



ORIGINAL ARTICLE

Pattern of Abnormal Findings in Adult with Nasal Obstruction on Rhinoscopy and Nasal Endoscopy

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Abstract

Nasal obstruction is one of the most distressing symptom of nasal and sinus disease. The nasal obstruction may be unilateral or bilateral or is intermittent, progressive or persistent. The routine anterior and posterior rhinoscopy gives very little information as we can see the structure which lie directly in the line of sight and moreover the posterior rhinoscopy may not be possible in some cases. As a result, the early diagnosis of some unpleasant lesions remained elusive without nasal endoscopy. In addition, the diagnostic nasal endoscopy helps us in precise photodocumentation of pre- and post treatment finding, which is unsurpassed for teaching. This study, thus, strongly recommend thorough endoscopic examination of nose and postnasal space especially when anterior and posterior rhinoscopy fail to reveal the cause of nasal obstruction.

Key Words

Nasal Obstruction, Nasal Endoscopy, Rhinoscopy

Introduction

Although individual tolerance to nasal obstruction varies from person to person, it is thought to be one of the most distressing symptoms of nasal obstruction. The passage of air may be unilateral or bilateral or is intermittent, progressive or persistent. Besides lesions in the nose and paranasal sinuses; hypertrophied adenoids, tumours and cysts of nasopharynx can also cause nasal obstruction. The routine anterior and posterior rhinoscopy gives very little information as we can see the structure which lie directly in the line of sight and moreover the posterior rhinoscopy may not be possible in some cases especially in young children. As a result, the early diagnosis of some unpleasant lesions remained elusive without nasal endoscopy. In addition, the diagnostic nasal endoscopy provides an excellent teaching tool for students, residents and patients. It is more suitable source for precise photodocumentation of pre- and post-treatment findings, which is unsurpassed for teaching (1).

Material & Methods

The present study has been aimed at the evaluation of symptoms of nasal obstruction by nasal endoscopy, and to compare anterior and posterior rhinoscopic findings with the findings of nasal endoscopy. The study was conducted in the Department of ENT Head and Neck Surgery, SMGS Hospital, Government Medical College, Jammu.

In this study about 150 cases of nasal obstruction between the age range of 15-70 years has been evaluated. The work-up of the patients included :-

1. *Clinical Examination:*

A detailed history, local examination of nose was done in all cases with special emphasis on anterior and posterior rhinoscopic findings.

2. *Nasal Endoscopy :*

The diagnostic nasal endoscopy was performed in all cases. Detail of equipment used and techniques is given below :

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Equipment : The procedure was performed with 4 mm, 0 and 30 degree endoscopes. Endoscope of the size 2.7 mm, 0 degree was used in cases where it was not possible to pass 4 mm endoscope because of narrowing of nasal cavity. Illumination was provided with Karl Storz light source.

Techniques: Decongestion of the patient's nose with 4% Xylocaine with 1:1,00,000 adrenaline was done. The patient was placed in the supine position with head raised 15 degree and neck slightly flexed. The endoscopy was done in three passes and, in all the three passes various structures were examined and any abnormality found was noted.

First Pass: Inferior meatus, floor of nose, post-nasal space, Eustachian tube orifice, mucus channel, septum, nasolacrimal duct opening and previous antrostomy.

Second Pass :

(a) Lateral wall of nose including agger nasi, polyps, accessory ostia and uncinate process.

(b) Middle meatus including hiatus semilunaris, bulla ethmoidalis, natural OS and ground lamella.

(c) Middle turbinate deformity.

Third Pass : Superior turbinate / meatus, sphenoid ethmoidal recess and sphenoidal ostium (2).

Results

We selected 150 patients over and above the age of 15 years to enable us to perform the endoscopic examination of nose under local anaesthesia. Of the 150 patients, a little over two-third were males and the rest females. Maximum patients were in the age group of 21-30 years (48%). The youngest patient was 15 years old and the oldest 70 years.

The anterior rhinoscopic findings in present study included presence of nasal discharge in 76 (50.66%) cases, deviated nasal septum in 50 (37.53%) cases, turbinate hypertrophy in 30 (20%) cases, nasal polypi in 28 (18.66%) cases, nasal mass in 2 (01.33%) and crusting in 2 (01.33%) cases. Rhinolith and black turbinate was observed in one case each. However in 24 (16%) cases, the anterior rhinoscopic examination was found to be normal.

Posterior rhinoscopy could not be performed in 46 (30.67%) cases. Among the rest, post-nasal discharge was the most common findings seen in 28 (18.67%) cases, antrochoanal polypi in 9 (6%) cases, ethmoidal polypi in 2 (1.33%) cases, hypertrophy of posterior end of inferior turbinate was seen in 12 (8%) cases and tumour-like

masses were seen in 8 (5.33%). In 60 (40%) cases, the posterior rhinoscopy examination was found to be normal.

In this study, 56(37.33%) cases were found to have some pathological lesion where no finding was detected on anterior or on posterior rhinoscopy. The most common findings missed on rhinoscopy and found on endoscopy were high/posterior deviation of septum in 10 cases (17.85%), posterior septal spur in 2 cases (3.57%), choanal polypi in 3 cases (5.35%), concha bullosa in 3 cases (5.35%), enlarged bulla ethmoidalis in 6 cases (10.71%), synechiae on posterior part of the nose in 2 cases (3.57%), masses in posterior part of nasal cavity in 4 cases (7.14%), nasopharyngeal mass in 4 cases (7.14%), paradoxical middle turbinate in 6 cases (10.71%), early polyps in middle meatus in 2 cases (3.57%), discharge in the middle meatus in 6 cases (10.71%), posterior turbinate hypertrophy in 4 cases (7.14%), enlarged adenoids in 2 cases (3.57%) and agar nasi cells in 2 cases.

After nasal endoscopy, the anatomical or pathological causes of nasal obstruction in our study could be established in all cases except in 5 (3.3%) cases. No case of nasal obstruction as a result of nasal mucosal engorgement as seen in pregnancy, ingestion of birth control pills, use of α -blocker and hypothyroidism was encountered in our study.

Discussion

The nasal obstruction as a symptom usually has a benign course and this tends to engender apathy among the physician with regards to the pursuit of diagnosis. Nasal obstruction deteriorates the quality of life by causing discomfort, interference with the senses of smell and taste and occasionally social ostracism. Sometime, life-threatening problems such as neoplasm, first come to the attention of the patient as nasal obstruction. It, thus, behoove all physicians to aggressively pursue the cause and treatment in these patients (Kimmelman) (3). The usual diagnostic clinical method for nasal obstruction includes the nasal patency tests, anterior and posterior rhinoscopy. However, the anterior rhinoscopy gives very restricted view of inside of nose and posterior rhinoscopic examination is not possible in all cases.

The advent of nasal endoscopy has revolutionized the diagnosis of nasal disease by better visualization, more precise localization of pathology and better accessibility of the area, otherwise not accessible by anterior and posterior rhinoscopy. It has made the posterior part of

**Table 1. Showing Findings of Anterior Rhinoscopy In Patients of Nasal Obstruction (n=150)**

S. No.	Anti-rhinoscopic findings	No.	%age
1.	Nasal discharge	76	50.66
2.	Deviated nasal septum	56	37.33
3.	Turbinate hypertrophy	30	20.00
4.	Nasal polypi	28	18.66
5.	Nasal mass	2	01.33
6.	Crusting	2	01.33
7.	Rhinolith	1	00.66
8.	Black middle turbinate	1	00.66
9.	Normal	24	16.00

Table 2. Showing The Findings of Posterior Rhinoscopy In Patients of Nasal Obstruction (n = 150)

S. No.	posterior-rhinoscopic findings	No.	%age
1.	Normal	60	40.00
2.	Antrochoanal polypi	09	06.00
3.	Ethmoidal polypi	02	01.33
4.	Tumour-like masses in nasopharynx	08	05.33
5.	Post-nasal discharge	28	18.67
6.	Hypertrophy of posterior end of inferior turbinate	12	08.00
7.	Not possible	46	30.67

Table 3. Showing Findings Seen On Nasal Endoscopy

S. No.	Nasal endoscopic findings	No.	%age
1.	Posterior/high deviation of septum	10	17.85
2.	Posterior septal spur	02	03.57
3.	Choanal polyp	03	05.35
4.	Concha bullosa	03	05.35
5.	Enlarged bulla ethmoidalis	06	10.71
6.	Synechiae on posterior part of the nose	02	03.57
7.	Mass in posterior part of nasal cavity	04	07.14
8.	Nasopharyngeal masses	04	07.14
9.	Paradoxical middle turbinate	06	10.71
10.	Early polyps in middle meatus	02	03.57
11.	Discharge in middle meatus	06	10.71
12.	Hypertrophy of posterior end of inferior turbinate	04	07.14
13.	Enlarged adenoids	02	03.57
14.	Agar nasi cells	02	03.57
Total		56	100.00



nose and post-nasal space more accessible and better discernible. Hughes & Jones (4) proved the superiority of nasal endoscopy over rhinoscopy (85% versus 74%). The endoscopic examination was found to have a sensitivity of 84% and a specificity of 92%. In 25 (18%) patients, endoscopy contributed positively towards a correct diagnosis but in 11 (8%), there was false positive findings. CT findings leads to a re-evaluation of the diagnosis and alteration of management of these 11 individuals who had false positive endoscopic findings.

Kaluskar & Paul (5) performed out-patient nasal endoscopy in the evaluation of chronic nasal and sinus disease and encountered with common abnormal endoscopic findings which were concha bullosa, paradoxical middle turbinate, polyps, discharge, uncinate process, bulla ethmoidalis, agar nasi cells and septal spur.

Levine & Cleveland (6) studied 150 cases with chronic nasal and sinus symptoms. All the patients were examined by traditional anterior and posterior rhinoscopy and also by nasal endoscopy by two physicians to confirm each others findings. The nasal pathology was revealed in 58 patients (38.70%) with the help of nasal endoscope which was otherwise not obvious by traditional anterior and posterior rhinoscopic examinations. These findings were middle meatus polyps in 23 cases, discharge in 12 cases, polyps and discharge in 20 cases and web-like synechiae in 3 cases. Eight of the patients in this group had concha bullosa and nineteen patients had accessory ostia.

Jareoncharasi *et al.* (7) carried out nasal endoscopy in 83 patients with perennial allergic rhinitis to evaluate endonasal anatomical variations and to find the correlation between the symptoms of the patient and the endoscopic findings. They found that 95.2% of patients had abnormal endoscopic findings which were deviated nasal septum (72.3%), abnormal middle turbinate (49.4%) narrowing of the entrance into the frontal recess (30.1%), septal spur (25.5%), inferior turbinate hypertrophy (10.8%), abnormal uncinate process (9.6%), abnormal ethmoid bullae (7.2) and enlargement of agar nasi cells (2.4%).

Lawrason & Meyers (8) performed rigid nasal endoscopy on patients with sinonasal complaints. They studied that rigid nasal endoscope because of his superior image clarity, greater magnification and ability to navigate directly to pathological areas had identified nasal pathology in almost 40% of patients who had normal examination on anterior rhinoscopy. Thus, in our study, 56 cases (37.33%) were found to have some pathology seen on endoscopy. These findings were missed on anterior and

posterior rhinoscopy. This study is almost comparable to Levine and Cleveland who had identified pathology on nasal endoscopy in 58 cases (38.7%) which was otherwise not obvious by routine anterior and posterior rhinoscopic examination. The less number of cases as compared to Amy E Llawrason and Arlen D Meyers (40%) because they mentioned all the pathology whether or not responsible for nasal obstruction. Hence, nasal endoscopy was proved to be superior to anterior and posterior rhinoscopy in detecting the cause of nasal obstruction.

Conclusion

The study, thus, strongly recommend thorough endoscopic examination of nose and post-nasal space in all cases complaining of nasal obstruction especially when anterior and posterior rhinoscopic examination fail to reveal the cause of nasal obstruction or wherever anterior rhinoscopy is limited by anatomical obstruction. Even otherwise also it is recommended that nasal endoscopy should be treated as a routine out-patient endoscopic procedure to arrive at an early and definite diagnosis in the interest of proper patient care and to keep pace with the advancement in medical technology. However, nasal endoscopy has its limitation in patients with nasal obstruction and such patients need evaluation by CT scans.

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