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Role of Allergy in Nasal Polyposis

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Objectives: The objective of this study is to attempt to identify allergy as a major contributing factor in the etiology of Nasal Polyposis.

Materials & Methods: The study consists of 50 patients who presented to the Out Patient Department with nasal polyposis diagnosed by clinical & radiological methods and confirmed by histopathology. These patients were evaluated for the presence of allergy by a detailed questionnaire and clinical examination. Absolute Eosinophil count and serum IgE were estimated. The results were then compiled and compared and data was analysed for statistical significance by Chi Square test. The patients were followed up for a period of 12 months to evaluate recurrence.

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Results: Out of the 50 patients a majority (78%) of them had Sinonasal polyposis. A significant percent of patients (69%) with Sinonasal polyposis gave a positive history of allergy and significantly high levels of serum IgE were seen in patients of this group. Seven cases showed recurrence on follow up, all of whom showed positive allergic status.

Conclusion: Sinonasal polyposis patients had allergy as their major etiological factor in this study, and the majority of the recurrences were seen in this group. Failure to recognize and treat this association adds to the morbidity of the disease and results in poor treatment outcome.

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I. INTRODUCTION

Science has progressed through many centuries to the present day. Nasal polyps have been recognized as a clinical entity since several centuries. Nobody is really sure why polyps occur, many theories have been proposed but none confirmative. One of the earliest etiologies proposed was that of allergy. A number of studies done by numerous rhinologists stands to either confirm or contradict this theory. Whatever be the school of thought, there is undeniable evidence that allergy is associated with nasal polyps. Unrecognized allergy almost definitely causes a recurrence thereby initiating the effort to distinguish atopics & non atopics. This study is an attempt to identify allergy as a major contributing factor in the etiology of nasal polyposis on the assumption that isolation of an atopic patient will lead to better treatment of the underlying pathology.

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II. AIMS AND OBJECTIVES

To evaluate the incidence of allergy in Nasal polyposis.

To co-relate allergy and the type of Nasal polyposis.

To evaluate recurrence in Nasal polyposis.

III. MATERIALS AND METHODS

The study consisted of 50 patients with nasal polyps who presented to the Out Patient Department of the Department of Otorhinolaryngology. The study was cross sectionally designed and lasted for 2 years.

Patients who came to the O.P.D with nasal complaints of obstruction, headache, sneezing, itching, loss of smell were examined clinically to diagnose polyps. All cases that were diagnosed clinically were confirmed with histopathological examination.

The diagnosed and confirmed patients based on clinical examination, Diagnostic Nasal Endoscopy (DNE) and radiology (CT PNS), were then divided into 2 categories:

- Sinonasal polyposis – multiple unilateral or bilateral polyps arising from the paranasal sinuses.
- Antrochoanal polyps – single unilateral polyp arising from the maxillary sinus.
- These patients were then evaluated for the presence of allergy by a detailed questionnaire, clinical examination, Absolute Eosinophil count and serum IgE.

The results were then compiled and compared and the data analysed for statistical significance by the Chi Square test for contingency tables.

Inclusion Criteria

All patients presenting to the Out Patient Department with nasal obstruction, sneezing, itching of nose with nasal polyposis.

All patients between the ages of 10 yrs to 80 yrs.

Exclusion Criteria

All patients presenting with nasal complaints due to pathology other than nasal polyposis.

Patients below 10yrs of age, and above 80 yrs of age.

IV. RESULTS

50 patients of nasal polyposis who presented over the period of 2 years, after a detailed examination were grouped into either Sinonasal or Antrochoanal.

Out of the 50 patients, 39 were Sinonasal (78%) and 11 were Antrochoanal (22%). Patients with Antrochoanal polyps mainly presented in the 0-40 age

group while Sinonasal polyposis mainly presented in the 20-80 age groups.

In both groups the majority of the cases were males. Nasal obstruction, and nasal discharge and headache were common in both groups. Sneezing was present in only 1/3 rd of the patients with Antrochoanal polyps as against 3/4 th of the patients of Sinonasal polyposis.

There was no history of Asthma in patients with Antrochoanal polyps as against 1/6 th of the patients with Sinonasal polyposis who gave a positive history of Asthma.

A positive history of Allergy was obtained in 1/5 th of patients with Antrochoanal polyps and in 2/3 rd of patients with Sinonasal polyps. The association among the 2 study groups was highly significant.

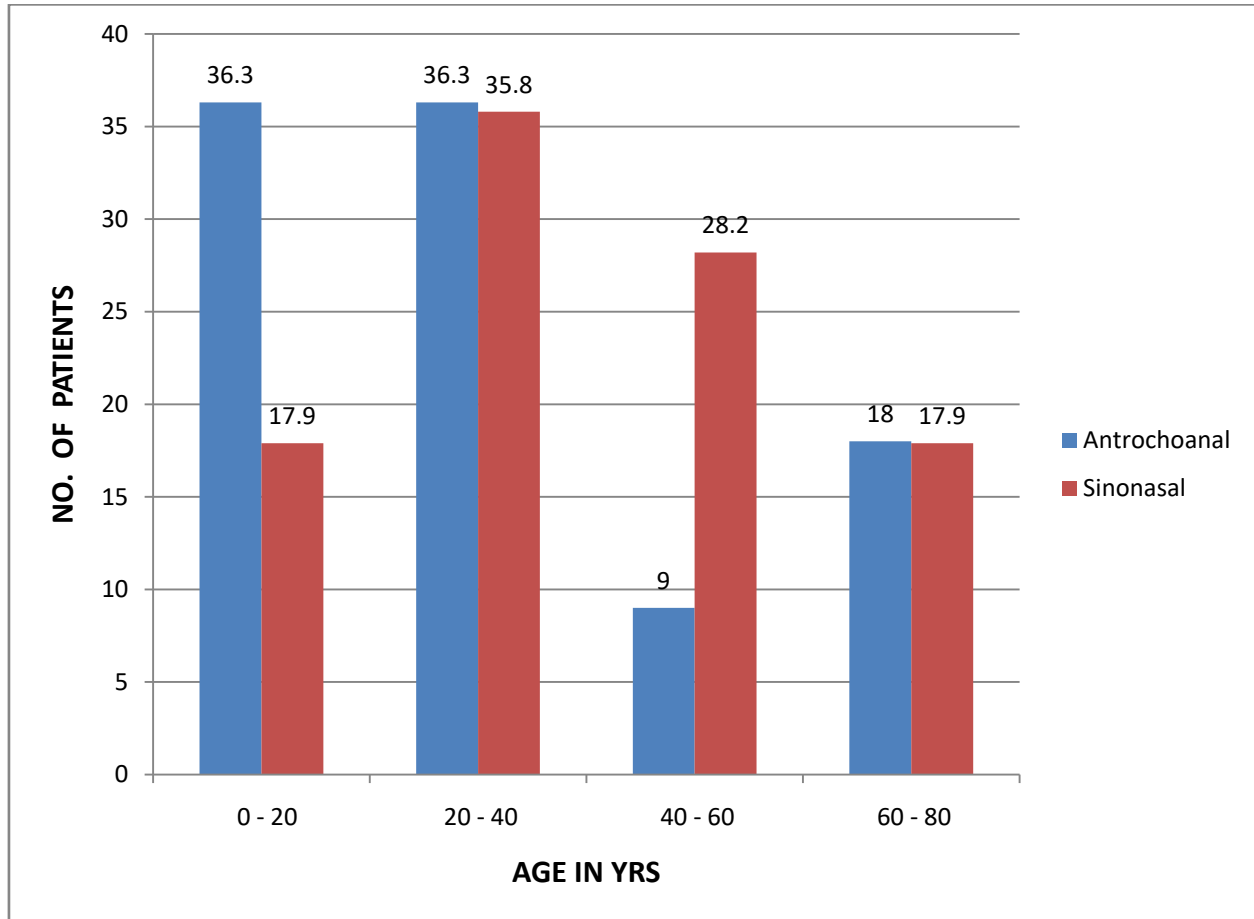


Figure 1: Incidence of Age in Both Study Groups

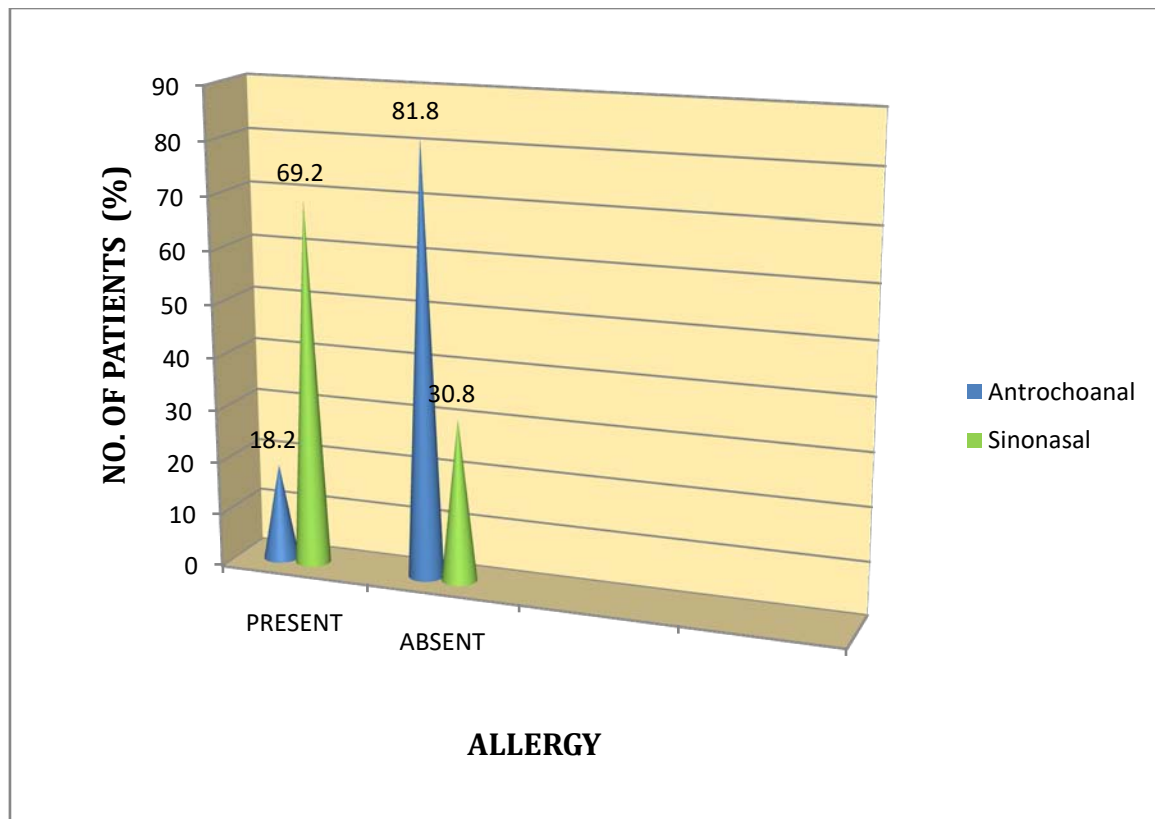


Figure 2: Incidence of Allergy In Both Study Groups

Table 1: Absolute Eosinophil Count

Absolute Eosinophil Count	Antrochoanal No. %		Sinonasal No. %	
Normal	7	63.6	2	5
Elevated	4	36.4	37	95
Total	11	100	39	100

Chi Square test (1) = 15.007 $p = 0.0001$

The estimation of serum Eosinophils in the peripheral blood showed elevated levels in about 1/3 of the patients with Antrochoanal polyps and in almost all

the patients with Sinonasal polyposis which was statistically significant.

Table 2: Serum Total IgE

Level	Antrochoanal No. %		Sinonasal No. %	
NORMAL	7	63.6	2	5
ELEVATED	4	36.4	37	95
TOTAL	11	100	39	100

Chi Square Test (1) = 16.133 $p = 0.0001$

The serum IgE levels were elevated in 36.4 % of the patients with Antrochoanal polyps and about 95 % of patients with Sinonasal polyps which was statistically significant.

When the 2 parameters were considered, 27.3 % of Antrochoanal polyps and 74.4 % of Sinonasal polyps were positive for allergy with a Chi Square test

(1) = 13.50 and $p = 0.0001$ which was statistically significant.

V. DISCUSSION

Allergy has long been implicated as a causative factor in Nasal polyposis. In this study, a consecutive group of 50 patients with nasal polyposis were studied

and evaluated for the presence of allergy by clinical, haematological and immunological methods.

The youngest patient in our study was 11 yrs old and the oldest was 78 years old. Antrochoanal polyps were associated with presentation in the younger age group in our study similar to the study by Choo et al¹ where a majority of their patients with Antrochoanal polyps were below 16 yrs of age.

In our study group, 69 % of patients with Sinonasal polyposis gave a positive history of allergy and 15.4 % gave a positive history of Asthma. This deferred slightly from that quoted by Farrel et al² who detected allergy in 27.83% and asthma in 29% and by Drake-Lee et al³ who noted incidence of allergy in 22 % and asthma in 27.83 % of their patients. The notable exception in our study was the absence of history of aspirin sensitivity.

The Absolute Peripheral Blood Eosinophil Count was elevated in 18.2 % of patients with Antrochoanal polyps and in 84.6 % of patients in Sinonasal polyposis in our study group. Kaldenbach et al⁴ in their study of 58 patients with Sinonasal polyposis found an increase in Absolute eosinophil count in 66%. Sheri et al⁵ in their study of a total of 303 patients with Sinonasal polyposis found that the correlation between raised Absolute eosinophil count and polyposis was 89 %.

The Serum total IgE levels in our study group were elevated in 36.4 % of the patients with Antrochoanal polyps and 95 % of patients with Sinonasal polyposis. Drake – Lee and Barker⁶ in their study of 29 patients showed raised IgE levels in patients with Sinonasal polyposis.

Sin et al⁷ after studying 95 patients with nasal polyposis reported allergy as an etiological factor. The mean serum IgE levels were significantly higher in this group. Bottazzi G et al⁸ studied the association between nasal polyposis and airborne allergen hypersensitivity and concluded that airborne allergens played a relevant role in the pathogenesis of nasal polyposis. Bateman et al⁹ in their paper documented that nasal polyps have a clear association with asthma, hypersensitivity and cystic fibrosis. Pawankar¹⁰ in their article documented that in majority of nasal polyps, eosinophils comprise more than 60% of the cell population.

In our study, more parameters like polyp fluid IgE, SPT (Skin Prick Test) or RAST (Radio Allergo Sorbent Test) for specific allergen could not be carried out due to prohibitive cost and lack of patient compliance. All the patients in our study with Sinonasal polyposis had raised IgE levels and more than 80 % had evidence of raised peripheral blood eosinophilia.

Out of 50 patients in our study seven showed recurrence in the 12 month follow up period, all of whom showed positive allergic status.

VI. CONCLUSION

Allergy has long since been one of the proposed etiological factors in the pathogenesis of Sinonasal Polyposis. From the parameters used in our study there is a statistically significant association between allergy and Sinonasal polyposis. Failure to recognize and treat this association may result in recurrences, increased morbidity and a poor treatment outcome.

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