



**ORIGINAL RESEARCH PAPER**

**ENT**

**CLINICAL PROFILE OF CHRONIC RHINOSINUSITIS: A STUDY IN CENTRAL INDIA**

**KEY WORDS:** Chronic Rhinosinusitis, polyyps, CRSsNP.

<b>Tanvi Rekhade</b>	Resident, Dept. of ENT, GMC Nagpur, Maharashtra -440003.
<b>A.Z. Nitaware</b>	Professor and Head, Dept. of ENT, GMC Nagpur, Maharashtra -440003.
<b>Seema Patel*</b>	Associate Professor, Dept. of ENT, GMC Nagpur, Maharashtra -440003. *Corresponding Author
<b>R. T. Pawar</b>	Assistant Professor, Dept. of ENT, GMC Nagpur, Maharashtra -440003.
<b>Ashish Keche</b>	Assistant Professor, Dept. of ENT, GMC Nagpur, Maharashtra -440003.

**ABSTRACT**

Chronic Rhinosinusitis (CRS) has heavy implications on the quality of life and has a prevalence of about 46.1 % in northern India with similar pattern across the country. This research has been undertaken to study the presentation and causative factors for CRS in central India. Data of 100 patients diagnosed as CRS was studied. Patients presented with nasal obstruction and nasal discharge at large. Nasal polyyps were seen in 37% cases. The most common associated etiopathological factor was anatomical obstruction due to deviated nasal septum.

**INTRODUCTION**

Almost a decade after the guidelines for its diagnosis are formulated, Chronic Rhinosinusitis (CRS) remains an underdiagnosed entity. As per the European position paper on Rhinosinusitis and Nasal Polyposis: 2012 (EPOS 2012), rhinosinusitis is characterized by atleast one or both primary symptoms viz. nasal blockage, nasal discharge with atleast one additional symptom viz. facial pain, hyposmia/anosmia<sup>1</sup>. It is supported by objective finding of endoscopy or radiology. Duration of more than 12 weeks is needed to label it as chronic. It is broadly categorized as CRS with nasal polyposis (CRSwNP) or without polyposis (CRSsNP) based on presentation.

The prevalence of CRS is 46.1% in northern India and the pattern is same throughout the Indian subcontinent<sup>2</sup>. Owing to nonspecific symptoms, CRS is often misdiagnosed as prodrome or flu itself, thus is neglected. If not diagnosed and treated optimally it may affect the quality of life thereby hampering the overall progress of an individual.

This study has been undertaken, to understand etiopathogenesis and presentation of CRS in central India.

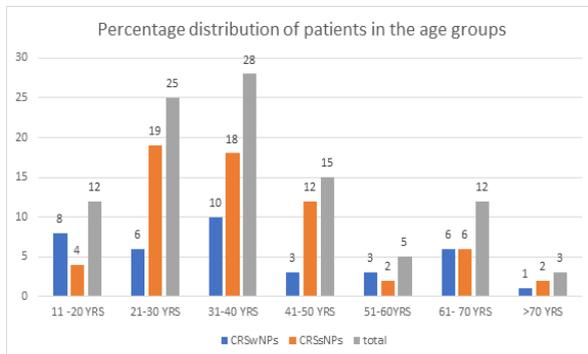
**METHODS**

This descriptive cross sectional study was carried out at the Department of ENT, GMC Nagpur from June 2018 to December 2020. A total of 100 patients diagnosed as CRS as per EPOS 2012 guidelines and willing to consent for the study were included. Patients with complications of CRS viz. orbital cellulitis, osteomyelitis, meningitis etc , those with systemic causes of CRS, fungal rhinosinusitis, malignancy and pregnant females were excluded from the study.

Detailed history and clinical examination data of these patients was recorded. Relevant blood investigation, radiological (CT PNS) investigations and endoscopic examination were carried out. When needed histopathological and microbiological examination of intranasal tissue was done.

**OBSERVATION AND RESULT**

The patients registered in this study were more from the urban areas i.e 57 (57%) than rural areas i.e. 43 (43%) .They belonged to the age group 12-75 yrs with maximum cases being in age group 31-40yrs i.e 28(28%) followed by 21-30 yrs i.e 25(25%) (Fig 1). The subgroups showed similar distribution of patients over the age groups. Most common age of presentation was 21-30yrs i.e 19 (30.16%) patients in CRSsNP and 31-40yrs for CRSwNP with 10(27.03%) patients.



**Fig 1: Age wise distribution (n=100)**

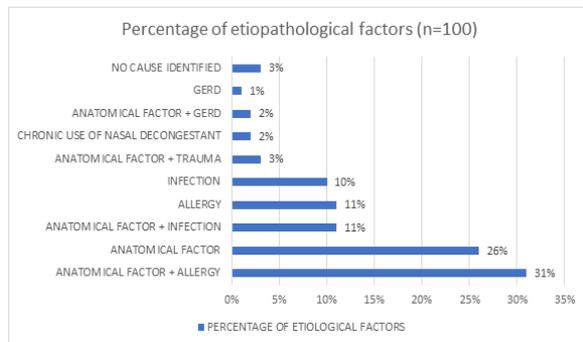
Males were 64(64%) and females were 36(36%) with male : female ratio of 1.78:1 . The most common complaint in patients with CRSwNPs (n=37) was nasal obstruction seen in all 37 (100%) patients followed by nasal discharge in 30(81.08%), facial fullness in 14(37.84%) and olfactory disturbances in 11 (29.73%). Amongst the patients of CRSsNPs (n=63) nasal obstruction and nasal discharge were the commonest seen in 59 (93.65%) patients followed by facial fullness in 25 (39.68%) and olfactory disturbances seen in 9(14.29%). Other concomitant symptoms of itching, watering of eyes, dental pain, recurrent sore throat, snoring, ear complaints, halitosis, chest fullness and headache were noted. In the ongoing COVID-19 pandemic, 2 post covid cases also presented with exacerbation of symptoms of CRS after covid infection.

Commonest examination finding was nasal discharge documented in 72 (72%) patients followed by congested nasal mucosa in 42(42%). Nasal polyyps were documented in 37 (37%) cases. Endoscopy and radiological (CT PNS) examination findings were studied. Accordingly maxillary was commonest sinus to be involved in 94 (94%) cases followed by anterior ethmoids in 57 (57%), frontal in 30(30%), posterior ethmoids in 12(12%) and sphenoid in 8 (8%). Various anatomic variations were noted in 73 (73%) patients. The most common anatomic variation that was documented in this study was deviated nasal septum (DNS) seen in about 62 (62%) patients. Other anatomical variations noted were concha bullosa, enlarged bulla, paradoxical middle turbinate, pneumatized uncinata, haller cell , agger nasi cell, hypoplastic maxilla and accessory ostium (table 1) .

**Table 1 :Anatomic Variations (n=100)**

Sr. No.	Anatomic variation based on endoscopy and radiology	Percentage of patients with the findings (total number)
1	Deviated nasal septum (DNS)	49% (49)
2	DNS + Concha bullosa	6% (6)
3	Concha bullosa	2% (2)
4	DNS + Hypoplastic maxilla	2% (2)
5	Accessory ostium	2% (2)
6	Enlarged bulla	1% (1)
7	Enlarged bulla + Accessory ostium	1% (1)
8	DNS + Paradoxical middle turbinate	1% (1)
9	DNS + Paradoxical middle turbinate + Enlarged bulla	1% (1)
10	DNS + Pneumatized uncinate + Enlarged bulla	1% (1)
11	DNS + Enlarged bulla	1% (1)
12	DNS + Haller cell	1% (1)
13	Concha bullosa + Pneumatized uncinate + Agger nasi	1% (1)
14	Paradoxical middle turbinate	1% (1)
15	Paradoxical middle turbinate + Pneumatized uncinate	1% (1)
16	Pneumatized uncinate	1% (1)
17	Haller cell	1% (1)

Etiopathological correlation was deduced based on clinical history, examination and blood investigations. The associations were found to be mostly multifactorial (Fig 2). Most frequent association was anatomical obstruction + allergy seen in 31 (31%) patients followed by anatomical obstruction alone in 26 (26%) and anatomical obstruction + infection seen in 11 (11%). Only allergy was documented in 11(11%) patients, only infection in 10 (10%), anatomical obstruction + history of trauma in 3(3%), anatomical obstruction + GERD in 2 (2%), use of long term nasal decongestants in 2 (2%) and GERD alone in 1 (1%). No cause was identified in 3 (3%) patients. Documented in 73 (73%) patients overall, anatomical obstruction was most prevalent.



**Fig 2: Etiopathological correlation (n=100)**

**DISCUSSION**

Chronic Rhinosinusitis is a disease characterized by inflammation of the mucosa of nose and paranasal sinuses for a consecutive period of atleast 12 weeks. It is an extremely prevalent disorder with significant impact on quality of life of people. The prevalence of CRS ranges from 12% in USA to 7.12% in Korea to 10.9% in Europe<sup>3</sup>.

In this study more patients belonged to the urban areas of central India i.e. 57% as compared to rural area. A study conducted by Arun KTM et al in northern India also showed that CRS was seen more in urban population<sup>4</sup>.

In the present study the most common age group was 31-40

years(28%) followed by 21-30 yrs (25%). Similar distribution was found in studies by Modgil N<sup>6</sup> where 38% cases belonged to age <40yrs and Supraneni H et al<sup>6</sup> where 25% cases belonged to age group 16-30yrs while 22% belonged to 31-45 yrs.

Male gender (64%) preponderance was seen in our study with Male:female ration of 1.78:1 . Similar male preponderance was documented in the studies by Garg D et al<sup>7</sup> and Lohiya S et al<sup>8</sup>.

The commonest presenting symptom in our study was nasal obstruction seen in 100% patients with CRSwNP and 93.65% patients with CRSsNP. This was followed closely by nasal discharge seen in 81.08% patients with CRSwNP and 93.65% patients with CRSsNP. Nasal discharge was most common sign in our study seen in 72% patients followed by nasal mucosa congestion in 42%. Garg D et al documented nasal discharge as the most common symptom seen in 100% patients<sup>7</sup>. Lohiya S et al reported nasal obstruction and discharge as the commonest symptoms and nasal discharge as the commonest sign<sup>8</sup>.

Of the different anatomical variations that we came across in our study, DNS was most persistent seen in 62% patients followed by concha bullosa in 8%. DNS was also the most common anatomical variation seen in study by Lohiya S et al<sup>8</sup>. A study conducted by Pawar S et al also showed similar association with DNS and concha bullosa being common anatomical variation<sup>9</sup>.

The most common etiology in our study was anatomical obstruction (73%) and allergy (42%) followed by infections (22%) i.e dental infection (14%), tonsillitis, adenoid inflammation, COVID-19 infections. In the study by Supraneni H et al<sup>5</sup>, infection was documented as most common (26%). In case of the patients who reported with increased severity of symptoms after recovering from covid 19 infections, covid was assumed to be the cause for exacerbation due to the temporal association of the disease with the infection. However a study conducted by Wang H et al<sup>10</sup> in this regard found no correlation at all. More research in this direction is needed to be able to achieve certain clarity.

**CONCLUSION**

CRS was reported more from urban population of central India. The most common presenting age group was 31-40 yrs with male predominance. The most frequent presenting complaints were nasal obstruction and discharge. Common signs on examination were nasal discharge and nasal mucosa congestion. DNS was a persistent anatomical variation associated with majority of cases. The etiopathology of CRS is multifactorial. The various etiopathological factors found in our study were anatomical obstruction, allergy, dental infection, chronic tonsillitis, GERD, chronic use of nasal decongestant.

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