Original Article

Spectrum of polypoidal lesions of nose at a tertiary care center: A cross-sectional retrospective study

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Objective: To determine the histopathological spectrum of nasal polyps across different age groups and both genders.

Methodology: This is cross-sectional retrospective study was carried out in Department of Histopathology of Liaquat National Hospital from 2012 to 2017. Hematoxylin and eosin (H&E) stained slides were examined with Immunohistochemistry selected cases. Variables like age, gender and laterality of lesion were recorded. The cases were broadly classified into neoplastic and non-neoplastic cases and neoplastic lesions were further classified according to the WHO classification. Descriptive statistical procedures were applied using SPSS 16.

Results: A total of 300 cases were seen during the study period. Non-neoplastic lesions were seen in 242(80.7%) and neoplastic in 78(19.4%) patients. Non- neoplastic inflammatory lesions were most common among 21-30 age group (n=79), while benign neoplastic lesions were most commonly seen in 51-60 age group (n=7). Malignant lesions were most common in 31-40 age group (n=10). Nasal polyps were twice more common in males (male=186 and females =94). Malignant neoplastic lesions are also more common in males (male=24 males and female=11). This was also seen in benign tumors i.e 23 cases (male=19 males and female=4).

Conclusion: Allergic/inflammatory nasal polyp was the most common pathology. Polyps most commonly were seen in second and third decade, and showed male predominance. In cases refractory to therapy, histopathological examination becomes essential for precise diagnosis and patient management. (Rawal Med J 202;45:168-171).

Keywords: Nose, Polypoidal Lesions, Benign, Malignant.

INTRODUCTION

Nasal cavity is common site for broad spectrum of lesions ranging from congenital to infective and from benign to malignant processes.[1-3] Most of the lesions of nasal cavity present as polyp.[1-4] In majority of the cases, clinicians are able to diagnose patients on the basis of history.[5] However, for definitive diagnosis biopsy remains a gold standard.[6]

In Pakistan, not many studies are conducted in this regard. Therefore, our study aim was to determine the histopathological spectrum of diseases which clinically present as polyp, and see spectrum across different age groups and genders.

METHODOLOGY

This cross-sectional study was carried out in Department of Histopathology, Liaquat National Hospital and retrospective analysis of 300 consecutive cases received from 2012 to 2017 was performed. All cases with clinical presentation of polyp and site of distribution of lesions were included, while, non-polypoid lesions, cases with no history of site distribution and cases received without formalin were excluded from the study .

Routine histopathological procedures were applied to the specimens and hematoxylin and eosin (H&E) stained slides were examined, in addition special stain like Periodic Acid Schiff (PAS) and Immunohistochemistry (DAKO) were performed in cases where needed. Variables like age, gender and laterality of lesion were recorded.

Statistical analysis: Descriptive statistical procedures were applied using SPSS version 16. The cases were broadly classified into neoplastic and non-neoplastic cases and neoplastic lesions were further classified according to the WHO classification.

RESULTS

A total of 300 cases were received in 5 years period. Majority were non-neoplastic lesions. Among 78 neoplastic lesions, 23 (7.7%) were benign and 35 (11.7%) were malignant lesions. Non- neoplastic inflammatory lesions were most common among 21-30 age group (n=79), while benign neoplastic lesions were most commonly seen in 51-60 age group (n=7) and malignant lesions were most common in 31-40 age group (n=10).

Nasal polyps were twice more common in males (male=186 and females =94). Non-neoplastic lesions were seen in more than 2/3rd of the cases (male= 163 males and females=79), followed by malignant neoplastic lesions (male=24 males and female=11) and finally total of 23 benign neoplastic cases (male=19 males and female=4) were seen. Bilateral presentation was most common (Table 1).

Table 1. Gender distribution of Polyps.

	Site distribution		
Disease type	**Bilateral (n=215)**	**Right (n=44)**	**Left (n=41)**
Non-neoplastic	181(84.2%)	33(75%)	28(68.3%)
Benign neoplastic	10(4.6%)	5(11.4%)	8(19.5%)
Malignant neoplastic	24(11.2%)	6(13.6%)	5(12.2%)

Allergic/inflammatory polyps were the most common pathology (n=145), followed by fungal infection (n=68). Most fungal infections were caused by septate fungi, 90% (n=61) and around 10% (n=7) were a septate fungi. Both allergic polyps and fungal infections were most frequently in younger age groups with age ranging from 10 to 40 years, with only 10 cases diagnosed above 70 years. Chronic sinusitis was most common in 21 to 40 years (Table 2).

Table 2. Age distribution of Non-neoplastic lesions.

	Age group (years)							
Diagnosis	**0.1-10**	**11-20**	**21-30**	**31-40**	**41-50**	**51-60**	**61-70**	**71-80**
Allergic/inflammatoy polyp	2	19	42	30	27	18	6	1
Septate fungal infection	-	12	26	12	8	3	-	10
Chronic sinusitis	-	-	3	2	1	-	-	-
Adenoids	-	3	1	-	-	-	-	-
Benign reactive lymphoid hyperplasia	1	1	1	1	-	-	-	-
Mucocele	-	-	2	-	1	-	-	-
Nasoalveolar cyst	-	-	2	-	-	-	-	-
Abscess	-	-	-	-	-	-	-	1
Vasculitis	-	-	-	-	-	-	1	-
Chrnoic grnulomatous inflammation	-	-	1	-	-	-	-	-
Juvenile xanthogranuloma	-	1	-	-	-	-	-	-
Encephalocele	1	-	1	-		-	-	-

Table 3. Age distribution of malignant tumors.

	Age group							
Diagnosis	**0.1-10**	**11-20**	**21-30**	**31-40**	**41-50**	**51-60**	**61-70**	**71-80**
Nasophryngeal squamous cell carcinoma	-	3	-	8	5	2	1	-
Peripheral t-cell lymphoma	-	1	1	-	1	-	-	-
Basal cell carcinoma	-	-	-	-	-	2	-	1
Ewing sarcoma	1	1	-	-	-	-	-	-
Adenocarcinoma	-	-	-	-	1	-	1	-
Plasma cell dyscrasia	-	-	-	1	-	1	-	-
Chondrosarcoma	-	-	-	2	-	-	-	-
Diffuse large b-cell lymphoma	-	-	-	-	-	1	-	-
Small cell carcinoma	-	-	-	1	-	-	-	-
Rhabdomyosarcoma	1	-	-	-	-	-	-	-
Hemangiopericytoma	-	-	-	-	-	1	-	-
Oligodendroglioma	-	-	-	1	-	-	-	-
Adenoid cystic carcinoma	-	-	-	-	-	-	1	-

A total of 23 cases were benign and 35 cases were malignant. Sino-nasal papilloma was the most frequently reported tumor (n=12) and seen in 31 to 60 years ages, followed by hemangioma and nasal angiofibroma seen in 4 and 3 cases, respectively both are common in in young age group 11 to 30 years. One case each of Pindborg tumor, chondroid syringoma, and mature cystic teratoma and nasal fibroma were seen. Malignant tumor comprised 60% (35/58) of all neoplastic cases. Majority were nasopharyngeal carcinomas (Table 3).

DISCUSSION

Polypoidal masses in the nasal cavity form a complex group of lesions with a wide range of diagnostic spectrum. The lesion not only includes primary lesions of nasal cavity but also secondary involvement from diseases of neighboring structures. Accurate diagnosis of nasal polyps forms essential part of patient management as many benign tumors with high recurrence rate, lethal fungal infections and malignant disorders can present as nasal polyps.

In our study, allergic/inflammatory polyps were seen the most commonly diagnosed lesion of nasal cavity in all age groups. Bilateral involvement was the commonest mode of presentation with 84% cases. These finding are in concordance with many international and national studies.[4,6,7]

Table 4. Comparison of different studies of nasal polyps.

Authors	Dasgupta et al (1)*	Khan et al (17)	Dafale et al (15)	Kalpana et al (11)	Bijjaragi et al (13)	Karla et al (16)	Our Study
Year of Study	1997	2006	2012	2013	2015	2018	----
M:F	2:1	3:1	----	2:1	1.6:1	1.6:1	1.6:1
Sample size	345	240	70	100	142	66	300
Non-neoplastic cases (%)	50.7%	60%	88.57%	66%	72%	72.7%	80.7%
Neoplastic Benign (%)	37.4%	23.33%	8.57%	17%	19.7%	21.2%	7.67%
Neoplastic Malignant (%)	11.9%	16.67%	2.85%	17%	8.45%	6.06%	11.67%
Predominant Non-neoplatic	Inflam./ Allergic Polyp	Inflam./ Allergic Polyp	Inflam./ Allergic Polyp	Inflam./ Allergic Polyp	Inflam./ Allergic Polyp	Inflam./ Allergic Polyp	Inflam./ Allergic Polyp
Predominant Benign	Hem angioma	Angio fibroma	Inverted Papilloma	Angio fibroma	Capillary Hemangioma	Inverted Papilloma	Inverted Papilloma
Predominant Malignant	SCC	SCC	SCC	Undifferentiated. carcinoma	SCC	NHL	Undifferentiated carcinoma

*Reference number

Fungal infection in the nasal region can have lethal consequence due to close proximity with brain where fungus can travel through the nasal cribriform plate to brain.[8] Infection with fungal organisms ranked the second most common pathology in our settings, although most infections were caused by septate fungal hyphae. Fungal infections and allergic nasal polyps present in the same age group (Table 3). Both conditions require different treatment options, as the immunosuppression is needed for inflammatory/allergic conditions but is contraindicated for fungal infections. In our opinion, if patients are not responding to therapy, the other differential should be considered. Similarly, high frequency of fungal infection in young age has been reported in a study from Pakistan.[8] In India, common infective cause was rhinoscleroderma and rhinosporidiosis.[1,3,4,8,9]

Sinonasal papilloma was most common benign tumors followed by hemangioma, with latter presenting two decade earlier. Some studies[6,7] have reported hemangioma as the common tumor with age of presentation comparable to our study. In one study done exclusively on sinonasal epithelial

tumors, authors reported nasal papilloma as the most common tumor.[10]

Nasopharyngeal and squamous cell carcinoma was commonest malignant tumor in our study. These tumors are known for bimodal presentation, in our cases one peak was seen in 11 to 20 decade and second one in 30 to 50 decade. Squamous cell carcinoma was the most common malignant tumor reported by many authors.[1,3,4,10,11]

Male's predominance was noted in both allergic nasal polyps and nasopharyngeal carcinoma was compatible with national and international data.[3,7,9,11]

Our data of nasal polyps diagnostic spectrum is similar to national and international reports (Table 4) when comparing most common pathologies in non-neoplastic and neoplastic groups.[8,12-17]

CONCLUSION

Allergic/inflammatory nasal polyps were the most common pathology, followed by fungal infections. Polyps most commonly were seen in second and third decade, and showed male predominance. Malignant tumors were more in compared to benign tumors with nasal carcinoma and squamous cell carcinoma being the most common malignant tumor. Wide variety of lesions can present as polyps in nasal cavity, and making it impossible to distinguish on clinical grounds. Therefore, histopathological examination becomes essential for precise diagnosis and patient management.

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