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Original Research Article

Histopathological study of sinonasal and nasopharyngeal lesions in a tertiary care hospital: A 5 year retrospective study

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Abstract

Introduction: A variety of inflammatory, non-neoplastic and neoplastic masses involving nasal cavity, paranasal sinuses and nasopharynx are commonly encountered in ENT department occurs amongst all age group patients. This study was undertaken to note the various histopathological patterns of nasal lesions, their classification and relative distribution of various lesions with regard to age and sex in our setting.

Aims:

1. To evaluate role of histopathology in diagnosis of nasal lesions.
2. To evaluate the incidence, age at the occurrence and sex ratio among the patients with nasal lesions.
3. To compare the result of our study with other studies.

Materials and Method: A retrospective 5 year study of 51 cases was conducted at the Department of Pathology GMERS Medical College & Hospital, Valsad, from January 2017 to December 2021. Patients between the ages of 1 to 80 years were enrolled into the study. Histopathological examination was done on formalin fixed, paraffin embedded tissue sections stained with hematoxylin and eosin. Histopathological diagnosis was correlated with detail of relevant clinical findings and investigations.

Results: Out of total 51 cases, 37 cases were non-neoplastic while 14 cases were neoplastic. Among the non-neoplastic lesions, the most common were polyps followed by fungal infection. In neoplastic lesions, 10 were benign lesions while 04 were malignant. Inflammatory polyp was the most common non-neoplastic lesion, inverted papilloma was the commonest benign lesion while sinonasal carcinoma was the most common malignant lesion.

Conclusion: Histopathological examination is simple, reliable and cost effective diagnostic procedure for the detection of various lesions of nasal cavity, paranasal sinus and nasopharynx.

Keywords: Polyp, neoplastic and non-neoplastic

Introduction

A variety of inflammatory, non-neoplastic and neoplastic masses involving nasal cavity, paranasal sinuses and nasopharynx are commonly encountered in ENT department occurs amongst all age group patients [1, 2]. Nasal obstruction is the most common symptom. Other symptoms include nasal discharge, epistaxis and disturbances of smell [3]. Nasal polyps are the most common nasal masses. The incidence being 1-4% of population [4]. Prevalence rate of nasal polyp is about 2%. Nasal polyps are most commonly thought to be caused by allergy and rarely by cystic fibrosis and other causes [5]. Lesions of nasal cavity are quite common. It can be neoplastic and non-neoplastic. It is difficult to determine actual pathology underneath every nasal masses so, histopathological evaluation is mandatory for definitive diagnosis and histopathology is regarded as gold standard for the diagnosis of a nasal mass. The aim of our study was to categorise the nasal cavity masses into neoplastic and non-neoplastic masses with the help of histopathological study and to compare the result of our study with other studies.

Materials and Method

Place of study: Department of Pathology at GMERS Medical College & Hospital, Valsad, Gujarat.
Duration of study: Period of 5 years from January 2017 to December 2021.
Type of study: Retrospective Study.
Sampling methods: Clinical data was retrieved from histopathology requisition forms/hospital records of patients presenting with sino-nasal lesion.
Sample processing: All the specimens (biopsies/surgical specimens) that were received in our histopathology section were fixed in 10% formalin, embedded in paraffin, sectioned at 3-5µ and stained with hematoxylin and eosin.
Inclusion criteria: All the specimens of lesions of nasal cavity, paranasal sinuses and nasopharynx received at histopathology section of pathology were included in the study.
Exclusion criteria: Previously treated cases of sinonasal disease with recurrence were excluded from the study.

Results

In our study, a total of 51 patients are studied, and non-neoplastic nasal masses formed the largest group with 37 cases (72.55%), followed by neoplastic nasal masses with 14 cases (27.45%).
Non neoplastic nasal masses were more common in fourth decade, while neoplastic masses were more common in fifth decade. The age of the patients having non allergic polyps, ranged from 11 to 70 years with peak incidence between second and fourth decades of life.

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Table 1: Age wise distribution of nasal masses

Age group (years)	Non neoplastic lesions	Benign tumors	Malignant tumors	No. of cases
< 20	10	02	00	12
21-30	02	02	00	04
31-40	07	02	00	09
41-50	11	1	00	12
51-60	03	02	03	08
61-70	01	00	01	02
71-80	03	01	00	04
Total	37	10	04	51

In our study, a total of 51 nasal masses were studied. Out of 51 cases, 29 were males and 22 females with male: female ratio 1.32:1. (Table 2)

Table 2: Incidence of nasal masses and grouped according to gender

Type of mass	Male	Female	Total
Non-neoplastic	20	17	37
Benign	08	02	10
Malignant	01	03	04

Out of 37 cases of non-neoplastic lesions, 29 cases were of nasal polyps, 04 cases were of mucormycosis and 2 cases were of chronic non-specific inflammation. (Table-3)
Out of 14 neoplastic lesions, 10 were benign and 04 were malignant. In total 10 cases of benign lesions, 8 cases were inverted papilloma, 1 case was of angiofibroma and 1 case was of hemangioma. In total 04 cases of malignant lesions, 2 cases of nasopharyngeal carcinoma, 1 case of sinonasal squamous cell carcinoma and 1 case of transitional cell carcinoma. (Table-4)

Table 3: Gender distribution of non-neoplastic nasal masses (n=37)

Type of lesions	Number of cases (%)	Male	Female
Chronic non-specific inflammation	02	00	02
Allergic polyps	14	08	06
Nonspecific polyps	05	02	03
Nonallrgic polyps	10	07	03
Mucormycosis	04	03	01
Rhinosporidiosis	01	00	01
Rhinoscleroma	01	00	01

Table 4: Gender distribution of neoplastic nasal masses (n = 14)

Type of lesions	Number of cases (%)	Male	Female
Benign			
Inverted nasal papilloma	08	06	02
Cavernous Hemangioma	01	01	00
Nasopharyngeal angiofibroma	01	01	00
Malignant			
Nasopharyngeal carcinoma	02	00	02
Sinonasal SCC	01	01	00
TCC	01	00	01

Discussion

In our study there was a male preponderance with male and female ratio 1.32:1. This was in concordance with the studies shown in Table 5.

Table 5: Comparison of gender wise distribution and male to female ratio of present study with other studies

Study	Male	Female	Male: Female	Total cases
Vijaya V Mysorekar *et al.* [6]	85	60	1.42:1	145
Parmar NJ *et al.* [7]	59	41	1.44:1	100
Kumar A *et al.* [8]	60	55	1.09:1	115
Lathi *et al.* [9]	68	44	1.5:1	112
Present study	29	22	1.32:1	51

In the present study age varied from 0-80 years. Majority of the patients were in the age group of 41-50 years and 0-20 years which is compared here with study done by Vijaya V Mysorekar *et al.* [8] and Devyani *et al.* [10] (Table 6).

Table 6: Comparison of age wise distribution of nasal cavity lesions in present study with other studies

Age (years)	Vijaya V Mysorekar *et al.* [8]	Devyani *et al.* [10]	Present study
< 20	47	22	12
21-30	27	17	04
31-40	25	15	09
41-50	21	28	12
51-60	17	25	08
61-70	07	13	02
71-80	01	07	04
Total	145	127	51

The most common lesions were nasal polyps in all the studies, which ranged from 70% (in shaila N Shah) [11] to 56.86% (in present study) (Table 7).

Table 7: Comparison nasal polyp in present study with other studies

	Total cases	Nasal polyp
Shaila N Shah *et al.* [11]	100	70(70%)
Aparna M Kulkarni *et al.* [12]	117	70(69.3%)
Nataraju G *et al.* [13]	80	52(68%)
Present study	51	29(56.86%)

In the studies non-neoplastic lesions were most common ranging from 69.33-86.3% followed by benign neoplasms (11.1 to 22.67%) and malignant neoplasm (2.6 to 11.61%) (Table 8).

Table 8: Comparison neoplastic lesions in present study with other studies

	Non neoplastic lesions	Benign lesions	Malignant lesions
Lathi *et al.* [9]	71.43%	16.96%	11.61%
Parajuli *et al.* [14]	80.4%	12.8%	6.8%
Kulkarni *et al.* [15]	86.3%	11.1%	2.6%
Nitin Deosthale *et al.* [16]	69.33%	22.67%	8%
Present study	72.55%	19.61%	7.84%

Conclusion

From the present study following conclusions can be made,

1. Non-neoplastic lesions are more common in nasopharynx and sinonasal tract compared to benign and malignant neoplasms.
2. Benign polyps are the most common lesions followed by inverted papilloma.
3. Malignant neoplastic lesions are more common after 50 years of age while majority of lesions in younger age group are benign.
4. Nasopharyngeal carcinoma is the most common malignant lesion in nasal tract.
5. Histopathological examination is simple and reliable diagnostic procedure for detection of various lesions of nasal cavity, parasnasal sinuses and nasopharynx.

Contribution from the author

- **Dr. Kamini Patel:** Data collection, analysis and preparation of manuscript.
- **Dr. Sharad Gor:** Analysis and preparation of manuscript & critical revision.
- **Dr Mayur Kokani:** Analysis and preparation of manuscript & critical revision.

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