radiological study of sinonasal mass. Indian journal of medical research and pharmaceutical sciences 2014;1(5):21-25.
12. Bhattacharya J, Goswami BK, Banerjee A et al. A clinicopathological study of masses arising from sinonasal tract and nasopharynx in north Bengal population with special reference to neoplasms. Nepalese journal of ENT head and neck surgery 2013;4(1):5-7.
13. Nepal A, Chettri ST, Joshi RR, Karki S. Benign sinonasal masses: A clinicopathological and radiological profile. Kathmandu university medical journal 2013;41(1): 4-8.

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