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ORIGINAL ARTICLE

The Correlation of Peripheral Blood Eosinophils with Allergic Nasal Polyps

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ABSTRACT

Aim: To observe the association of peripheral blood eosinophil percentage in patients with allergic nasal polyps.
Design: Descriptive cross-sectional study
Place and duration: Pathology Department of Bakhtawar Amin Medical & Dental Hospital, Multan from September 2020 to August 2021.
Methodology: Blood samples of all the cases operated for nasal polyps in Bakhtawar Amin Trust Institute are drawn before surgery to look for eosinophils. Family and past history of allergy is recorded. Histopathology of all the operated specimen of nasal polyps is done and sample for eosinophil count is collected again in cases that proved to be allergic nasal polyps on microscopic examination to look for any alteration in eosinophil percentage in blood on excision of polyps.
Results: Twenty nine out of forty (72.5) percent of patients with allergic nasal polyps reveal increase in peripheral blood eosinophil percentage that returned to normal in 26(65%) patient on excision of nasal polyps.
Conclusion: The study disclosed a notable link between allergic nasal polyps and peripheral blood eosinophil percentage and this association is further enhanced by the fact that the blood eosinophil count returned to normal on removal of nasal polyps.
Keywords: Allergic nasal polyps, peripheral blood eosinophilia, eosinophil count, atopy

INTRODUCTION

Nasal polyps related to allergy are the most frequent benign inflammatory lesions that form a major bulk of ENT disorders affecting a large majority of people worldwide. Microscopically stromal eosinophils in a large number are a ubiquitous finding in every allergic nasal polyp[1].

According to several studies, individuals with nasal polyps are often associated with increased number of peripheral blood eosinophils and other allergic conditions like asthma[2].

Southern Punjab especially Multan and periphery are famous for the dust storms and pollens both of which are well known in causing asthma[3,4].

In our institute we often encounter patients with nasal polypi many of which on histopathology turn out to be allergic nasal polyps. This led us to start this research to find out any association of peripheral blood eosinophil count with the allergic nasal polyps.

The objective of the study was to observe the association of peripheral blood eosinophil percentage in patients with allergic nasal polyps.

METHODOLOGY

After permission from Ethical Review Board, peripheral blood samples of all the patients operated for nasal polyps in Bakhtawar Amin Hospital are taken pre-operatively in CBC vial to check for eosinophils. History of allergy and atopy in family is noted. The specimen of all these nasal polyps are examined in histopathology department and the patients in which polyps reported as allergic nasal polyps, blood sample is repeated post operatively as well to check any change in level of peripheral blood eosinophil percentage after removal of polyps. The eosinophil percentage above 5 in differential count is considered as high.

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RESULTS

Forty patients of allergic nasal polyps were received and reported in histopathology department with age range of 9 years to 63 years (mean age: 26.2 years). There were 22 (55%) females and 18 (45%) males. Most of the patients presented between ages 15 – 35 years. Out of these forty patients reported to have allergic nasal polypi, twenty seven (67.5 %) patients were found to have allergic symptoms like runny nose with thin clear nasal discharge, sneezing etc.

Figure I: Number and percentage of cases with and without peripheral blood eosinophilia

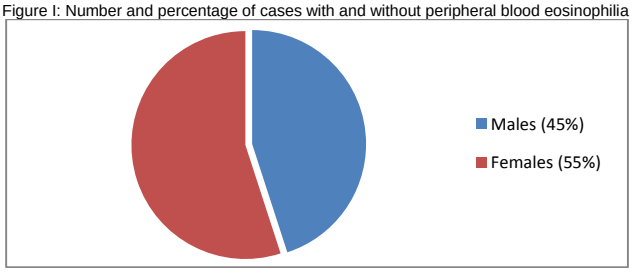
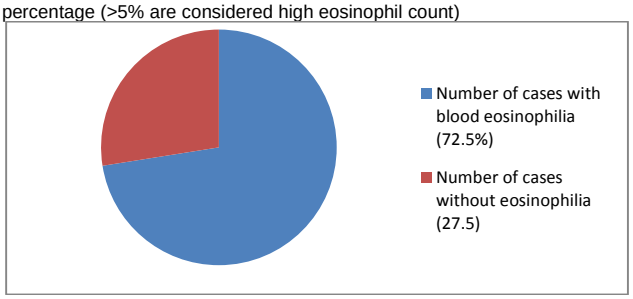


Figure II: Distribution of cases on the basis of peripheral blood eosinophil percentage (>5% are considered high eosinophil count)



Family history/atopy is found in 21(52.5%) patients. Out of these forty patients, 29(72.5%) had increased peripheral blood eosinophil count that went back to normal in 26(65%) of patients on removal of allergic nasal polypi with marked number of stromal eosinophils. This indicates a significant association of stromal eosinophil count with peripheral blood eosinophil count.

Table I:

Peripheral blood eosinophil percentage (%)	n	%age
2	01	2.5
3	02	5
4	03	7.5
5	05	12.5
6	06	15
7	08	20
8	12	30
9	03	7.5
Total	40	100

DISCUSSION

Nasal polyps are associated with asthma, acute and chronic recurrent inflammatory disorders, allergic rhinitis, certain immune disorders, hypersensitivity allergic reaction to certain allergens and drugs like aspirin[5]. It is proposed that the eosinophil count in blood corresponds with the degree of stromal eosinophilic inflammation in nasal polypi and in turn linked with the intensity of nasal infection and dimensions of nasal polypi[6]. However, not many researches are conducted to support the association of peripheral blood eosinophils and allergic nasal polypi all over the world especially in Pakistan.

In our study the male to female ratio was 1:1.2, 18(45%) males, 22(55%) females. This is in accordance with the studies by Qamar S et al, Alshoabi SA, Bartosik TJ and Khan M, where the disease was found to be more prevalent in females as compared to males[7-10].

The mean age in our study was 26.2 years, comparable to studies by Qamar S and Sadek AA where the mean ages were found to be 27±13.4 and 31.6±13.2[7,11].

Most of the patients presented between ages 15-35 years, similar to studies by Qamar S and Alshoabi SA[7,8].

Twenty one out of 40 patients (52.5%) disclosed history of allergies in family. This is in line with the studies by Suikkila A et al (56%) and Nikakhlagh S (46%)[12,13].

Twenty nine (72.5%) out of forty patients with allergic nasal polyps in our study appeared to have increased number of eosinophils in peripheral blood in addition to stromal eosinophilia within polypi that returned to normal on removal of nasal polyps in 65% of patients. This indicates a notable interconnection between these two entities. Similar results are identified in several other studies[6,12,14-16].

However several other studies show poor association between tissue and peripheral blood eosinophilia in patients with allergic nasal polyps[7].

CONCLUSION

This research revealed a noteworthy association among allergic nasal polyp stromal and peripheral blood eosinophilia in this region. The restoration of eosinophil count within normal range on excision of allergic nasal polyps indicates that the reason of this increase in blood eosinophil count was nasal polyp rather than asthma or allergic rhinitis.

Conflict of interest: Nil

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