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Role of Diagnostic Nasal Endoscopy in Chronic Rhinosinusitis

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ABSTRACT:

Chronic rhinosinusitis is caused by anatomical or mucosal abnormality of nose and paranasal sinuses.Till recently, the diagnosis of Rhinosinusitis was difficult to achieve for being based only on isolated symptoms. Though Endoscopic (or CT) guidelines along with symptomatic criteria have been added in the diagnosis of chronic rhinosinusitis by the AAO-HNS in 2007, very few studies have been carried out to define endoscopic signs of chronic rhino sinusitis such as anatomical or mucosal variations of the lateral wall of nose. Our prospective study of 100 cases was done at DYPatil Medical College Hospital, Kolhapur. The study shows that endoscopic findings play an essential role in the diagnosis of Chronic Rhinosinusitis and alleviates the need for unnecessary long term medication, unwarranted surgery or radiography.

KEY WORDS: Chronic Rhinosinusitis, Diagnostic Nasal Endoscopy.

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INTRODUCTION:

Chronic Rhinosinusitis (CRS) is the fifth most common disease treated with antibiotics[1]. Normal drainage of the paranasal sinuses depends on effective mucociliary clearance; which may be hampered due to anatomical and mucosal changes in the nose and Paranasal sinuses. Anterior rhinoscopy reveals little information with regard to the middle meatal cleft. Till recently, the diagnosis of Rhinosinusitis was difficult to achieve for being based only on isolated symptoms. From a clinical standpoint, engaging in long term therapy with steroids, antibiotics, and other adjunctive measures solely on the basis of symptom criteria would potentially over treat, or unnecessarily treat, six of ten presenting patients. The addition of objective criteria for diagnosis (2007 guidelines)[2], namely documenting inflammation in middle meatus as per guideline recommendations, if truly effective in improving diagnostic accuracy in CRS, would naturally be desirable.

MATERIALS & METHODS

This study was undertaken with aims to evaluate the place of endoscopy in the diagnosis of chronic rhino sinusitis and to increase the diagnostic accuracy in chronic rhino sinusitis so as to target treatment accordingly.

A prospective study of 100 cases of sinus diseases using diagnostic endoscopy was conducted in the department of ENT, D. Y. Patil Medical College Hospital & Research Centre, Kolhapur. Adults in the age group of 15-70 yrs were included in the study. Both male or female symptomatic for more than 12 weeks with 2 or more major criteria or 1 major criterion & 2 or more minor criteria were selected. Proper consent was taken. Major criteria include purulent anterior nasal drainage, purulent-discolored posterior nasal drainage, nasal obstruction, facial congestion or fullness, facial pain or pressure and hyposmia or anosmia. Minor symptoms include headache, ear pain or fullness, halitosis, dental pain, cough, fever, fatigue.

All cases underwent thorough ENT clinical examination, routine haemogram and urine examination. A diagnostic nasal endoscopy was done under local anesthesia and the findings were recorded. Sergury was performed in indicated patients after CT scan and other necessary additional investigations. In the remaining patients, conservative medical treatment was given and the patients were called for follow up after 7 days. Those responding were asked to continue the same line of treatment. The patients not responding to conservative management, were subjected to culture and sensitivity test of nasal discharge and antibiotic was advised as per the report. All cases were followed up at 7 days, 15 days and 30 days.

RESULTS

In our study, 63 patients (63%) were males while 37 patients (37 %) were females. Thus male to female ratio was 1.8:1. Common presenting symptoms were nasal obstruction, nasal discharge and headache. Figure 1 shows percentage distribution of symptoms seen in 100 patients.

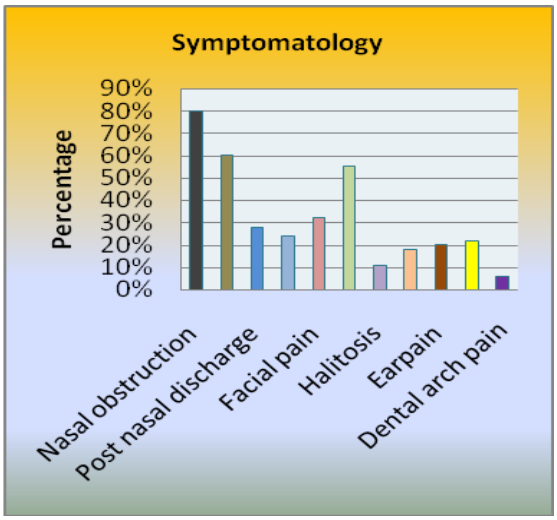

Fig I. Symptomatology in percentage

Table no. 1 shows the findings of diagnostic nasal endoscopy. Deviated nasal septum was the commonest finding and was seen in 63% of cases.

Table no. 1 The findings of diagnostic nasal endoscopy

Diagnosis	Ant Rhinoscopy	Nasal endoscopy
DNS	57	63
Spur	21	34
Inf. Turbinate Hypertrophy	43	39
Inf. Meatus	13	17
Enlarged Bulla Ethmoidalis	Not assessed	20
Uncinate Process variations	Not assessed -	33
Mid. Turbinate deformity	34	61
Acc. Ostia	Not assessed -	28
Pneumatized Sup. Turbinate	1	3
Sphenoethmoidal Recess	Not assessed -	9
Polyposis	11	19

In this study, Septal deviations were seen in 63(63%). The septum was deviated to right in 27cases (43%) and to left in 36 cases (57%). Spur was observed in 21 patients on ant rhinoscopy and 34 patients on diagnostic scopy. The middle turbinate was typical (normal) in 53(53%), paradoxically curved in 8(8%). Hypertrophied middle turbinate or concha bullosa was seen in 39(39%). The uncinate was normal in position in 67individuals, medialized in 23, turned anteriorly in 2, hypertrophied in 8 individuals.

On endoscopy, ethmoidal bulla was normal in 80% of cases whereas 19% had large bulla ethmoidalis and only 1% had hypoplastic. Accessory maxillary sinus ostium was seen in 28 patients. Out of these 28 cases, 11accessory Ostia were in anterior fontanelle and 13 in the posterior fontanelle. In 4 of patients, there were multiple accessory Ostia. Superior turbinate pneumatization was seen in 3(3%). Of these 1was on the right and 2 was on the left.

The sphenoid ostium could be visualized on diagnostic nasal endoscopy in 77%. The ostium was circular in 30%, Oval shaped in 45% and slit like in 25%. In the 23% in which it could not be visualized. 17% were due to narrow sphenoethmoidal recess and 6% were due to polyps.

A hypertrophied inferior turbinate was found in 39(39%). Of these 9(23%) were on the right and 6(15%) were on the left. In 24(62%) of patients, it was bilateral. Out of 100, 19 cases had nasal polyposis. Antrochoanal polyp in 5 and ethmoidal type in 14 cases.

Treatment modalities

The treatment modalities undergone in the 100 cases following endoscopy is as follows.

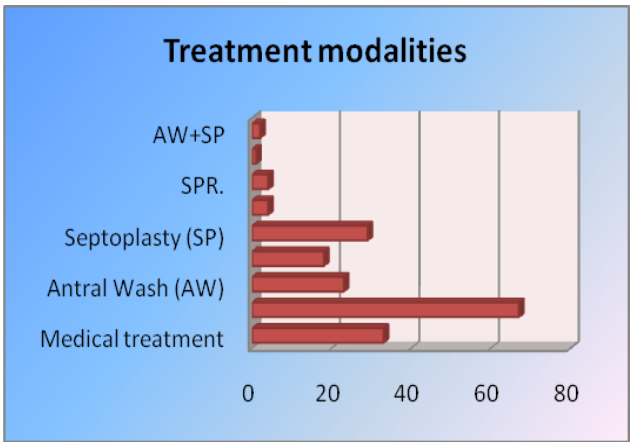

Fig II: Treatment modalities

DISCUSSION

In our study, age of patients varied between 17 to 66 years with the maximum number of patients in 21 to 30 years' category. Kirtane et al [3](1991) studied cases between 16 to 52 years, with majority of patents cases (46.78%) in the third decade.

63 patients (63%) were males while 37 patients (37 %) were females. In the study conducted by Kirtane et al (1991) there were 19 males and 13 females. Male to female ratio was 1.8:1 in our series. Septal deviation was seen in 63% of cases with majority of deviation to the left as compared to the right (36 left & 27 to the right). The reported incidence of septal deviations in literature ranges from 40% (Calhoun et al[4]) to 96.9% (Takanishi et al[5]). Thick septum was found in 4. The occurance of septal spurs was 36%. Among these, 44% had contact area with the turbinates.

Typically, the middle turbinate is said to have convex medial and concave lateral surfaces with smooth uniform curvature. This will not cause the obstruction of middle meatus with adequate space between the turbinate and septum. However, the middle turbinate in known for several variations. In our study, the middle turbinate was normal in 53%, paradoxically curved in 8% and hypertrophied in 39%.

An enlarged bulla ethmoidalis was defined as one that contacts or extends beyond the free margin of the uncinate and middle turbinate. This can result in a narrow hiatus semilunaris. We found large ethmoidal bulla in 19%. This correlates with the reported frequency by Lloyd[6] 17% and Lund VJ[7]18%. The bulla was typical in 80% and hypoplastic in 1%. Uncinate process is yet another anatomical variation giving rise to chronic rhinosinusitis. We found medially turned uncinate process in 23% and anteriorly turned uncinate process in 2%. It was typical in 67% and hypertrophied in 8%. This correlates well with 45.27% deviations reported by Liu X et al and 31% deflection reported by Danese M[8].

The accessory Ostium of the maxillary sinus is usually present in the anterior and posterior nasal fontanelles, the bone deficient areas in lateral nasal wall behind and below uncinate process. In our study, Accessory maxillary sinus Ostia were seen in 28% of cases in anterior & posterior fontanelles. We found inferior turbinate enlargement in 39%. Of these, in 75.8%, the large inferior turbinate was associated with ipsilateral maxillary sinus pathology.

Pneumatization of superior turbinate can occur from posterior ethmoid cells. We found a prevalence of superior turbinate pneumatization in 3 cases which is slightly lesser than reported by Ariyurek OM et al. (48%). We could not detect the presence of supreme turbinate in any of our cases. 19 cases of nasal polyposis were detected by diagnostic nasal endoscopy whereas conventional methods of examination like anterior rhinoscopy could detect 11 cases. We had 14 cases of ethmoidal polyposis and 5 cases of Antrochoanal polyps.

Accuracy in the diagnosis:

All the 100 symptomatic cases were examined by conventional ENT methods, but pathologies were detected in only 34 cases. Whereas nasal endoscopy showed pathology in 93 cases.

Routine ENT examination did not show any pathology in 59 cases. But, nasal endoscopy revealed the pathology in these cases. Routine rhinoscopy as well as diagnostic nasal endoscopy could not detect any pathology in 7 cases of chronic rhino sinusitis where CT scan was helpful.

CONCLUSION

Diagnostic nasal Endoscopy is definitely useful in diagnosis of etiology of chronic rhinosinusitis as compared to traditional methods like anterior rhinoscopy. Hence it is recommended to do diagnostic nasal endoscopy in each & every patient of chronic rhinitis. However, the complementary use of CT scanning after diagnostic nasal endoscopy prior to endoscopic sinus surgery is advised.

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