A study of causes of nasal obstruction in Garhwal region of Uttarakhand

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Abstract

Nasal obstruction, which may be described as fullness, congestion, reduced airflow, or being "stuffed up," is a commonly encountered symptom in clinical practice. Systematic study of obstruction has largely considered it as a component of a disease state. Conditions associated with obstruction include nasal polyposis, obstructive sleep apnea, and anatomic variation; however, most information on the burden of obstruction comes from studies of allergic rhinitis and rhinosinusitis, diseases of which obstruction is the major symptom. Obstruction can be caused by other rhinologic conditions, such as non-allergic rhinitis, viral or bacterial rhinitis, and vasomotor rhinitis. Allergic rhinitis affects as much as one quarter of the population worldwide and imposes a significant economic burden. Additionally, allergic rhinitis significantly impairs quality of life; congestion causes allergic rhinitis sufferers decreased daytime productivity at work or school and reduces night-time sleep time and quality. This study is first of its kind in Garhwal region of Uttarakhand and focuses on causes of nasal obstruction in this region and its pattern of distribution in various age, sex, religion of population residing in this particular region so that a remedy could be made for burden of disease.

Keywords: Allergic rhinitis, Congestion, Epidemiology, Obstruction, Sinosinusitis, Deviated nasal septum (DNS), Inferior turbinate, Hypertrophy (ITHT).

Introduction

Congestion is a commonly encountered symptom in clinical practice, although significant variability exists in how patients and physicians define the term. Congestion can be described as fullness, blockage, or obstruction of the nasal cavity, which prevents airflow. Obstruction can be synonymous with congestion, but obstruction usually refers to irreversible blockage. For this review, we are referring to reversible congestion, which should not be confused with obstruction. Often, patients simply complain of being "stopped up" or "stuffed up" or having to breathe through the mouth. When a patient reports congestion, the clinician should use a detailed medical history, patient-reported symptoms, and physical findings to help discern the underlying etiology, which may be a fixed anatomical cause or reversible and spontaneously resolving causes, such as nasal allergy or an upper respiratory infection. Although the physician should attempt to determine if the symptom can be more objectively defined and assessed, the sensation of congestion is a subjective symptom, and the patient's perception of congestion may not correlate with physical findings. In fact, the correlation between objective obstruction and airflow, and the subjective sensation of obstruction is poor,[(1)] but reversible congestion and asymmetry can improve the correlation.

Reversible nasal congestion is usually caused by mucosal inflammation and secretions. In contrast, fixed or relatively constant congestion (i.e., obstruction) may be due to occlusion (e.g., nasal polyps, foreign body), anatomical variation (e.g., septal deformity, turbinate hypertrophy) or, rarely, neoplasm. In some cases, abnormal sensory perception may also contribute to a patient's perception of nasal congestion. A differential diagnosis of reversible nasal congestion includes allergic rhinitis, non-allergic rhinitis, vasomotor rhinitis, exaggerated nasal cycle, acute viral rhinitis, acute viral rhinosinusitis, acute bacterial rhinitis, acute bacterial rhinosinusitis, chronic inflammatory or infectious rhinosinusitis, rhinitis medicamentosa, sarcoidosis, Wegener's granulomatosis, Churg–Strauss syndrome, and rhinoscleroma. This review primarily addresses congestion caused by nasal mucosal inflammation, which may be either acute or chronic, and is the primary pathophysiologic mechanism underlying congestion in the common upper respiratory disorders.

Epidemiology of nasal congestion and associated diseases

Nasal congestion has not been extensively studied in the general population, and most studies of congestion have been conducted in patients with diagnosed rhinologic disease. Allergic rhinitis accounts for a large proportion of all rhinitis cases and is a common cause of nasal congestion.[(2,3)] Over the past 2 to 3 decades, the prevalence of allergic rhinitis has been increasing worldwide.[(4,5)] Estimates of allergic rhinitis prevalence vary, ranging from as low as 10% to as high as 40%,[(4)] with the disparity likely due to non-standardized diagnostic criteria and differences in

methodology and patient population in epidemiologic studies.[5] Nonetheless, it is generally accepted that approximately 10% to 20% of the global population suffers from allergic rhinitis – an increase from reported prevalence rates in previous decades.[4] Part of the reported increase in prevalence may be due to increased awareness and interest in allergy treatments, and greater physician and public awareness of allergic rhinitis.[4] However, the true prevalence of allergic rhinitis may actually be underestimated, as epidemiologic research relies heavily on physician diagnosis. Thus, studies may not capture patients who have undiagnosed allergic rhinitis or those who self-medicate.[6] Similar to allergic rhinitis, rhinosinusitis poses a significant socioeconomic burden at a national and international level.[7] Compared with other symptoms of allergic rhinitis, such as itchy eyes and runny nose, allergy sufferers perceived congestion to be highly problematic: 48% of surveyed adults and 58% of caregivers identified congestion as the most bothersome symptom. 8Patients with allergic rhinitis and obstructive sleep apnea often complain of sleep-related problems. Majority of patients often awake at night and suffer from day time somonolescence.[9] Other studies have confirmed congestion to be a highly prevalent and bothersome symptom of allergic rhinitis. The continued desire by patients for congestion relief highlights once again the need for more effective therapies for this symptom.

In Uttarakhand where the population is scattered due to hill areas, health facility in these areas are also remote. Our medical college i.e. VEER CHANDRA SINGH GARHWALI INSTITUTE OF HEALTH SCIENCES AND RESEARCH is the one and only tertiary centre that covers the health needs of population of Chamoli, Tehri, Rudraprayag, Uttarkashi, Pauri districts of garhwal region. This study is epidemiological study which covers the causes of nasal obstruction/congestion among the population of garhwal region reporting in our ENT department.

Aims and Objectives

1. To collect the data of patient reporting in ENT OPD with problem of nasal obstruction/congestion.
2. To find out the cause of nasal obstruction by collection of data through endoscopic and Radiological findings.
3. To study and analyse the pattern of disease in various age groups, sex, religion and districts of garhwal region.

Material and Methods

1. This is a retrospective study and the data is collected through ENT OPD entry registers. The period of study is from January 1st 2015 to December 31st 2015.
2. The patient who was provisionally diagnosed for particular disease is traced through his/her radiological and endoscopic findings in there respective registers.

Observation and Results

Table 1: Demographic details of the patients studied (n=206)

Variable	N(%)
Gender	
Male	118(57.3)
Female	88(42.7)
Age category	
Less than 15 year	21(10.2)
15 – 60 years	171(83.0)
More than 60 years	14(6.8)
Religion	
Hindu	167(81.1)
Muslim	34(16.5)
Christian	5(2.4)
Place of residence	
Pauri	122(59.2)
Chamoli	31(15.0)
Rudraprayag	32(15.5)
Uttarkashi	18(8.7)
Tehri	3(1.5)
Month of diagnosis	
Jan – March	40(19.4)
April- June	58(28.2)
July- Sep	40(19.4)
Oct- Dec	68(33.0)

Age mean in years 31.9 (S.D±15.9)

Table 2 Endoscopic and radiological correlation.

Diagnosis	No. of patients on Endoscopy	No. of patients on Radiology diagnosis	Correlation			
			Matched		Not matched	
			No. of patients	%	No. of patients	%
DNS						
Right	17	26	17	65.4	9	34.6
Left	14	24	14	58.4	10	41.6
S shaped	19	0	0	0.00	19	100
DNS + Sinusitis/Haziness						
Frontal	1	2	1	50.0	1	50.0
Ethmoidal	0	0	1	100	0	0.00
Bl Maxillary	6	4	4	66.6	2	33.4
Rt Maxillary	1	5	1	20.0	4	80.0
Rt DNS	8	5	5	62.5	3	37.5
SDNS	3	0	0	0.00	3	100.0
Lt DNS	0	3	0	0.00	3	100.0
Lt Maxillary	5	6	5	80.0	1	20.0
Lt DNS	9	11	9	81.8	2	18.1
SDNS	1	0	0	0.00	1	100.0
Pan sinusitis	0	1	0	0.00	1	100.0
Sinusitis/ Haziness						
Frontal	6	4	4	66.7	2	33.3
Ethmoidal + frontal	4	8	4	50.0	4	50.0
Maxillary						
Right	10	17	10	58.8	7	41.2
Bilateral	6	6	6	100.0	0	0.00
Pansinusitis	14	21	14	66.7	7	33.3
ITHT						
Unilateral	3	0	0	0.00	3	100.0
Bilateral ITHT + Allergic rhinitis	42	39	39	92.8	3	7.2
Bilateral MTHT	0	6	0	0.00	6	100.0
Foreign Body/ Radio opaque shadow						
Right Nasal Cavity	4	1	1	25.0	3	75.0
Left Nasal Cavity	8	5	5	62.5	3	37.5
Polyp						
AC Right	12	3	3	25.0	9	75.0
BL ethmoidal	3	0	0	0.00	3	100.0
Pansinusitis	8	1	1	12.5	7	87.5
Septal abscess/Swelling	2	2	2	100	0	0.00
NAD	0	6	0	0.00	6	100.0

Overall agreement is 68.4%

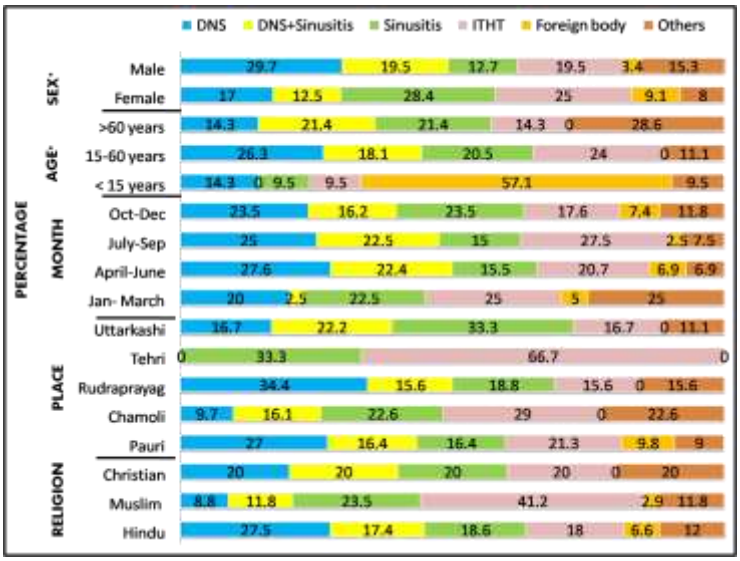

Fig. 1: Distribution of Patients gender, age, month, residence and religion by primary diagnosis
*P<0.05

A total of 206 patients were studied. In the present study, the age distribution of the patients ranged from 2 to 84 years (mean age in years 31.9 (S.D±15.9)]. The Patients age 15 to 60 years was the commonest to be involved with 171 patients (83.0%) and male (57.3%) to female (42.7%) ratio was nearly similar. Majority of the patients belonged to the Pauri district comprising 122 patients (59.2%). By religion, maximum number of patients was Hindu, i.e., 167 patients (81.1%). The maximum number of patients (33.0%) seeked health care in October to December 2015 [Table 1]. rural–urban ratio were 1:1. The most common diagnosis was deviated nasal septum only seen in 50 patients (24.3%), followed by Hypertrophied inferior turbinate in 45 patients (21.8%), Sinusitis only 40(19.4%), Deviated nasal septum and sinusitis 34(16.5%), foreign body 12(5.8%) and others.

The agreement of diagnosis by endoscopy and radiology was 68.4%. The diagnosis of various disorder broadly classified as deviated nasal septum only, Hypertrophied inferior turbinate, Sinusitis only, Deviated nasal septum and sinusitis, foreign body and others, was found to be significantly different by endoscopic and radiological procedures with p<0.5. The highest correlation was found in diagnosis sinusitis by endoscopy and haziness on radiology. The maximum disparity was found in diagnosis of S shaped deviated nasal septum, ITHT and polyp by the two methods. (Table 2)

Summary and Conclusion

To summarize from the above study it is found that allergic rhinitis is not the commonest cause of congestion and obstruction among the Garhwal population, it is the DEVIATED NASAL SEPTUM, the cause could be trauma or congenital structural alteration[10].

In males most common diagnosis was deviated nasal septum only 25(29.7%) while among females the most common was sinusitis only 25(28.4%). There was significant difference of morbidity pattern between adult males and females (p= 0.005). In adults (18-60 years), the most common diseases were deviated nasal septum 45(26.3%) followed by ITHT with allergic rhinitis(24.0%). There was significant difference of diagnosis between adult, pediatrics and elderly females (p < 0.001). No significant difference of diagnosis among various regions (p= 0.155), month of diagnosis (p= 0.209), and religion (p= 0.211) was observed (Fig. 1)

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