



PREVALENCE AND RISK FACTORS OF FUNGAL NASAL POLYPOSIS IN TERTIARY CARE HOSPITAL.

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ABSTRACT... Objectives: To determine the prevalence of fungal rhinosinusitis in nasal polyps' patients and to determine the risk factors of fungal rhino sinusitis. **Study Design:** Prospective study. **Setting:** Abbasi Shaheed Hospital and Karachi Medical and Dental College. **Period:** October 2014 to April 2017. Total duration of study was two and a half years. **Material & Methods:** In this study 221 cases were included who diagnosed nasal polyposis on clinical ground. Both sexes were included in this study. After informed consent complete history were taken and noted in pre designed Performa. Complete ENT and physical examination was done. Relevant investigations were advised as per requirement. **Results:** Total numbers of patients selected for this study were 221. The overall prevalence of fungal rhino-sinusitis was found in 90 patients (40.70%). Mostly patients belong to poor socio-economical status i.e. 59 (65.55%) followed by middle class 18 (20%) patients. Mean age was 30.16 +/_ 12.33. Male were 55 (61%) and female were 35 (38.8%) with male female ratio was 1:1.57. In risk factors, 36 (40%) patients were farmers while history of allergy was found in 35 patients (38.88%). **Conclusion:** Patients with nasal polyps should be properly evaluated for the early treatment of fungal rhino-sinusitis and also remove the risk factors to prevent the recurrence and unnecessary complications.

Key words: Chronic Rhino-Sinusitis, Fungal Rhino-Sinusitis, Immuno-Compromised, Nasal Polyps.

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INTRODUCTION

Rhino-sinusitis is define as inflammation of mucosa of nose and paranasal sinus and affects up to 13% of population.¹ It may be divided into acute (< four weeks), sub-acute (between four to twelve weeks) and chronic rhino-sinusitis (> twelve weeks).² Chronic rhino-sinusitis is more common than acute form and its cause's negative impact in health.³ Fungal infection here suspected to be the causative agent of chronic rhino-sinusitis and a fungal etiology was found to underlie severe nasal polyps.⁴ Fungi spore abundantly present in environment and inhalation in unavoidable.⁵ When these spores inhale they may colonize in respiratory epithelium and paranasal sinus mucosa where they cause non-invasive and invasive type of disease depend upon the immunity, and age of the host.^{5,6,7}

Fungal rhino-sinusitis categorized in to non-

invasive and Invasive depend upon the mucosal invasion. Invasive fungal rhino-sinusitis further divided into acute invasive, chronic invasive and granulomatous type, while non-invasive fungus related eosinophilic rhino-sinusitis and fungal ball.⁸ Chronic fungal rhinosinusitis further categorized into fungus related eosinophilic rhinosinusitis, granulomatous, fungal ball and chronic invasive.⁹ Different types of fungal species have been found in invasive fungal sinusitis particularly *Aspergillus* and *Zygomycetes*.¹⁰ Multiple risk factors are responsible for fungal rhino-sinusitis like occupation, socio-economy, geographical factors, immune status of the patient CT scan nose and para-nasal sinuses play important role to assess the disease and extend of the disease. CT scan shows double density sign due to deposition of calcium salts such as calcium sulfate and calcium phosphate which helps in the diagnosis and extend of the disease. Fungal

balls show more heterogeneous component on radiology and allergic fungal mucin show more radiodense.¹¹

The incidence of fungal infection has dramatically increased in recent years.¹² Prevalence of fungal infections in not precisely documented in Pakistan. In our study, try to determine the prevalence and risk factors of fungal sinusitis.

MATERIAL AND METHODS

This study was conducted in Otorhinolaryngology department of Abbasi Shaheed Hospital and Karachi Medical and Dental College. This hospital is a tertiary care and teaching hospital which cover the large population. This prospective study is conducted between two and half years, started from 17 October 2014 to April 2017. In this study those cases were included that came with clinical diagnosis of nasal polyps. Both sexes were included in this study. After informed consent, complete history was taken and noted in pre designed Performa. Complete physical and ENT examination was done. Eyes were also examined for any orbital involvement and if required taking expert opinion from Eye department. Necessary laboratory investigations were done. C-T scan were advised to see extend of the disease. After surgery specimen sent in formalin for histopathology and in normal saline for fungal Culture and sensitivity.

Inclusion Criteria

All patients who have nasal polyps on the clinical basis were included in this study

Exclusion Criteria

Any mass other than nasal polyp (Clinically diagnosed).
Not come on follow-up

RESULTS

Total number of patients selected for this study was 221. Histopathological evaluation revealed fungal polyposis was 90 patients (40.72%) and remaining were simple allergic polyps 131 (59.27%). Figure-1 shows prevalence of fungal rhino-sinusitis, the overall prevalence of fungal rhino-sinusitis was found in 90 patients (40.70%).

Figure-2 show socio-economical status, mostly patients belong to poor socio-economical status i.e. 59 (65.55%) followed by middle class 18 (20%) patients. Table shows mean age, mean age was 30.16 +/- 12.33. Figure-3 shows gender differences, male were 55 (61%) and female were 35 (38.8%) with male female ratio was 1:1.57. Table-II shows risk factors, highest number of patients were farmers 36 (40%). Immuno-compromised patients were 27 (30%) and working with pets 28 (31.1%) patients 36 (40%) patients were farmers while history of allergy found in 35 patients (38.88%).

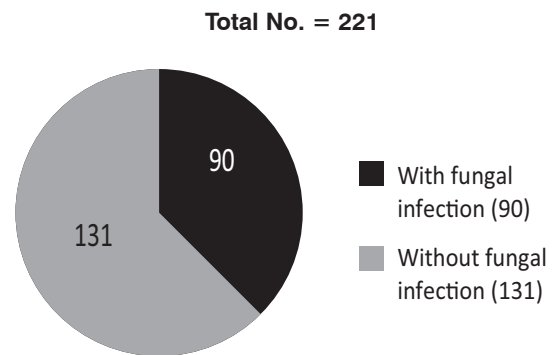


Figure-1. Prevalence of fungal rhino sinusitis.

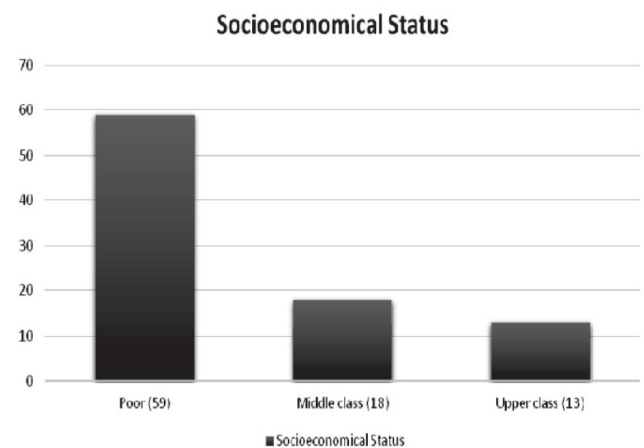


Figure-2. Socio-economical status.

Mean	± SD
30.16	12.33

Table-I. Age.

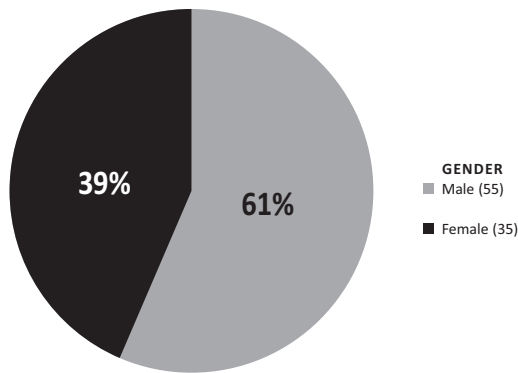


Figure-3. Gender.

Risk Factor	No. of Patients
Farming	36 (40%)
Working with pets	28 (31.1%)
Immuno-compromise patient	27 (30%)
History of allergy in family	30 (33.3%)
Communicable disease	30 (33.3%)
History of allergy in patient	35(38.88%)

Table-II. Risk factors.

DISCUSSION

This was a prospective study conducted at Abbasi Shaheed Hospital Karachi. The prevalence of fungal nasal polyposis was found in 90 (40.70%) cases as compared to the study conducted by Siddiqui et.al, who found fungal nasal polyposis in 69.75% cases out 324 patients presented with nasal polyposis.¹³ Another study also describe the relationship between nasal polyp and fungal sinusitis, 12 patients of nasal polyposis were selected in which 10 cases (83.33%) were diagnosed fungal polyposis.¹⁴ Both study showed slight more prevalence of fungal infection as compared to above study. Most of the patients belong to poor socio-economical status about 65.5% followed by middle class families 20%. According to the study of Jawad A, 83.3% belong to low socio-economical Class.¹⁵ Study showed positive relationship between fungal sinusitis and poor socio-economical status. Fungal infection may occur at any age group, but clinical presentations depend upon the host immunity.⁷ In our study the mean age was 30.16+/_ 12.33 which is very close to the study of Haq M.I et.al¹⁶ 31.56+/_ 6.18 years. Zakir study showed mean

age of disease was 20 years.¹⁷ In the above study male was 61.1% and female was 38.8%. Male female ratio was 1.53. Regarding the gender distribution different studies showed different ratios. In Haq et.al study showed male female ratio was 1:2¹⁶ which is closed to above study while Thalim k. et.al and Mian M.Y et.al showed male female ratio was 7:3 and 3:1 respectively.^{17,18}

In risk factors, immune compromised patients were more prone to develop fungal infections in chronic sinusitis. In above study 27 (30%) patients were immune compromised (e.g poorly controlled diabetes mellitus, malignancy or taking chemotherapy treatment). Tehmeena wani et. al study showed 22.22% patients were immuno compromised and mostly had history of poorly diabetic mellitus and hematological malignancy.¹⁹ Farmers have 3 times more chances to develop fungal nasal polyposis.¹⁹ In the above study 36 (40%) patients were farmers. Tehmeena Wani study showed 29.63% patients were farmers¹⁹, which is closed to the above study. Chakarbaty et.al found a greater risk of fungal rhino sinusitis among those who were farmers.²⁰ Other risk factors included history of allergy found in 35 patients (38%) and 30 (33.33%) patients had positive history of allergy in family.

CONCLUSION

Our study reveals that prevalence of fungal rhino-sinusitis is higher and multifactorial risk factors. Proper assessment of the disease should be done to prevent the disease, its recurrence and un-necessary complications. Higher incidence in farmers needs awareness and preventive measures.


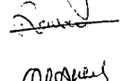

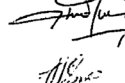
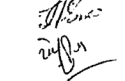
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2	Qaisar Sajjad	Case collection / Research.	
3	Faheem Ahmed Khan	Case collection / Research / Data collection.	
4	Itrat Jawaid	Case collection / rephrasing.	
5	Hina Iqbal	Literature search / data collection / drafting.	
6	Aqeel-ur-Rehman Hameed	Literature search and Drafting.	