Original Article

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Polypoidal Lesions in the Nasal Cavity

Pathology Section

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ABSTRACT

Introduction: Nasal polyps are polypoidal masses arising from mucous membranes of nose and paranasal sinuses. They are overgrowths of the mucosa that frequently accompany allergic rhinitis. They are freely movable and nontender.

Aims and Objectives: The purpose of this study was to study the histopathologic spectrum of polypoidal lesions of the nasal cavity.

Materials and Methods: The study comprised of 100 consecutive cases of polypoidal lesions in the nasal cavity, received in the department of pathology. The age and sex of the patients were recorded. The tissues were routinely processed for histopathologic sections and stained with haematoxylin and eosin stains. Special stains like Periodic acid Schiff (PAS) was done wherever applicable. The cases were classified into neoplastic and nonneoplastic lesions. The neoplastic lesions were further classified according to WHO classification on histopathologic examination.

Results: Analysis of 100 polypoidal lesions in the nose and paranasal sinuses with clinical diagnosis of nasal polyps, revealed 66 cases were nonneoplastic and 34 were neoplastic;17 (50%) were benign and 17(50%) were malignant. True nasal polyps both inflammatory and allergic together comprised 44 cases of the 100 polypoidal lesions in the nasal cavity. Angiofibroma and inverted papilloma were the most frequent benign tumour accounting for 12/17(0.7%). The most common malignant tumour was anaplastic carcinoma 7/17(0.4%). Nonneoplastic and benign tumours were common in younger age groups whereas malignant tumours were most common in older males.

Conclusion: The majority of polypoidal lesions in the nasal cavity are nonneoplastic.

Key Words: Polyps, Nasal cavity, Nonneoplastic, Inflammatory, Allergic, Angiofibroma

INTRODUCTION

Nasal polyps are recognized as projections of the mucous membranes which develop in association with chronic rhinitis and sinusitis. Clinically, polyps are smooth, shiny and movable swellings. It is quite impossible to distinguish clinically between simple nasal polyps, polypoidal lesions which are caused by specific granulomatous diseases and polypoidal neoplasms [1].

The clinical features and imaging techniques help us in reaching a provisional diagnosis, but a histopathologic examination remains the mainstay for making a final, definitive diagnosis [2]. The present study analyzed the histopathological spectrum of the polypoidal lesions of the nasal cavity.

MATERIAL AND METHODS

This study included 100 consecutive cases of polypoidal lesions in the nasal cavity, which were received in the department of pathology. The age and sex of the patients were recorded. The tissues were routinely processed as histopathologic sections and they were stained with the haematoxylin and eosin stain. Special stains like Periodic Acid Schiff (PAS) were done wherever they were applicable. The cases were classified into neoplastic and nonneoplastic lesions. The neoplastic lesions were further classified according to the WHO classification, based on the histopathologic examination results [3].

OBSERVATIONS

The histopathological analysis of the 100 consecutive cases which were clinically diagnosed as nasal polyps revealed that 66 cases were nonneoplastic lesions and that 34 were neoplastic lesions. Among the 34 neoplastic lesions, 17(50%) were benign and 17(50%) were malignant in nature. [Table/Figs-1, 2 and 3] give the demographic details of the study population.

The Non Neoplastic Lesions

True nasal polyps (44) were the commonest non neoplastic lesions which were encountered in this study, followed by four cases of granulomatous inflammations and mucormycosis each. Two cases of rhinosporidiosis and one each of an inflammatory pseudotumour, fibrous dysplasia, chronic hypertrophic rhinitis and rhinoscleroma were seen.

The true nasal polyps were further subdivided into allergic nasal polyps and inflammatory polyps. The allergic nasal polyps have eosinophils infiltrating the stroma, whereas the inflammatory polyps have an oedematous fibrous stroma with a pseudocyst formation and infiltration with lymphocytes and plasma cells. There were 23 males and 12 females with inflammatory nasal polyps and 6 males and 3 females with allergic nasal polyps. These were common in younger patients (22/35), who were in the age range of 11-45 years. On taking all the cases of nonneoplastic lesions together, it was seen that there were 46 males against 20 females and the average age was 39 years (7-71 years).

The Neoplastic Lesions

Seventeen cases each of benign and malignant tumours were seen. Angiofibroma and inverted papilloma were the most common benign tumours. There were 6 cases of each 18% (6/34). Angiofibromas were seen in the younger age group (11-40 years). Inverted papilloma was also predominantly seen in men (4/6) who

were in the age group of 30-70 years. Next in frequency were three cases of schwannomas; these cases were seen in elderly females who were aged 54, 50 and 62 years. The other important benign tumours were one case each of a capillary haemangioma and a microcystic papillary adenoma.

Malignant tumours were seen in 50% (17/34) of the neoplastic cases. A majority were sinonasal undifferentiated carcinomas 41% (7/17), followed by squamous cell carcinomas 35% (6/17). Sinonasal undifferentiated carcinomas were predominantly seen in the age group of 40-50 years. This was followed by three cases of non-Hodgkin's lymphoma in elderly patients (50-60 years). One interesting case of a sinonasal adenocarcinoma was seen in a 60 years old male.

Type of lesion	Males	Females	Toatal number of cases
1.Non neoplastic lesions			
Inflammatory polyps	23	12	35
Allergic polyps	6	3	9
Granulomatous lesions	4	0	4
Mucormycosis	3	1	4
Rhinosporidiosis	2	0	2
Inflammatory pseudotumor	1	0	1
Fibrous dysplasia	0	1	1
Chronic hypertrophic rhinitis	0	1	1
Rhinoscleroma	1	0	1
Non-specific inflammation	6	2	8
a. Benign tumours			
Angiofibroma	6	0	6
Inverted papilloma	4	2	6
Schwannoma	0	3	3
Capillary haemangioma	1	0	1
Microcystic papillary adenoma	1	0	1
Spindle cell lesion	1	0	1
b. Malignant tumours			
Anaplastic carcinoma	5	2	7
Squamous cell carcinoma	4	2	6
Adenocarcinoma	1	0	1
Non-Hodgkin lymphoma	2	1	3
TOTAL	71	29	100

[Table/Fig-1]: Distribution of Various Lesions in Males and Females

DISCUSSION

In a similar study which was carried out on 345 cases, Dasgupta et al., [4] found 175 (50.7%) non neoplastic lesions and 170 (49.3%) neoplastic lesions. In their study, among the nonneoplastic lesions, true nasal polyps accounted for 110(63.8%) cases; 74(63.3%) being allergic and 36(32.7%) being inflammatory ones. Among 129 benign neoplasms, they found that a majority were hemangiomas which were seen in 59(45.7%) cases and among the 41 malignant neoplasms, 15(36.6%) were squamous cell carcinomas.

In a study which was done by Mysorekar et al., [5] of the 145 lesions which were examined, 102(70.3%) were nonneoplastic and 43(29.7%) were neoplastic; 21(48.8%) were benign and 22 (51.2%) were malignant. True nasal polyps, both inflammatory and allergic, together comprised 86(59.2%) of the polypoidal lesions in the nasal cavity. Angiofibroma was most frequently seen in the benign tumour category, which accounted for 15/22(71.5%) cases. Squamous cell carcinoma was the most frequent tumour which was encountered.

In a study which was done by Dafale et al., [6] simple polyps accounted for 88.57% of total cases and neoplastic polyps accounted for 11.42% cases.

As in other studies, in this study also, the noneoplastic polyps were common as compared to the neoplastic ones. The true nasal polyps, both inflammatory and allergic, comprised 44(44%) of the polypoidal lesions in the nasal cavity.

Rhinosporidiosis is a chronic granulomatous disease which is caused by Rhinosporidium seeberi. Although a variety of sites

Nonneoplastic lesions	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	Total no.
Inflammatory polyp	4	6	8	4	5	5	3	0	35
Allergic polyp	0	2	2	0	2	1	2	0	9
Mucormycosis	0	0	1	1	0	1	1	0	4
Granulomatous lesions	0	0	3	0	0	0	1	0	4
Inflammatory pseudotumour	0	1	0	0	0	0	0	0	1
Fibrous dysplasia	0	1	0	0	0	0	0	0	1
Chronic hypertrophic rhinitis	0	0	0	1	0	0	0	0	1
Rhinoscleroma	0	0	0	0	1	0	0	0	1
Nonspecific lesions	0	2	1	0	3	0	1	1	8

[Table/Fig-2]: Distribution of Nonneoplastic Lesions in the Various Age Groups (years)

Tumour	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	Total no.
Benign tumours									
Angiofibroma	0	2	3	1	0	0	0	0	6
Inverted papilloma	0	0	1	2	0	2	1	0	6
Schwannoma	0	0	0	0	1	1	1	0	3
Microcystic papillary adenoma	0	0	0	0	0	1	0	0	1
Haemangioma	0	0	0	0	1	0	0	0	1
Total	0	2	4	3	2	4	2	0	17
Malignant tumours									
Anaplastic carcinoma	0	1	0	0	1	5	0	0	7
Squamous cell carcinoma	0	1	1	0	0	2	2	0	6
Adenocarcinoma	0	0	0	0	0	1	0	0	1
Non-Hodgkin lymphoma	0	0	0	0	0	3	0	0	3
Total	0	2	1	0	1	11	2	0	17

[Table/Fig-3]: Distribution of the Neoplastic Lesions in Various Age Groups (years)

may be affected, the principal site of infection is the nasal mucosa; this disease is endemic in India and Sri Lanka. It is more prevalent in males and in the second decade of life [7]. The only curative approach is surgical excision, combined with electrocoagulation. No efficacy has been demonstrated in using antifungal and or antimicrobial drugs. Recurrence, dissemination in the anatomically close sites and local bacterial infections are the most frequent complications [8].

We came across one case of rhinoscleroma in a male who was aged 50 years. Rhinoscleroma is a chronic, slowly progressive inflammatory disease of the upper respiratory tract. It is associated with the Klebsiella rhinoscleromatis infection. Without treatment, this condition can result in significant complications which includes the involvement of the lower airways [9].

In the present study, angiofibroma was the commonest benign tumour. All the six cases were males who were in the age group of 10-40 years. Juvenile angiofibroma is a rare tumour which comprises 0.05% of the head and neck tumours, which is histologically benign and locally invasive and it has a specific predilection for the nasopharynx and adolescent males. A study which was done by Madhavan et al also showed an unusual case of nasopharyngeal angiofibroma in a 45 years old male [10].

Microcystic papillary adenoma is rarely seen in the nose [11]. There was one case in our study, who was a 58 years old male.

In the present study, majority of the malignancies were sinonasal undifferentiated carcinomas (7/17) and the remaining were squamous cell carcinomas, adenocarcinomas and non Hodgkin's lymphomas.

In some of the studies which were done by Lathi A et al., [12] and Svane Knudsen et al., [13] they have reported squamous cell carcinoma to be the most commonly encountered malignancy in the sinonasal tract in India and Denmark respectively.

Nasopharyngeal carcinoma has an average age of onset of about 50 years and it has been reported to be unusual in children [14]. However it was seen in a 13 year old girl in this study. A study which was done by Abdulai et al., on head and neck tumours in Ghanaian children, reported that nasopharyngeal carcinoma accounted for 19(9%) of the 613 cases which were studied [15].

The treatment of nasal polyps includes a combination of observation and medical and surgical treatments, depending on the individual clinical assessment. Initially, the patients are treated medically and they are later considered for surgery. The main aims of the treatment are to eliminate or to significantly reduce the size of the nasal polyps to relieve the nasal obstruction, improvement in the sinus drainage and restoration of the olfaction. With both the treatments, recurrences are common, particularly in patients with asthma [16].

CONCLUSION

Nasal polyps can result from a wide variety of pathologic entities which range from infective granulomatous to polypoidal neoplasms, which include malignant ones. The malignancies should be distinguished from the nonmalignant conditions. Inflammatory and allergic polyps are the most common lesions which present as polypoidal lesions in the nasal cavity. This study helped us to know the prevalence and the distribution of the polypoidal lesions in the nasal cavity and it emphasises that nasal polyps should be subjected for histopathological test, a failure to do so will delay the appropriate treatment.

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