Histopathological Study of Sinonasal and Nasopharyngeal Lesions in a Tertiary Care Hospital Over the Period of 2 Years

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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.[1] 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.

Materials and Method: A retrospective study of 127 cases was conducted in the pathology department of B.J Medical college. Demographic detail and detailed clinical and radiological findings were collected. All the biopsies were fixed with 10% buffered formalin. Haematoxylin and eosin staining were done after routine tissue processing.

Results: Out of total 127 cases, 101 cases were non-neoplastic while 26 cases were neoplastic. Among the non-neoplastic lesions, the most common were polyps followed by fungal infection. In neoplastic lesions, 11 were benign lesions while 15 were malignant. Inflammatory polyp was the most common non-neoplastic lesion, Inverted papilloma was the commonest benign lesion while Sino nasal carcinoma was the malignant one.

Conclusion: Histopathological evaluation is always necessary for proper evaluation of Sino-nasal and naso-pharyngeal masses.

***Key Words**: Polyps, nasal cavity, histopathology.*

Introduction

Sinonasal and nasopharyngeal masses are common findings in ENT outpatient department.[1] It is commonly seen in all age groups with no specific gender predilection. Common clinical features are nasal blockage, nasal discharge, facial swelling etc.[2] Nasal polyps are the most common nasal masses. The incidence being 1-4% of population.[1] Neoplasms of the sinuses and nasal cavity account for 0.2-0.8% of all carcinomas [3] and for about 3% of the neoplasms of the aerodigestive tract. Prevalence rate of nasal polyp is about 2%.[4] Lesions of nasal cavity are quite common. It can be neoplastic and non-neoplastic. Diseases of the nasal cavity include viral, bacterial and fungal infections, nasal cavity tumours as well as inflammations of the nasal mucosa. The pathogenesis of nasal polyps is unknown.[5] Nasal polyps are most commonly thought to be caused by allergy and rarely by cystic fibrosis and other causes.[5] The exact nature of the lesion eliminates the confusion and strengthens the diagnosis. Thus, by knowing the diagnosis, exact treatment can be given to the patient. The aim of our study was to categorise the nasal cavity masses into neoplastic and non-neoplastic masses and to correlate between their clinical presentation and histopathological types for final diagnosis of the condition.

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Materials and Method

This study was conducted in the pathology department of B.J Medical college from the year July 2017 to August 2019. A total of 127 cases were taken. Information such as name, age, gender, chief complaint, clinical and radio graphical findings etc. were retrieved from record. The specimens were received and kept in 10% buffered formalin for 24 hours. Sections were taken and were processed in automated tissue processor for routine paraffin embedding. Sections were stained with haematoxylin and eosin method. Results were tabulated and subjected to statistical analysis.

Results

The present study was conducted from June 2017 to August 2019 in Department of Pathology, B.J Medical College and Hospital Ahmedabad, with following observation in 127 cases of nasal lesions on histopathology.

A male preponderance was seen with a total of 85 cases (66.9%), and 42 being females (33.07%).

Male: Female ratio was 2.02:1.

In the study, 127 cases were included. Out of those, 101 cases were non-neoplastic (79%) while 26 cases were of neoplastic origin. Out of the 26 cases, 11 cases were benign (9%) and 15 cases were malignant (12%). Thus, non-neoplastic cases were in the maximum frequency.

Table1 Distribution of various nasal lesions according to the age group

Histopathological diagnosis	**0-10**	**11-20**	**21-30**	**31-40**	**41-50**	**51-60**	**61-70**	**71-80**
Non-neoplastic								
polyps	4	10	13	9	17	12	7	0
Mucor mycosis	0	2	1	1	7	7	2	2
aspergillus	0	0	1	0	1	2	0	0
tuberculosis	0	0	1	0	0	0	0	0
Nasal meningomyelocele	0	1	0	0	0	0	0	0
Rosai Dorfman disease	0	0	0	0	0	0	1	0
Benign								
Inverted papilloma	0	0	0	3	0	1	1	0
angiofibroma	0	4	0	0	0	0	0	0
Oncocytic papilloma	0	0	0	0	0	1	0	0
Cementifying fibroma	0	1	0	0	0	0	0	0
Malignant								
Sino nasal carcinoma	0	0	1	1	1	2	0	2
Squamous cell carcinoma	0	0	0	0	2	0	2	0
neuroblastoma	0	0	0	0	0	0	0	1
Lymphoid granulomatosis	0	0	0	1	0	0	0	0
Sino nasal Teratocarcinosarcoma	0	0	0	0	0	0	0	2
TOTAL	4	18	17	15	28	25	13	7

In the present study, the age of the patients ranged from 2-80 years. Maximum number of cases were noted in the age group of 41-50 years. (**Table 1**).

Out of 101 cases of Non-neoplastic lesions, 72 cases belonged to polyps, 26 cases were fungal infection (22 cases of Mucor mycosis and 4 cases of Aspergillus), 1 case was of Tuberculosis and 1 case was of nasal meningomyelocele and 1 case of Rosai Dorfman disease.

Out of 26 neoplastic lesions, 11 were benign and 15 were malignant. In total 11 cases of benign lesions, 5 cases were that of inverted papilloma, 4 cases were those of angiofibroma, 1 case of Oncocytic papilloma and 1 case of Cementifying fibroma.

In total 15 cases of malignant lesions, 7 cases were adenocarcinoma, 4 cases of squamous cell carcinoma, 1 case of neuroblastoma, 1 case of lymphoid granulomatosis and 2 case of Sino nasal Teratocarcinosarcoma.

Discussion

Masses in nasal cavity, paranasal sinuses and nasopharynx form a group of lesions with a broad spectrum of histopathological features.[6] It is difficult to differentiate them into non-neoplastic and neoplastic lesions clinically and therefore are diagnosed as nasal polyps.[1,6] Thus, there is often a delay in the initial diagnosis. Histopathological study of these masses becomes necessary. This study of 127 cases was based on histopathological examination of the specimens received and its clinical and radiological correlation. The lack of differentiation between neoplastic and non-neoplastic, benign or malignant makes it neglected by the clinicians, as a result causing a delay in diagnosis and treatment.[7]

In our study there was a male preponderance with 85 cases and female cases were 42. This was in concordance with the study done by Parmar NJ et al[6] in which there were 59 male cases and 41 female cases, with Kumar A et al[5] where there were 29 male cases and 21 female cases and also with Mysorekar et al[8] with 85 male cases and 60 female cases. (**Table 2**).

Table 2 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[8]	85	60	1.42:1	145
Parmar NJ et al[6]	59	41	1.44:1	100
Kumar A et al[5]	60	55	1.09:1	115
Present study	85	42	2.02:1	127

Table 3 Comparison of age wise distribution of nasal cavity lesions in present study with other studies

	Vijaya V Mysorekar et al[8]	Parmar NJ et al[6]	Present study
Age			
0-10	06	02	4
11-20	41	24	18
21-30	27	20	17
31-40	25	17	15
41-50	21	13	28
51-60	17	17	25
61-70	07	04	13
71-80	01	03	7

In the present study age varied from 2-80 years. Majority of the patients were in the age group of 41-50 years, followed by 51-60 years which is in contrast with the study done by Vijaya V Mysorekar et al[8] and also in contrast to the study by Parmar NJ et al.[6] (**Table 3**).

In the present study Polyps were the most common Non-neoplastic lesions which was consistent with the observations made in other studies. (**Table 4**).

Table 4 Comparison of non-neoplastic lesions in present study with the other studies.

Study	Number of cases	Polyps	Mucor mycosis	Tuberculosis	Rhinosporidiosis	Rosai Dorfman disease
Parmar NJ et al[6]	80	74	3	0	2	0
Kumar A et al[5]	80	62	0	5	0	0
Vijaya V Mysorekar et al[8]	102	86	2	4	0	0
Dafale SR et al[9]	62	41	2	0	0	0
Chopra H et al[10]	84	70	4	0	0	0
Present study	101	72	22	1	0	1

Table 5 Comparison of Benign lesions of nasal cavity in present study with other studies

Study	Inverted Papilloma	Angiofibroma	Oncocytic Papilloma	Cementifying Fibroma	Haemangioma
Parmar NJ et al[6]	03	03	00	02	03
K Narayan and B Chandre[11]	04	08	00	02	03
Charu Chandra et al[12]	14	08	00	00	02
Dafale SR et al[9]	02	03	00	00	00
Chopra H et al[10]	04	03	00	00	03
Present study	05	04	01	01	00

In the present study, there were 5 cases of Inverted papilloma which was consistent with the other similar study groups, Charu Chandra et al[12] and Chopra H et al[10]. Total 4 cases of Angiofibroma were noted which were consistent with the studies of Parmar NJ et al[6] and Dafale SR et al[9]. All the cases of Angiofibroma occurred in the age group of 11-20 years. No case of Haemangioma was noted in our study that contrasted with the studies of Chopra H et al[10], Parmar NJ et al[6]. (**Table 5**).

Table 6 Comparison of type of neoplastic (malignant) lesions in present study with other studies

Study	Total cases	Sinonasal carcinoma	Squamous cell carcinoma	Teratocarcinosarcoma	Neuroblastoma	Lymphoid Granulomatosis
Vijaya v Mysorekar et al[8]	22	00	09	00	00	00
Dafale SR et al[9]	02	00	02	00	00	00
Chopra H et al[10]	05	00	00	00	00	00
Kumar A et al[5]	31	02	05	00	04	03
Parmar NJ et al[6]	07	00	02	00	00	01
Present study	15	07	04	02	01	01

Out of total 15 malignant lesions, 7 cases were that of Sinonasal Carcinoma that comprised of 4 cases of Sinonasal adenocarcinoma, 2 cases of transitional Sino nasal carcinoma and 2 cases of poorly differentiated Sinonasal carcinoma. In the study by Kumar A et al[5], only 2 cases of Sinonasal carcinoma were noted. There were 4 cases of Squamous cell Carcinoma. Similar results were found in the studies by Kumar A et al[5] (5 cases) and Vijaya V Mysorekar et al[8] (9 cases). 1 case of Lymphoid Granulomatosis was seen. This was consistent with the study by Kumar A et al[5] (3 cases) and Parmar NJ et al[6] (1 case). 1 case of Olfactory Neuroblastoma was seen. This was consistent with the study of Kumar A et al[5] (4 cases). (**Table 6**).

Conclusion

During the present study, it was evident that polyps and polypoidal masses in nasal cavity form a complex of lesions ranging from non-neoplastic inflammatory lesions to benign and malignant neoplasms. Histopathology is the key to differentiate one lesion from another which is beneficial for the management of lesion.

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