

Study of Etiology of Nasal Obstruction in A Tertiary Care Centre Dr RPGMC Kangra at Tanda (H.P.).

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Abstract

Background: Nasal obstruction is defined as discomfort manifested by feeling of insufficient airflow through the nose.

Aim: To study the etiology of nasal obstruction in a tertiary care centre Dr RPGMC Kangra at Tanda (H.P.).

Material and Methods: This study was conducted as a comparative study in the Department of Otorhinolaryngology and Head and Neck Surgery and Pathology, Dr. R.P.G.M.C., Kangra at Tanda from May 2015 to April 2016.

Results: Adenotonsillitis(42%) was found as leading cause of nasal obstruction followed by nose and paranasal polyposis(16%), turbinate hypertrophy (12%) allergic rhinitis/ rhinosinusitis (10%), deviated nasal septum/spur/caudal septal deviation(08%), adenoiditis+ hypertrophy (06%), Rhinolith (06%).

Conclusion: Adenotonsillitis (42%) is observed as the largest cause of nasal obstruction and as adenotonsillitis is more common in 0-20 years age group so nasal obstruction is also more prevalent in 0-20 years age group.

Keywords: Nasal obstruction, adenotonsillitis, deviated nasal septum, allergic rhinitis, rhinosinusitis.

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I. Introduction

Nasal obstruction is defined as discomfort manifested by feeling of insufficient airflow through the nose. Thus nasal obstruction is a subjective complaint. Common synonyms for nasal obstruction are nasal stuffiness, nasal blockage and nasal congestion. The causes of nasal obstruction in humans are numerous and diverse, but the symptoms are essentially similar. Stertor, mouth breathing, feeding problems, sleep disturbance and rhinorrhoea are all frequently reported. A clinical history will ascertain whether the problem is unilateral – or bilateral, complete or partial, intermittent or constant, acute or chronic. Most patients are aware of the nasal “congestion” that occurs with certain illnesses or pathologic conditions¹. These include responses to upper respiratory infection, allergy, sinusitis, and other conditions, such as mucosal hyper reactivity, septal valve, or other structural deformities of the nasal airway, infections, polyps, tumors, crusting, granulomatous conditions or vasculitides, neoplasms, perforations, and synechia.

II. Aims And Objectives

1. To study the etiology of nasal obstruction in a tertiary care centre Dr RPGMC Kangra at Tanda (H.P.).

MATERIALS AND METHODS

This study was conducted as a prospective study in the Department of Otorhinolaryngology and Head and Neck Surgery and Pathology, Dr. R.P.G.M.C., Kangra at Tanda from May 2015 to April 2016. During this period fifty patients with nasal obstruction were included in the study.

Study Population

Study group include general population presenting in out patient department of Dr. R.P.G.M.C., Kangra at Tanda with nasal obstruction fulfilling inclusion and exclusion criteria in both sexes as given below.

Inclusion criteria:

- Patients with complaints of unilateral or bilateral nasal obstruction.
- Patients giving consent for study.
- Patients below age 60 years.

- Patients above the age of 1 year.

Exclusion criteria:

- Age >60 years or <1year.
- Patients without nasal obstruction.
- Patients using nasal drops/spray.

METHODOLOGY- The enrolled patients are explained about the complete study procedure in their language.

1. Detailed history obtained from study participants regarding
2. Clinical examination of patient is done including general physical examination and systemic examination for assessing the general condition of participants.
3. A thorough ENT examination is done including anterior rhinoscopy, posterior rhinoscopy, ear examination, throat examination.
4. Various nasal patency tests such as cold spatula test, cotton wool test, cottle,s test are performed to assess and compare the nasal breathing on bilateral nasal cavities.

STATISTICAL ANALYSIS

Data were entered in Microsoft Excel sheet. The continuous variables were presented using mean / median. For categorical variables proportions were used. The statistical analysis was done using Epi Info v7 software.

ETHICAL JUSTIFICATION

The investigator and supervisors are aware of the Ethics in Biomedical Research Policy of Dr. R.P.G.M.C, Tanda Himachal Pradesh and Ethics Guidelines by ICMR and the Declaration of Helsinki. Written informed consent of all participants is obtained before gathering any information. The information collected will be kept strictly confidential and individual identity will not be disclosed under any circumstances. The study involves no risk to the patient and involves no financial burden. The patient shall not be subjected to any unnecessary investigations. Result of the study will only be used for academic purposes and for framing recommendations for the improvement in services and for no other purpose. If during the course of the study any untoward incident takes place, appropriate specialised services shall be provided for the management of the same.

CONFLICT OF INTEREST

None declared

FINANCIAL DISCLOSURE

The facilities for the study including laboratory investigations are available in the institute. No financial charges will accrue to the study subject. The study is not funded by any agency.

III. Results

This one-year prospective study aimed at studying the etiology of nasal obstruction in a tertiary care hospital of Sub-Himalayan region at Dr RPGMC Kangra at Tanda. A total of 50 patients of either sex with a subjective complaint of nasal obstruction were included in the study and their demographic profile, clinical presentation and etiological factors studied. The results of the study are presented thus.

Table 1: Age wise frequency distribution of the patients presenting with nasal obstruction in a tertiary care centre, 2015-16.

Age group	Frequency	Percentage (%)
0-20 years	33	66%
21-40 years	16	32%
41-60 years	01	2%

Age and sex distribution

The mean age of the study participants with nasal obstruction at presentation was 16.2 years (SD±11.9). Thirty-three (66%) patients were aged 0-20 years. Sixteen patients (32%) were in the age group 21-40 years and 01 (2%) patients were of the age group 41-60 years. The study population comprise of 15/50(30%) male adults, 7/50 (14%) female adults, 16/50(32%) male children and 12/50(24%) female children. Out of overall 50 subjects studied 31/50(62%) males and 19/50(38%) females in study Group.

Table 2: Frequency distribution of the presenting symptoms amongst the patients presenting with nasal obstruction in a tertiary care centre, 2015-16.

Symptom	Frequency	Percentage (%)
Nasal obstruction	50	100%
Post nasal discharge	15	30%
Ear Pain	4	8%
Headache	8	16%
Decreased hearing	9	18%
Tinnitus	1	2%
Mouth breathing	29	58%
Excess sneezing.	16	32%

Presenting symptoms

Out of the total 50 subjects studied in Group A all cases 50/50(100%) presented with nasal obstruction, other associated symptoms were as follows, 15/50 (30%) subjects were having symptom of post nasal discharge, 4/50 (8%) subjects have pain in ear, 8/50(16%) have headache, 9/50(18%) have decreased hearing, 29/50 (58%) complain of mouth breathing at night, 16/50 (32%) complains of excess sneezing and only 1/50(2%) have associated tinnitus.

Table 3: Clinical diagnosis in patients of nasal obstruction in tertiary care centre, 2015-16.

Clinical diagnosis	Frequency	Percentage (%)
Adenotonsillitis	21	42%
Allergic rhinitis/ Allergic rhinosinusitis	05	10%
Nose & PNS Polyposis	08	16%
Turbinate hypertrophy	06	12%
DNS / Spur / CSD	04	08%
Rhinolith	03	06%
Adenoiditis + Turb. Hypertrophy	03	06%

Clinical diagnosis

In study participants of nasal obstruction clinical diagnosis observed is summarised in various groups in Table no.3 above. Adenoiditis/ tonsillitis/ adenotonsillitis 21/50 (42%) is observed as the largest cause of nasal obstruction. Various other causes observed are allergic rhinitis/ allergic rhinosinusitis 05/50(10%), nose and paranasal polyposis 08/50(16%), turbinate hypertrophy 06/50(12%), DNS/ spur/ caudal septal deviation (CSD) 04/50(8%), rhinolith 03/50(6%) and combination of adenoiditis + turbinate hypertrophy in 03/50(6%) cases.

IV. Discussion

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. Arya A et al² studied a total of 206 patients to find the causes of nasal obstruction in Garhwal region of Utrakhand. In the above 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%) sought health care in October to December 2015. 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. Results of above study were slightly different from over study as adenotonsillitis was the commonest cause of nasal obstruction in our study. Naclerio RM et al³ while studying pathophysiology of nasal congestion observed that nasal congestion is a common symptom in rhinitis (both allergic and nonallergic), rhinosinusitis and nasal polyposis. Congestion can also be caused by physical obstruction of nasal passages and/or modulation of sensory perception. Mucosal inflammation underlies many of the specific and interrelated factors that contribute to nasal congestion, as well as other symptoms of both allergic rhinitis and rhinosinusitis. A wide range of biologically active agents (eg, histamine, tumor necrosis factor- α , interleukins, cell adhesion molecules) and cell types contribute to inflammation, which can manifest as venous engorgement, increased nasal secretions and

tissue swelling/edema, ultimately leading to impaired airflow and the sensation of nasal congestion. Inflammation-induced changes in the properties of sensory afferents (eg, expression of peptides and receptors) that innervate the nose can also contribute to altered sensory perception, which may result in a subjective feeling of congestion. Arora M et al⁴ conducted a study titled correlation between deviated nasal septum and sinusitis: a clinical and histopathological Study on 30 patients of rhino-sinusitis, divided into 2 groups - control and study group of 15 each. Patients were then assessed clinically by using various parameters such as Patency test, Rhinoscopy, Nasal diagnostic endoscopy, X-ray peripheral nervous system, and computed tomography scan. Histopathological examination of mucosal biopsies from maxillary sinus of patients was also done. Inferior turbinate hypertrophy, middle turbinate hypertrophy, spur, concha bullosa, paradoxical middle turbinate, accessory ostia, mucoid discharge, mucopurulent discharge were observed as causes of nasal obstruction. The above results were in line to our study.

Oliviera AKP et al⁵ studied prevalence of deviated nasal septum. Among the 534 volunteers, 60.3% presented with nasal septum deviation, whose 59.9% reported nasal obstruction. It was more usual among male (25%) than female (23.6%). The VAS score's average value that approached to 100mm ("I breathe badly through my nose") was 38.10mm within the nasal septum deviation group, while the average value that approached to 0mm ("I breathe well through my nose") occurred in the group without nasal septum deviation, 21,14mm (p<0.0001%). Above results were similar to our study as in our study out of overall 50 subjects studied 31/50(62%) males and 19/50(38%) females in study Group. Abreu RR et al⁶ studied on a representative random sample of the town population, of 23,596 inhabitants. Clinical diagnosis of mouth-breathing was defined as a combination of snoring, sleeping with mouth open, drooling on the pillow and frequent or intermittent nasal obstruction. The main causes of mouth-breathing were: allergic rhinitis (81.4%), enlarged adenoids (79.2%), enlarged tonsils (12.6%), and obstructive deviation of the nasal septum (1.0%). The main clinical manifestations of mouth breathers were: sleeping with mouth open (86%), snoring (79%), itchy nose (77%), drooling on the pillow (62%), nocturnal sleep problems or agitated sleep (62%), nasal obstruction (49%), and irritability during the day (43%). Findings in above study were in line to our study as adenotonsillitis(42%) was found as leading cause of nasal obstruction followed by nose and paranasal polyposis(16%), turbinate hypertrophy (12%) allergic rhinitis/ rhinosinusitis (10%), deviated nasal septum/spur/caudal septal deviation(08%), adenoiditis+ hypertrophy (06%), rhinolith (06%).

V. Conclusion

1. Adenotonsillitis (42%) is observed as the largest cause of nasal obstruction and as adenotonsillitis is more common in 0-20 years age group so nasal obstruction is also more prevalent in 0-20 years age group.
2. Other causes of nasal obstruction are allergic rhinitis/ allergic rhinosinusitis (10%), nose and paranasal polyposis (16%), turbinate hypertrophy (12%), DNS/ spur/ caudal septal deviation (CSD) (8%), rhinolith (6%) and combination of adenoiditis + turbinate hypertrophy in (6%) cases.

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