

The Prevalence of Allergic Fungal Sinusitis among patients with Nasal Polyps presenting in a tertiary care hospital

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ABSTRACT

Background: Nasal polyp are pediculate overgrowths of sino nasal mucosa in the nasal cavity. Association of nasal polyps and allergic fungal sinusitis has been narrated in literature. This research has been conducted with a rationale of finding nasal polyps with fungal sinusitis.

Aim: To find the generality between both chronic nasal polyps and chronic fungal sinusitis in tertiary hospital of capital province.

Methods: Our study was conducted in a random pattern. It included 100 patients of nasal polyps who reported to ENT unit-II Jinnah Hospital Lahore from 1st Decmencer,2019 to 31st August 2020. The interpretation of the data was done though 18th version of statistical software SPSS.

Results: In our study, out of 100 cases of nasal polyps, 72(72%) cases were segregated between age group of 15 years to age group of 50 years while 28%(n=28) were segregated between the age group of 5th decade to 7th decade, the value of mean standard deviation +sd was measured and narrated as 41.1+12.67 years, 55(55%) were females while 45(45%) were male patients, however the final analysis of polyps in the nose with presence of fungal sinusitis was gathered around 18(18%) of the cases.

Conclusion: The net analysis of our research helped us to device a rationale that nasal polyps and fungal sinusitis were inter related. There was a vast majority of nasal polyposis diseased patients having fungal sinusitis at the same time. This observation in a tertiary care hospital is an important landmark for analysis of all patients with nasal polypoidal disease to be scanned for fungal sinusitis at the same time.

Keywords: Nasal polyps, allergic fungal sinusitis, frequency

INTRODUCTION

Polyps in the nose with associated fungal disease in the sinuses have a very close correlation. It is still a matter of great interest to see the association between both the entities of nasal polyps and fungal sinusitis. As more research work of fungal sinusitis is being carried, we have gathered information that fungal sinusitis is mostly a benign disease, however in challenging individual such as immune compromised patients this fungal sinusitis might get dangerous and invasive¹.

The last 20 years have certainly helped us in understanding fungal sinusitis and its defenition². The allergic variant of fungal sinusitis is a terrible, continuing form of intractable disease that has the property to invade, grow independently and re occur even after surgical removal. The pathological evidence for this form of fungal sinusitis shows a type 1 hypersensitivity reaction releasing immunoglobulin E (IgE). The clinical symptoms of this form of sino nasal fungus is similar to fungus in broncho pulmonary pathway (APBA).⁶ The course of disease in the variant of invasive sinusitis is different, as its major hosts as people with less immunity or those suffering from co-morbidities such as diabetes and AIDS. The percentage association between with nasal polyposis and fungal sinusitis is charted between 5-10%. The most important presenting feature of

this fungal sinusitis is atopy. The incidence of rhinitis is nearly two third in these individuals. The serum level of immunoglobulin E (IgE) is elevated in most of the individuals. The association of asthma in the patients with fungal sinusitis is nearly half (50%) as described by Manning et al. Impact of climate on the prevalence of the disease has been narrated by many authors, the incidence of fungal disease in humid temperate regions is very high. This format of fungal disease is usually common in young individuals, the average mean age of fungal sinusitis is 21.9 years. There is no sex pre dominance in this disease. These pediculate masses of sino nasal mucosa usually arise for the middle meatal part of osteo meatal complex. The nasal polyps and chronic sino nasal inflammation are merged together.^{5,6}The incidence of nasal polyps in a group of population has been labelled around 4%. Some studies in literature reveal a slight male dominance with 2:1.⁷Commonest symptoms in a patient with nasal polyps would be nasal blockage, decrease nasal patency, recurrent sino nasal infections and complete anosmia.⁴A radiological grading of sino nasal polyps reveal a higher level of recurrence (60%) in a grade III polyyps.³Another view of study done in Karachi, 100 patients with nasal polyps were evaluated and operated. Specimens were sent for histopathology and culture examination. The frequency of AFS was about 24%. Presence of gross deviation of nasal septum and bilateral inferior turbinate hypertrophy was seen in 4(16.7%) and 5(20.8%) patients respectively. On evaluating co-morbid conditions 5 (20%) patients were asthmatic and only 1 patient was diabetic.⁷A total 324

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cases of nasal polyposis were included in a study done in Jamshoro, out of which 159 were males and 165 were female. Underlying fungus was found in 224(69.75%) subjects⁸. In another local study done in Peshawar, of 100 patients out of which 58 males and 42 were females, allergic fungal sinusitis was diagnosed in 13(13%) patients⁹. The main aim of our research is evaluating the frequency of allergic fungal sinusitis. In both the literature published nationally and internationally there is a controversy as they have stated variable results. This study will help all the clinicians to decide a good strategy if the association between the nasal polyps and fungus turns out to be high.

The purpose of the study was to find the generality of fungal sinusitis in patients presenting with sino nasal polyps.

METHOD

After approval from Ethical Review Board, our study was conducted in a random pattern. After fulfilling the inclusion criteria 100 Patients with nasal polyps were made a part of the study. All of the sample size patients reported to ENT unit-II Jinnah Hospital Lahore from 1st Decmemcer,2019 to 31st August 2020. Data was acquired and analyzed using SPSS version 18. For descriptive statistics, both the mean value and the value of standard deviation was shown for variable which were quantitative example age and grading of polyps. Qualitative data like gender, allergic fungal sinusitis was presented by using the description as frequency and some with percentages. The result Data for age, gender, CT Grading of polyps, asthma, nasal blockage was addressed. The level of significance was calculated using chi-square test. And the value of P less than < 0.05 was labelled significant.

RESULTS

Sample size of 100 patients were collected. The objective of the study was to see the prevalence between sino nasal disease with nasal polyps and fungal sinusitis. The quantitative variable of age was recorded, the younger age group (15years to 50 years) showed an increasing percentage of 72%, while older group ranging from (51years- 70years) showed a percentage of 28%. However the mean standard age of the sample ranged as 41.1+12.67years (Table 1). The gender distribution in the study revealed (55%) female predominance as compared to (45%) male percentage (Table 2). The major rationale of the study showing the frequency of fungal sinusitis in patients having sino nasal polyps was (18%), while the rest (82%) of the patients had no findings of the morbidity (Table 3). The results were analyzed using the chi square tests, the value of P was found to be less than 0.05, which was significantly acceptable.

The sample of 100 patients was admitted throughout patient department after the inclusion criteria commitment. Quantitative variables like age The A total of 100 cases fulfilling the inclusion/exclusion criteria were enrolled to determine the prevalence of allergic fungal sinusitis among patients with nasal polyps. Age distribution of the patients was recorded, it shows that 72(72%) were between 15-50 years of age while 28(28%) were between 51-70 years of

age mean+sd was calculated as 41.1+12.67 yrs (Table 1). Gender distribution shows that majority of the patients were females by calculating 55(55%) while 45(45%) were male patients in this study (Table 2). Frequency of allergic fungal sinusitis among patients with nasal polyps was recorded in 18(18%) of the cases while 82(82%) had no findings of the morbidity (Table 3).

The data was stratified for age, gender, CT Grading of polyps, asthma and nasal blockage to address modifiers. Post stratification chi-square test was applied to check the significance with P-value < 0.05 as significant (Table 4-8).

Table 1: Distribution of age (n=100)

Age of patient (years)	n	%age
15-50	72	72
51-70	28	28
Total	100	100
Mean+SD	41.1+12.67	

Table 2: Distribution of gender (n=100)

Gender	n	%age
Male	45	45
Female	55	55
Total	100	100

Table 3: Frequency of patients having sino nasal polyps and fungal sinusitis

Sinusitis of fungal origin	n	%age
Yes	18	18
No	82	82
Total	100	100

Table 4: Age stratification f patients with sino nasal polyps and fungal sinusitis (n=18)

Age (years)	Allergic Fungal Sinusitis	
	Yes	No
15-50	14	58
51-70	4	24

P value 0.54

Table 5: Gender stratification of patients with sino nasal polyps and fungal sinusitis (n=18)

Gender	Sinusitis of Fungal Origin		P value
	Yes	No	
Male	10	35	0.31
Female	8	47	

Table 6: Stratification for frequency of afr among patients with nasal polyps with regards to ct grading of polyps (n=18)

CT Grading	Allergic Fungal Sinusitis		P value
	Yes	No	
I	4	16	0.955
II	5	25	
III	9	41	

Table 7: Stratification for frequency of sinusitis of fungal origin with sino nasal polyp patients with regards to asthma (n=18)

Asthma	Allergic Fungal Sinusitis		P value
	Yes	No	
Yes	5	10	0.09
No	13	72	

Table 8: Stratification for frequency of sinusitis of fungal origin in sino nasal polyp patients with regards to nasal blockage (n=18)

Nasal blockage	Allergic Fungal Sinusitis		P value
	Yes	No	
Yes	15	71	0.48
No	3	11	

DISCUSSION

Nasal polyposis is a common problem. The sinusitis of fungal origin having sino nasal polypoidal disease, either have a unilateral types of polyp or bilateral type of polyps. This study was planned with a major rationale to identify the frequency of sinusitis of fungal origin in all of these patients with unilateral or bilateral nasal polyp disease. In the literature published nationally and internationally lies a controversy as they have stated variable results. This study may help all the clinicians to decide a good strategy if the frequency of these unilateral and bilateral nasal polyp seems to be higher in patients with sinusitis of fungal origin. In our study, out of 100 cases of nasal polyps, a large percentage 72(72%) were young age based (15 to 50 years) while a lesser percentage 28(28%) were old age ranging between (51 to 70 years), the average mean age calculated as 41.1+12.67 years, 55(55%) were females while 45(45%) were male patients, frequency of allergic fungal sinusitis among patients with nasal polyps was recorded in 18(18%) of the cases.

In a study done in Karachi, 100 patients with nasal polyps were evaluated and operated. Specimens were sent for histopathology and culture examination. The frequency of AFS was about 24%. Presence of gross deviation of nasal septum and bilateral inferior turbinate hypertrophy was seen in 4(16.7%) and 5(20.8%) patients respectively. On evaluating co-morbid conditions 5 (20%) patients were asthmatic and only 1 patient was diabetic¹⁰. A total 324 cases of nasal polyposis were included in a study done in Jamshoro, out of which 159 were males and 165 were female. Underlying fungus was found in 224(69.75%) subjects.¹¹In another local study done in Peshawar, of 100 patients out of which 58 males and 42 were females, allergic fungal sinusitis was diagnosed in 13(13%) patients¹². Our findings are in agreement with local studies^{10,12} where it ranges from 13-24% of the cases.

McClay JE and others are of the view that sinusitis of fungal origin is commonly seen in the younger age groups. The study of Mc Clay JE advocated an average age of 21.9 years in these patients with sinusitis of fungal origin. The male to female ratio of the disease however showed equal predominance which was not narrated in our study (55% female to 45% male). A local study conducted by Abdur Rehman showed similar frequency of fungal sinusitis in patients with sino nasal polypoidal disease which was (22.4%), meaning 28 patients out of 125 patients had both sino nasal polyps and fungal sinusitis. The average mean age of these 28 patients according to the study of Abdur Rehman was 30 years. The younger age group (20 to 40 years) had majority of patients (67.8%). The gender bias was almost same 1.4:1 male:female. The evidence thus authenticate the results of our study. And it is very vital while determining the diagnosis of sino nasal polyps the entity of fungal sinusitis has to be kept in mind. The most

common fungal organism was aspergillus. Another local study by Akhtar MR¹¹ shows this frequency as 14%, very similar to the study conducted by Irshad-ul-Haq M¹² reporting 11% frequency of sinusitis of fungal origin. The study conducted by Baloch ZA however does report a greater frequency of 38% sinusitis of fungal origin in sino nasal polypoidal patients. However, our data is helpful for all the clinicians at local level to decide a good strategy for allergic sinusitis in cases with nasal polyps.

CONCLUSION

The drawn rationale of the results interpreted from our study conclude sinusitis of fungal origin is common in patients with unilateral or bilateral sino nasal disease with polyps. It is of greater concern therefore that all patients with chronic rhinosinusitis having nasal polyps should also be evaluated for sinusitis of fungal origin. The study also highlights the concern for establishing surveillance units in all tertiary hospitals to evaluate the magnitude of this pathology.

Conflict of interest: Nil

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