

PREVALENCE OF ALLERGIC FUNGAL SINUSITIS AMONG PATIENTS WITH NASAL POLYPS

Muhammad Irshad-ul-Haq,¹ Muhammad Farooq,¹ Shahzad Hussain Qadri¹

ABSTRACT

Background: Nasal polyps are commonly seen in our routine ENT practice. Allergic Fungal Sinusitis (AFS) is also one of them. **Objective:** To determine the prevalence of allergic fungal sinusitis among patients with nasal polyps. **Patients and Methods:** This sectional study was conducted in Department of ENT, Sheikh Zayed Hospital, Rahim Yar Khan from 11th July, 2013 to 10th January 2014. This study included 84 patients with diagnosis of nasal polyps. All the patients were evaluated for the presence of allergic fungal sinusitis which was described as frequency and percentage. The data was collected in pre designed performa. The data was entered and analyzed by using SPSS version 16. **Results:** Allergic fungal sinusitis was detected in 9 (11%) patients. The mean age of the patients was 31± 6 years, and all of the patients have, nasal obstruction, post nasal drip and sneezing. **Conclusions:** Allergic fungal sinusitis is seen commonly among patients with nasal polyps. So, every patient with nasal polyp should be evaluated for the presence of AFS. **Key Words:** Allergic Fungal Sinusitis, Nasal polyp, prevalence

JSZMC 2014;5(4):690-692

INTRODUCTION

Nasal polyp (NP) refers to an abnormal edematous non neoplastic pedunculated swellings arising from the mucosa of nose and/ paranasal sinuses having fundus, body and stalk.¹ These are benign lesions. Having an uncertain etiology and tendency to recur, they represent a challenging diagnosis for the physician to treat,² and at times it is associated with allergic fungal sinusitis.

Some theories consider polyps a consequence of conditions which cause chronic inflammation in the nose and the paranasal sinuses characterized by stromal edema and variable cellular infiltrate.³ Historically, it has been assumed that allergy predisposes to NP because symptoms of watery rhinorrhoea and mucosal swelling were present in both diseases along with an abundance of eosinophils in the nasal secretions.⁴ However, epidemiological studies provide little evidence to support this relationship with NP, found in only 1-2% of patients with positive skin prick tests.^{5,6,7}

An association between nasal polyps and fungal cultures has been established for many years. This recognition led to the term "Allergic Fungal Sinusitis" (AFS).^{7,8} In Allergic Fungal Sinusitis specific IgE has been established in nasal lavage

fluid and eosinophilic mucin.⁹ The prevalence of AFS in Saudi Arabia was 12.1%.¹⁰

As prevalence of AFS among patients with nasal polyps had not been estimated in Pakistan and due to the potential for disease complication in cases of AFS, it was important to find the prevalence of this disease among patients with nasal polyps so that appropriate strategies could have been made to minimize the morbidity. This study was conducted to determine the prevalence of allergic fungal sinusitis among patients with nasal polyps.

PATIENTS AND METHODS

This cross sectional study was conducted to at E.N.T. department, Sheikh Zayed Hospital, Rahim Yar Khan from 11th July, 2013 to 10th January 2014. On the basis of, expected prevalence of AFS of 12.1%,¹⁴ level of confidence of 95% and total of 84 sample size was calculated.

Inclusion criteria: Patients of age >10 and <50 years and either sex presenting with nasal obstruction and suffering from nasal polyps of any size, severity and duration seen by speculum examination. **Exclusion Criteria:** Patients with friable nasal mass which bleeds on touch and patients using steroids (nasal/systemic) for more than 14 days, were excluded.

Data Collection Procedure: After addressing ethical issues and taking approval from Institutional Review Board, every patient admitted in ENT ward of SZH, for nasal polyp's surgery, meeting inclusion criteria were included in the study. Their history, family history, clinical and radiological examination

1. Department of ENT, Sheikh Zayed Medical College/Hospital, Rahim Yar Khan, University of Health Sciences Lahore, Pakistan.

Correspondence: Prof. Muhammad Irshad-ul-Haq, Head of ENT Department, Sheikh Zayed Medical College/Hospital, Rahim Yar Khan, Pakistan.

were completed according to performa. Informed consent for procedure and study was taken, they were operated by consultant and sinonasal contents removed during operation were divided into two parts i-e 1 & 2. Sample 1 were saved in formalin solution and sent for histopathology (H/P) to confirm polyps and eosinophilic mucin. Sample 2 were saved in 10% KOH solution and sent for fungal staining and culture to see fungal hyphae.

Reports were collected and results were entered in performa. The diagnosis of AFS was considered when fungal hyphae and eosinophilic mucin, both were positive.

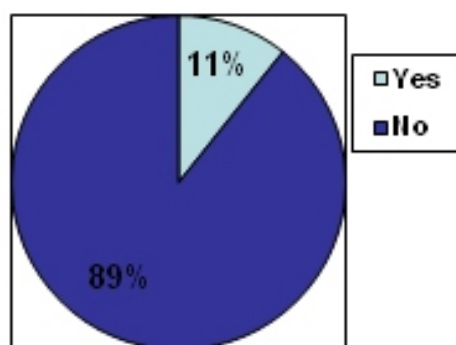
The data was entered in the SPSS version 16 and was analyzed through this software. Age was presented as mean and standard deviation. Such as gender, features of nasal polyps, symptoms and signs, histopathological and radiological findings were presented as percentage.

RESULTS

The total number of patients included in the study were eighty four including both males (67%) and females (33%). The mean age of the patients included in the study was 31.56 ± 6.18 years (range 11-50 years). There were 22 (26.2%) patients of age range of 11-20 years, 28 (33.3%) patients of age range of 21-30 years, 18 (21.4 %) patient of age range of 31-40 years and 16 (19.1%) patients of age range of 41-50 years.

Nasal obstruction, sneezing and post nasal drip was seen in all (100%) patients, recurrent nasal discharge among 80 (95.2%) patients and smell disturbance was seen among 70 (83.3%) patients and headache was seen among 65 (77.4%) patients.

Figure: I.: Distribution of patients by Allergic Fungal Rhino Sinusitis(n=84).



Histopathology for nasal polyps was positive in 80 (95%) patients while in rest of 4 (5%) patients, this was not positive. The staining and culture was positive for fungal hyphae in 9 (11%) patients while it was negative in 75 (89%) patients. (Figure I)

There were 9 (11%) patients in whom the diagnosis of allergic fungal sinusitis was established, while rest of 75 (89%) patients did not have allergic fungal sinusitis.

DISCUSSION

This was a descriptive study including 84 patients conducted to determine the frequency of AFS among patients with nasal polyps. This study was conducted in an E.N.T Unit of a teaching hospital. The results of this study showed that allergic fungal sinusitis was seen among 11% patients.

In literature, there are many studies on this context but the results of these studies are variable with each other. In our study, the mean age of the patients was 31.56 ± 6.18 years ranging from 10 - 50 years. A study was conducted by Baloach ZA, et al,¹¹ on allergic fungal sinusitis in which the mean age of the patients was 27.3 ± 12.98 years ranging from 9 to 64 years. Eighty percent of the patients were below fifty years of age. The mean age of the patients in our study was higher than described by Tahim K, et al.¹² that was 20.75 years and Mian MY, et al,¹³ which was 24 years. In study by Zakirullah, et al,¹⁴ most of the patients were young with a mean age at presentation 20 years and 83% were in 2nd and 3rd decade of life which is also comparable to that in our study i.e. approximately 72.7% patients were in 2nd and 3rd decade of life.

Regarding the gender distribution in patients included in our study, there was a male preponderance with 33% female and 67% male (female to male ratio 1:2). This male preponderance is also confirmed by another study conducted in children, male dominated (M/F ratio 2.1:1; average age=13 year) but in adults females dominated (M/F ratio 1:1.4; average age 36 year).¹⁵ Mian MY, et al,¹⁴ and Thahim K, et al,¹³ found male preponderance with ratio of 3:1 and 7:3. However, this observation is in contradiction with some other studies in literature. Baloch ZA, et al,¹¹ observed that there were 26.3% male and 73.7% females in their study. Danyal R, et al,¹⁶ and Krishnan S, et al,¹⁷ also found female predilection.

A study was performed on patients with nasal polyps

to know the frequency of fungal sinusitis. This study included patients who were examined by mycological and pathological methods for the presence of fungi. Fungal elements were shown in 9 % of all the samples by mycological methods. When compared to our study, the frequency of fungal infection was approximately 11% which is quite comparable to their study.¹⁸

Another study was performed by Telmesani LM, to know the frequency of fungal infection among patients with nasal polyps.¹⁰ In this retrospective study the medical records of 91 patients with nasal polyps admitted for functional endoscopic sinus surgery were reviewed. The diagnosis of AFS was considered if histopathology showed the presence of eosinophilic mucin-containing fungal hyphae. Histopathological diagnosis was positive for AFS in 11 of 91 patients 12.1%.¹⁰ The results of this study are also comparable to that of ours. This further testifies our results as the diagnostic criteria are similar in both studies i.e. on histopathology. In another study by Baloch ZA, et al, 50 patients with nasal polyps were evaluated for AFS. The mean age of patients was 27.3 ±12.98 years ranging from 9 to 64 years. All patients presented with history of nasal obstruction. Fungal infection was confirmed with histopathology in 38% patients. These studies showed a higher frequency of the disease. This is quite a higher number than any other study.¹¹ The above discussion reflects that frequency of fungal infection varies greatly among different authors from 9 % to 38%. In our clinical setup, the result is comparable to other studies.

CONCLUSION

Our results revealed that significant proportion of patients of nasal polyps also have allergic fungal sinusitis and suggested that while managing patients of nasal polyps, possibility of allergic fungal sinusitis should also be considered.

REFERENCES

1. Darke-Lee AB. Nasal polyps. *Hospital Med* 2004;65:264-267.
2. Browne JP, Hopkins C, Slack R. Health related quality of life after polypectomy with and without additional surgery. *Laryngoscope* 2006;116:297-302.
3. Albertien AC, Aukema, Mulder. Treatment of nasal polyposis and chronic sinusitis with fluticasone propionate nasal drops reduces the need for sinus surgery. *J Allergy Clin Immunol* 2005;115:1017-1023.

4. Browning GG. Management of nasal polyps with steroids; the literature. *Clin Otolaryngology* 2007;32:195-8.
5. Hopkins C, Browne JP, Slack R. The national comparative audit of surgery for nasal polyps and chronic rhinosinusitis. *Clin Otolaryngol* 2006;31:390-95.
6. Keiff DA, Busaba NY. Efficacy of montelukast in the treatment of nasal polyposis. *Ann Otol Rhinol Laryngol* 2005;114:941-945.
7. Fokkens W, Lund V, Mullol J. European Position Paper on Rhinosinusitis and Nasal polyp group. EP3OS 2007, a summary for otolaryngologists. *Rhinology* 2007;45:97-101.
8. Hissaria P, Smith W, Wormald PJ. Short course of systemic corticosteroids in sinonasal polyposis: a double blinded randomized placebo controlled trial with evaluation of outcome measures. *J Allergy Clin Immunol* 2006;118:128-133.
9. Stjame P, Mosges R, Jorissen M. Randomized controlled trial of mometasone furoate nasal spray for treatment of nasal polyposis. *Arch Otolaryngol Head Neck Surg* 2006;132:179-185.
10. Telmesani LM. Prevalence of Allergic fungal sinusitis among patients with nasal polyps. *Ann Saudi Med* 2009;29:212-214
11. Baloch ZA, Ahmad AN, Mahmood Z, et al. Frequency of Allergic Fungal Sinusitis in Patients with Nasal Polyposis and its Causative Species. *Pakistan Journal of Otolaryngology* 2010;26:76-77.
12. Tahim K, Jawaid MA, Marfani S. Presentation and management of allergic fungal sinusitis. *J Coll Physicians Surg* 2007;17:23-27.
13. Mian MY, Kamal SA, Senthilkumaran G, Abdullah A, Pirani M. Allergic Fungal Rhinosinusitis: Current Status. *Pak J Otolaryngol* 2002;18:36-40.
14. Zakirullah, Nawaz G, Sattar SF. Presentation and Diagnosis of Allergic Fungal Sinusitis. *J Ayub Med Coll Abbottabad* 2010;22:53-57.
15. Schubert MS, Goetz DW. Evaluation and treatment of allergic fungal sinusitis II. Treatment and follow-up. *J Allergy Clin Immunol* 1998;102:395-402.
16. Danyal R, Bashir A, Sher MM, Amer SH. Fungal sinusitis. *J Coll Physicians Surg Pak* 1999;9:381-383.
17. Krishnan S, Manavathu EK, Chadrasekar PH. *Aspergillus flavus*: an emerging non-fumigatus *Aspergillus* species of significance. *Mycoses* 2009;52:206-222.
18. Kordbacheh P, Zaini F, Sabokhar A, Borghei H, Safara M. Fungi as causative agent of nasal polyps. *Iranian J Publ Health* 2006;35:53-57.