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REVOLUTION BY ENDOSCOPE IN DIAGNOSIS OF SINONASAL DISEASE

Dr. Ankur Gupta*[1] and Dr. Shantanu Mandal[2]

[1]Senior Resident, ENT Department, VMMC and Safdarjung Hospital, New Delhi, India.
[2]consultant, Head of Department, Department of ENT, Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi, India.

***Corresponding Author: Dr. Ankur Gupta**
Senior Resident, ENT Department, VMMC and Safdarjung Hospital, New Delhi, India.

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ABSTRACT

Introduction: Nasal endoscopy allows detailed and complete evaluation of intranasal anatomy and identification of pathology that was impossible to see using standard techniques with headlight or head mirror. The study was undertaken in order to ascertain the efficacy of endoscopy in diagnosing a spectrum of sinonasal pathology which otherwise remain unrevealed clinically. **Aims and Objectives**: To assess extent of disease by Diagnostic Nasal Endoscopy in case of sinonsasal disease & also compare them with patient symptoms. To correlate findings of Diagnostic Nasal Endoscopy with CT in cases of sinonasal disease and also stage the extent of disease on their basis. To assess the result of comparison with surgical findings. To find predictive value of Diagnostic Nasal Endoscopy in diagnosis of sinonasal disease. **Materials and Methods:** Total 50 patients were studied. Patients came with complaints of nasal blockage, nasal discharge, mass in nasal cavity, bleeding etc., included in study. Pre endoscopic assessment was carried out like history, examination, investigation. Endoscopy was done after consent under necessary local anesthesia. Endoscopy was done using rigid hopkins 0 degree and 30 degree endoscope with 3 standard passes. Result: Total 50 patients were studied. Male to female ratio was 3:2. Out of 50 patients maximum number of patients had septal deviation on nasal endoscopy examination (35); followed by nasal discharge (34) and nasal polyp (25) and inferior turbinate hypertrophy (13). Nasal endoscopy was an excellent diagnostic aid in condition like epistaxis, nasal mass, nasal obstruction, foreign body. **Conclusion:** Diagnostic nasal endoscopy is a gold standard tool which offers high diagnostic accuracy in patient with sinonasal complaints. It has High accuracy due to vision control, less bleeding, minimal complication, and early postoperative recovery. It's a good tool for diagnosing anatomical variation.

KEYWORDS: Anatomical variation, Diagnostic Nasal Endoscopy, Nasal Passes.

INTRODUCTION

Technology has always been a part of the practice of medicine particularly in otorhinolaryngology-head and neck surgery, where diagnostic and therapeutic advances can make disease process more accessible. Nasal Endoscopy is an excellent example of this.[1] In the 1960s, Hopkins developed the rod optic endoscope, which revolutionized the optical quality available to surgeons.[2] In the 1970s, this new and exciting armamentarium of endoscopic tools allowed surgeons such as Messerklinger, Stammberger, Draf and Wigand to transition sinus surgery from a radical operation to a minimally invasive procedure.[2,3] Nasal endoscopy allows a detailed examination of the nasal and sinus cavities not possible by standard examination such as anterior rhinoscopy using headlight or head mirror.[4] It is more sensitive than computed tomography for the evaluation of accessible disease and provides valuable information regarding persistent asymptomatic disease postoperatively. Nasal Endoscopy is a minimally invasive, diagnostic medical procedure and currently the most preferred initial method of evaluating medical problems affecting nose and sinuses such as nasal stuffiness and obstruction, sinusitis, nasal polyposis, nasal tumors, epistaxis, recurrent bouts of sneezing and rhinorrhea. Thus, endoscopy should be viewed as part of a complete examination of the nose and sinuses. A strong argument can be made for incorporating endoscopy into the routine care of any patient with chronic rhinosinusitis.[5] The present study was conducted to evaluate the role of nasal endoscopy as first hand primary examination in the early and accurate diagnosis of sinonasal diseases and to highlight its importance with respect to ease and cost effectiveness in comparison to other diagnostic tools in rhinology like computed tomography. The present study was also aimed at evaluating the frequency and types of anatomical variants in and around ostiomeatal complex, and distribution of sinonasal mucosal abnormalities and other pathological changes.

AIMS AND OBJECTIVES

1. To assess extent of disease by Diagnostic Nasal Endoscopy in case of Sino nasal disease & also compare them with patients symptoms.
2. To correlate findings of Diagnostic Nasal Endoscopy with CT in cases of sinonsasal disease and also stage the extent of disease on their basis.
3. To assess the result of comparison with surgical findings.
4. To find predictive value of Diagnostic Nasal Endoscopy in diagnosis of sinonasal disease.

MATERIAL AND METHODS

The prospective study was carried out in the Department of Otorhinolaryngology from November 2016 to August 2017. A total of 50 Patients with Inclusion criteria were patient presenting with nasal complaints like nasal blockage, running nose, bleeding from nose, nasal mass, foul breath, foreign body in nose. Out of these, All patients underwent computed tomographic evaluation. The study included those patients who were clinically diagnosed as having chronic rhinosinusitis with or without nasal polyposis or having clinical evidence of other sinonasal pathologies in the age group 18 years and above irrespective of sex. Exclusion criteria were patients who undergone Functional Endoscopic Sinus Surgery previously , associated debilitating disease like HIV, DM, HTN and age less than 18 years. Local ethics committee approval was acquired for this study. A detailed history and ENT examination was done. Written and informed consent was taken before the diagnostic nasal endoscopy. 0 degree, 30 degree rigid Hopkins nasal endoscope were used (4 mm). All diagnostic nasal endoscopies were performed under local anesthesia. Nasal cavity was packed with patty of 4% Xylocaine with adrenaline (1:1000) or xylomethazoline/oxymethazoline. A complete examination was successfully accomplished in an organized manner with three mentioned nasal passes of the endoscopy. The findings of nasal endoscopy were recorded in the performa. Various endoscopic assisted procedures and surgeries were done as and if required. Patients were followed up after medical or surgical management at intervals of 1 week, 1 month, 3 months, and 6 months.

RESULTS

Total 50 patients were studied. The age ranged from 18 years to 60 years. Maximum patients were in 20-29 years of age group, which contribute 38% of total patients. In study male preponderance was 60% and female was 45%, Male to Female ratio was 3:2.

In study most common complaint was nasal obstruction seen in 44 patients (88%), followed by nasal discharge in 37 patients (74%), headache in 33 patients (66%), excessive sneezing in 28 patients (56%), pus on anterior rhinoscopy in 19 patients (38%),post nasal drip in 18 patients (36%,),anosmia/hyposmia in 11 patients (22%) while least common complaints was facial pain in 4 (8%). Many patients came with multiple complaints at a time for particular pathology, most common symptom with which patients presented considered as a primary complaints. The duration of the symptoms varied from 2 months to 13 years .Mean duration of symptoms was 3.24 years. According to the Sino-Nasal Assessment Questionnaire (SNAQ scoring) ,0 patients had score <10, 8 patients had score 10-20(16%), 26 patients had score 21-30(52%), 13 patients had score 31-40(26%), 3 patients had score 41-50(6%),and no patients had score >50, maximum score was 45 and minimum total score was 15.In clinical examination, on anterior rhinoscopic examination,2 patients (4%) were found to be normal, among the positive findings septal deviation were seen in 34 patients (68%).the other finding were turbinate hypertrophy in 19 patients (38%), discharge in 22 patients (44%), nasal mucosal abnormality in 12 patients(24%).The routine investigation were normal in all patients.

Diagnostic Nasal endoscopy was done in all the patients. In our study group, 8 patients had paradoxical middle turbinate (16%), septal deviation in 35 patients (70%), 25 patients had polyp (50%), 34 patients has nasal discharge (68%), 12 patients has mucosal abnormalities (24%),13 patients had inferior turbinate hypertrophy(26%), 9 patients had concha bullosa (18%).(TABLE.1).

Table 1: Diagnostic Nasal Endoscopy.

Findings	No of cases	Percentage
Polyp	25	50%
Paradoxical middle turbinate	8	16%
Septal deviation	35	70%
Nasal discharge	34	68%
Concha bullosa	9	18%
Inferior turbinate hypertrophy	13	26%
Mucosal abnormality	12	24%

Diagnostic Nasal Endoscopy findings were scored according to Lanza & Kennedy scoring system. Minimum total score was 2 and maximum total score was 12. (Table.2).

Table 2: DNE SCORE.

Score	Cases	Percentage
0-3	19	38%
4-6	25	50%
7-9	6	12%
10-12	0	0

On the basis of computed tomography findings patients were scored in accordance with their sinus score, findings were recorded. Maximum number belonged to score 7-12 (7 patients), followed by 7 patients in score 0-6, 6 patients in score 13-18, and 3 patients in score 19-24.Maximum score obtained was 24 and minimum being 4, mean Lund–Mackay score was 11.

In all the patients, who underwent surgery was done under endoscopic control or septoplasty or excision was done under GA or LA.

Operative findings was recorded based on surgical procedure performed in 20 patients, data was recorded mucosal abnormalities seen in 3 patients (15%), polyposis was recorded in 12 (60%) patients, pus was drained from 6 (30%)patients, turbinate changes was found in 4 (20%) patients and septal deviations was seen in 6(30%).

Our findings were extremely interesting and conclusive in this aspect of our study and we were able to draw a hypothesis based on this findings.

DISCUSSION

The development of modern rigid nasal endoscopy represents a major advance in rhinologic diagnostic capability. The study conducted by Aminnu Bakari et al.[6] and Levine et al.[7] had maximum number of patients in between 31 to 40 years with mean age 33.3 and 35.6 respectively. In our study majority of patients was in the age group of 20 to 29 years with total 19 cases .In the present study 30 patients were male while 20 patients were female with male to female ratio was 3:2. In the study conducted by Kirtane et al.[8] there were 48 (61.5%) males and 30 (38.4%) females and male to female ratio was 1.6:1. Abtin Tabaee.[9] had 39 (63.9%) male and 22 (36%) female with ratio 1.7:1 in his study. Similarly study conducted by Aminnu Bakari et al.[6] showed 42 (55.2%) male and 34 (44.7%) female and had ratio 1.2:1. In the study conducted by Kirtane et al.[8] the commonest complaint was nasal discharge seen in 61% patients, followed by nasal obstruction in 59% patients. In the study conducted by Aminnu Bakari et al.[6] the nasal discharge (97.4%) was the most common presenting complaints followed by nasal obstruction (94.7%).In our study the most common presenting complaints was nasal obstruction seen in 44 patients(88%) followed by nasal discharge in 37 patients(74%). Out of 22 patients of sinusitis, 16 (72.72%) patients had associated anatomical variations on diagnostic nasal endoscopy. This was well in agreement with the study done by Lolyd et al.[10] who reported a figure of 62%. Similarly study conducted by Levine et al.[7] Showed anatomical variation in 56.6% in his 150 studied patients. Diagnostic nasal endoscopy was of great significant in patients of epistaxis. It helped in accurate diagnosis of cause of epistaxis and proper management of the same. This measure was better tolerated and less uncomfortable as compared to nasal pack or balloon. This conclusion was consistent with those of McGarry et al.[11]

Diagnostic nasal endoscopy was useful in identifying conductive olfactory loss and associated pathology with it. Clinical examination failed to diagnose pathology in 11 (22%) cases of olfactory loss and endoscopy was necessary to make the proper diagnosis. This figure is close to the figure of 51% given by Allen et al.[12] Rigid endoscopy helped in careful manipulation and removal of nasal foreign bodies and rhinolith under direct vision which were posteriorly placed and were not visible on clinical examination. Also, posterior extent of rhinolith was carefully evaluated. This conclusion was also supported by studies of Keck et al.[13] and Hade et al.[14] Nasal endoscopy helps in exact localization and minimizing trauma to surrounding structure and prevents bleeding during foreign body removal. In this study endoscopic biopsy was taken in 6 patients with sinonasal mass. Nasal endoscopy showed exact site in the region of pathology from where biopsy had to be taken which help in accurate histopathological diagnosis and help to minimize the bias. This conclusion was supported in the study conducted by Abtin Tabaee et al.[9] who stated that office based nasal endoscopy with biopsy represent a safe and important tool in evaluation of sinonasal neoplasm and this procedure provides diagnostic information that may alter treatment decision. In this study 5 patient of olfactory disturbance had atrophic rhinitis which was best diagnosed and managed by nasal endoscopy. This conclusion was supported by studies of Sevil Ari et al.[15] who managed cases of atrophic rhinitis on regular follow up and endoscopic removal of nasal crust. In our study, anterior rhinoscopy did not reveal pathology and diagnosis in 39 cases (39%) which were diagnosed on Nasal endoscopy. This finding is consistent with Levine et al.[7] study showed a figure of 38.7%. Thus, nasal endoscopy is efficient over clinical examination for diagnosing nasal pathology.

CONCLUSION

Diagnostic nasal endoscopy is a better technique to detect various sinonasal pathologies as well as anatomical variations with great accuracy due to better illumination, magnified view and deflected angles, which are otherwise inaccessible on anterior rhinoscopy especially in the key area comprising the ostiomeatal complex in accordance with the other studies done previously. In pathological lesions including benign and malignant nasal masses brush cytology and histopathology is essential for its final diagnosis where diagnostic nasal endoscopy can prove useful in taking precise biopsy with minimal surgical trauma. Diagnostic nasal endoscopy has proved to be a better diagnostic modality compared to CT scan and routine radiography when conditions like middle meatal secretions, condition of mucosa, synechiae, polyps are looked for. It can detect early polypoidal and other pathological changes missed on CT which can aid in early diagnosis and medical management of sinonasal diseases thereby preventing patient from unnecessary surgical exposure as well as cost and radiation exposure. Follow up endoscopy gives an idea about the response to medical as well as surgical treatment. It is easily available, mostly inexpensive and the endoscopic images can be captured and recorded for documentation. It also helps to find out recurrence. In today's era of evidence based medicine, Nasal Endoscopy has a definite role in the early diagnosis of

various sinonasal diseases and should be viewed as mandatory part of a complete examination of the nose and sinuses. A strong argument can be made for incorporating endoscopy as first hand primary examination into the routine care of any patient with sinonasal disease even in small set ups.

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