

A CLINICOPATHOLOGICAL STUDY OF CHRONIC RHINOSINUSITIS

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Received : 10/07/2024
 Received in revised form : 27/08/2024
 Accepted : 13/09/2024

Keywords:

Major/minor criteria, purulent/mucoid discharge, polyps.

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DOI: 10.47009/jamp.2024.6.5.11

Source of Support: Nil.

Conflict of Interest: None declared

Int J Acad Med Pharm
 2024; 6 (5); 48-52

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Background: Chronic rhinosinusitis is a common health problem, with significant medical costs and impact on general health. An estimated 134 million Indians suffer from chronic rhinosinusitis each year. This study aims at studying various clinical presentations and the pathology with chronic rhinosinusitis. **Materials and Methods:** A Total of 50 patients with chronic rhinosinusitis were involved in the study. A predesigned proforma was used to record relevant information from individual patients selected with inclusion and exclusion criteria. A detailed history was taken in all patients and then ENT examination along with general & systemic examination was carried out and relevant investigations were performed. **Result:** Symptoms according to criteria, 3 major and 2 minor were present in majority of patients among 50. 11 presented with 1 major and 2 minor. 30% presented with 2 major and 2 minor. Nearly 50% of patients in the 30-40-year age group presented with these symptoms, which were more of nasal obstruction, purulence, facial pain, headache, and cough. 28% of patients were in age group 20-30. 24% were in age group 40-50 .54% of them presented with. **Conclusion:** Nasal obstruction, purulence, facial pain with headache was major symptoms and there were overlapping of symptoms. Sex differences were almost equal. Age, more in middle aged. Polyps with purulent or mucoid discharge were present in more patients out of 50 and were benign inflammatory ones (ethmoidal, antrochonal).

INTRODUCTION

Rhinosinusitis is a very common clinical entity in day to day practice in Otorhinolaryngology. It has a significant impact on quality of life and impairs physical and social function.^[1] Because of almost universal involvement of nose in inflammatory sinus conditions, the term rhinosinusitis was recommended by task force of rhinology and paranasal sinus committee in 1997.^[2]

Chronic rhinosinusitis is one of the more prevalent chronic illnesses affecting persons of all age groups. It is a public health problem that has a significant socio-economic impact. The overall prevalence of chronic rhinosinusitis in the United States is 146 per 1000 population.^[3] For unknown reasons, the incidence of this disease appears to be increasing yearly. This results in a conservative estimate of 18-22 million physician visits in the United States each year and a direct treatment cost of \$3.4-5 billion annually.^[3,4] It is the fifth most common disease treated with antibiotics. The complexity of this disease due to its heterogeneous nature based on the underlying pathophysiology leading to different disease variants further complicates our

understanding and directions for the most appropriate targeted treatment strategies.

Chronic rhinosinusitis is a common disease worldwide, particularly in places with high levels of atmospheric pollution. In the Northern Hemisphere, damp temperate climates along with higher concentrations of pollens are associated with a higher prevalence of chronic rhinosinusitis.^[5] Chronic rhinosinusitis broadly subdivided into categories of patients with hyperplastic mucosal changes with polyps and those without polyps.

Objectives

1. To study the clinical presentation in chronic rhinosinusitis patients
2. To study the pathology in chronic rhinosinusitis patients.

MATERIALS AND METHODS

Source of Data: The present study was conducted in the department of ENT, Mysore Medical College & Research Institute, Mysore, Karnataka for a period of two years after obtaining ethical clearance.

Sample Size: Sample size was calculated based on prevalence of chronic rhinosinusitis in global

population.⁶ Using estimation method with allowable error 10% and level of significance (α) 5%, the inflated sample size was determined as forty-eight rounded off to fifty.

Statistical Technique: Frequency, proportions, chisquare/z test for proportions, bar/line charts and relevant techniques will be used on collected information using R software.

Inclusion Criteria

1. Subjects with chronic rhinosinusitis
2. Above 18 years of age
3. Patients who are able to give written informed consent

Exclusion Criteria

1. Subjects with malignancies
2. Congenital anomalies
3. Chronic rhinosinusitis with complications (intracranial and extracranial)

Method of Collection of Data

Patients aged more than eighteen years of both sexes having chronic rhinosinusitis were enrolled into the study. An informed written consent was signed by all patients after being informed about the study in their own language. A pre-designed proforma was filled for each patient.

The subjects selected on basis of inclusion and exclusion criteria were asked relevant history, subjected to detailed examination which included general physical examination, careful examination of nose, and throat. A detailed nose and paranasal sinus examination was done.

A rigid diagnostic nasal endoscopy, computed tomography were done. Selected patients were subjected to surgery.

Diagnostic nasal endoscopy

At the beginning the patients were explained about the procedure to be performed. For topical anaesthesia a mixture of 4% Lignocaine with adrenaline in 1:10000 concentrations were prepared. Topical anaesthesia was achieved by placing three cotton pledgets soaked in above mixture in the nasal cavity for minimum period of 20 minutes. Then the patient was made to lie down in supine position with his head turned slightly towards the examiner. Patient was instructed not to move his head suddenly during the procedure. A 30° degree rigid Hopkin's endoscope was used. All the positive findings like deviated nasal septum, spur, presence of mucopurulent discharge, mucoid discharge, polypoidal changes in nasal mucosa, nasal polyps were noted. All the findings were entered in the proforma for all the patients. In patients with discharge it was sent for culture. The discharge from nose was collected using thin sterile cotton wool micro-swabs with full aseptic precautions. This swab was immediately sent to the microbiology laboratory for culture.

Computed Tomography

All the patients with chronic persistent symptoms were subjected to CT to know the anatomy and extent of disease. CT were done in our hospital. Grading

done according to Lund Mackey,^[6] scoring and planned for management accordingly.

FESS and Caldwell-luc Operation

Patients were subjected to surgery and managed. Also patients with polyps specimens were collected and sent for histopathological examination in our own hospital.

Blood Investigations

The patient's blood was assigned for routine blood investigations as haemoglobin, total count, differential count, fasting blood sugar, absolute eosinophil count in the central laboratory attached to our hospital. Eosinophil count normal range were 30-350. Once investigations were done extent of disease is established, management was done accordingly.

RESULTS

In our study of 50 patients, 15 patients had 2 major and 2 minor criteria as symptoms. 24 patients had 3 major and 2 minor as symptoms. 11 patients had 1 major and 2 minor as symptoms. 48% presented with nasal obstruction, purulence, facial pain as main symptoms they were majority. 30 and 22 percent presented with 2 major and 1 major symptom respectively. In our study 24 (48%) patients were of age group 30-40, 14(28%) of 20-30, 12(24%) of 40-50. Majority were of 31-40-year age group who presented with particular symptoms.

In our study 13(54%) patients in the age group 31-40 presented with nasal obstruction, purulence, facial pain, headache, cough as symptoms. 7 (29%) in age group 20-30 presented with these symptoms. 4 in age group 41-50 presented with these symptoms. In our study 7 patients in the age group 41-50 presented with hyposmia, fever (non acute), cough and none in the age group 20-30 presented with hyposmia. In our study 63% in the age group 41-50 presented with hyposmia which were majority. In our study majority were females that is 27(54%) and 23(46%) of males presented with symptoms.

In our study 16(66%) females presented with nasal obstruction, purulence, facial pain, headache, cough and 8(33 %) males presented with these symptoms. In our study 8(72%) males and 3(27%) females presented with hyposmia, fever (non acute), cough as presenting complaints where males were majority. In our study in 38 (76%) patients out of 50 had discharge. And in 12(24%) patients it was absent. Majority had discharge associated with other symptoms.

In our study out of 27 patients, 13(48%) males and 14(51%) females had purulent nasal discharge where females on slightly higher side. In our study out of 11 patients, 6(54%) were females and 5(45%) were males who had mucoid discharge. Majority were females. In our study 28(56%) had polyps and 22(44%) did not have out of 50 patients.

In our study 28(56%) had polyps and 22(44%) did not have out of 50 patients. In our study 13(46%) patients in age group 20-40 years had polyps. And 3 in age

group 40-50 had polyps. Majority were in age group 20-40.

In our study 57% of males had and 42% of females had polyps. Majority were males.



Figure 1: Antrochoanal polyp



Figure 2: Mucooid discharge with polyp



Figure 3: Ethmoidal polyps



Figure 4: Total opacification of left maxillary sinus



Figure 5: Total opacification of maxillary and ethmoidal sinuses

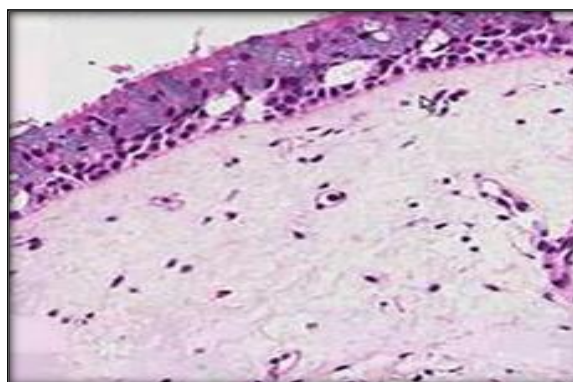


Figure 6: Histology of benign polyp

Table 1: Distribution of patients according to major/minor criteria (N=50)

Symptoms	Frequency	Percent
2 major/2 minor(Nasal obstruction, nasal discharge, fever ,headache)	15	30
3 major/2 minor(nasal obstruction, purulence, facial pain, headache, cough)	24	48
1 major/2 minor(hyposmia, fever, cough)	11	22

Table 2: Association of Nasal obstruction, purulence, facial pain, headache, cough and age group (N=50)

Age	Nasal Obstruction, Purulence, Facial Pain, Headache, Cough	Percent
20-30	7	29.7
31-40	13	54.7
41-50	4	16.66

Table 3: Association of nasal obstruction, purulence, facial pain, headache, cough with sex(N=50)

Sex	Nasal Obstruction, Purulence, Facial Pain, Headache, Cough	Percent
Male	8	33.33
Female	16	66.66

Table 4: Association of purulent and Mucoïd discharge and gender(N=50)

Sex	Purulent Discharge	Percent
Male	13	48.18
Female	14	51.8

Table 5: Association of polyps with age (N=50)

Age	Frequency	Percent
20-30	13	46.42
31-40	12	42.85
41-50	3	10.71

Table 6: Association of polyps and gender (N=50)

Sex	Polyp	Percent
Male	16	57.14
Female	12	42.85

DISCUSSION

It is important to appreciate the various clinical presentation and associated pathology in patients with chronic rhinosinusitis, due to varied etiologies. There is considerable overlapping of symptoms and causative factors. The overlapping clinical symptoms and pathology in these patients is studied in relation to age and gender. Chronic rhinosinusitis has numerous subtypes and distinct etiologies, wide variations in clinical presentation and severity, and overlapping symptomatology and pathology.

As per the available literature, few studies have comprehensively studied about certain symptoms in the patients. In our study involving 50 patients which chronic rhinosinusitis present more than 12 weeks, 48% of patients had nasal obstruction, facial pain, purulence and headache and cough as symptoms. 30% had nasal obstruction, nasal discharge, headache and cough as symptoms. 22% with hyposmia as major symptoms and headache and cough as minor symptoms. The results approximates that of Soler et al,^[6] who found that Nasal obstruction headache, nasal discharge were common .Headache was the most commonly reported disabling condition. The results also approximates that of Neil Bhattacharyya,^[7] who found that most commonly reported symptoms in order of decreasing severity and presence of nasal obstruction. nasal congestion, discharge, facial pressure, hyposmia and headache. There is wide variation regarding combination and predominant symptoms due to inclusion and exclusion criteria and the way patients perceive them. The diagnosis of CRS based on symptom criteria is difficult because most symptoms do not distinguish between normal and diseased patients.

As per the literature most of the patients in age group below 45 years suffer from symptoms of nasal obstruction, nasal discharge as stated by Samah M Ragab et al.^[8] Our study showed slightly increased prevalence between 30-40 age group. Patients with nasal obstruction, purulence, facial pain, cough,

headache more in 30-40 yr age group. Patients with hyposmia, headache, cough as presenting complaints were in 41-50 yr age group. There were variations of results. These symptoms have been found in both middle aged and slightly elder age group.

In our study female's patients were more who presented with symptoms about 54%. Males were 46%. As per the literature females were less than men.^[9]

As per the available literature presence of mucoïd and purulent discharge in chronic rhinosinusitis has been supported in cases of bacterial and fungal rhinosinusitis.^[10] Nasal purulence is strongly suggestive. In our study 76% had discharge. In 24 % of patients it was absent. As per the literature many with purulent discharge were diagnosed to be of fungal etiology. Sex ratio were almost equal.^[11] In our study female patients were slightly more than male patients. Patients presented with purulent discharge with or without polyp. On endoscopy purulent nasal discharge in the middle meatus, floor of nasal cavity. In our study 51% were females, 48% were males.

As per the literature, the cases had mucoïd discharge characteristic of allergy. There is a female predominance.^[12,13,14] In our study 45% were males 54% were females. As per the literature prevalence of polyps 2-4 %.^[15,16] In our study 28 patients had and 22 patients did not polyps. 56% and 44% respectively. It differs according to age and gender. There may be variations due to inclusion and exclusion criteria.

As per the literature polyps were prevalent in the age group more than 40.^[17,18] In our study polyps were more in 20-40 year age group and less in 40-50 year age group. There is variation in our study may be due to inclusion and exclusion criteria. As per the literature, males are found to have more than females. More common in middle aged people. As age increases prevalence increases and greater more than 40.^[19,20] In our study males were more than females with 57% and 42% respectively.

CONCLUSION

Most of them presented with nasal obstruction, purulent nasal discharge, facial pressure and headache, cough as symptoms. It was prevalent in 48% of patients. 30% presented with nasal obstruction, nasal discharge. 22% presented with hyposmia. The different combination of symptoms was present and were not specific and also it differed because of some inclusion and exclusion criteria and the way patients perceived it. 30-40-year age group was the most involved with these symptoms accounting for 48%. And majority in 30-40 age group presented with nasal obstruction, purulence, facial pressure, and headache, cough accounting for 54%. Females were of majority than males. 66% of female patients presented with nasal obstruction, purulence, facial pain as symptoms. On examination discharge was found more of purulent than mucoid. Polyps were present in 56% of patients. Associated with fungal and allergy. Most of them were bilateral ethmoidal polyposis, and of benign inflammatory histopathology. 20-40-year age group were majority who presented with polyps.

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