



DISEASES OF NOSE AND PARANASAL SINUSES -CLINICAL, RADIOLOGICAL AND OPERATIVE COMPARISON

Otorhinolaryngology

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KEYWORDS

A variety of Sino-nasal conditions (inflammatory/infective, benign, malignant) are very common lesions encountered in clinical practice with the reported incidence of 1 to 4% of the population. Neoplasm of the sinuses and nasal cavity account for 0.2-0.8% of all carcinomas (1). Chronic sinusitis is one of the frequently (16.3%) encountered problems in otorhinolaryngological practice (2). The correct diagnosis of a patient presenting with symptoms of Sino-nasal disease, and evaluation of etiological and predisposing factors play a key role in the treatment of this common diseases. In fact, diagnosis is an important aspect to have a clue to cure. In this study, we have compared the clinical findings and CT findings with intraoperative findings of the patients with Sino-nasal diseases to have an insight into necessity, if either of two or both in combination is required in diagnosis of Sino-nasal pathologies and to see how accurate they are by comparing them with the final histopathological report.

AIMS AND OBJECTIVES

- 1) To correlate preoperative clinical and CT scan findings with operative findings in endoscopic sinus surgery in patients with sinonasal diseases.
- 2) To understand anatomical variations in patients undergoing endoscopic sinus surgery.
- 3) To find out discrepancies of CT findings with operative findings if any.

MATERIALS & METHODOLOGY

The present study included all patients attending the E.N.T department who had nasal and paranasal sinus diseases, not responding to medical line of management and required surgical treatment for their disease at L.G. hospital, Maninagar, Ahmedabad.

A total of 70 patients who had clinical features suggestive of Sino-nasal diseases were evaluated using a standard proforma and underwent the following investigative procedures systematically as and when needed. They were willing to undergo endoscopic sinus surgery.

Inclusion Criteria:

All patients having Sino-nasal diseases for more than 3 months duration not responding to medical treatment in whom CT scan can be done and need Endoscopic Sinus Surgery (ESS).

Age: Between 10-70 years

Patients who were willing to give consent for surgery and consent for participation in the study.

Exclusion Criteria:

Patients having Sino-nasal diseases responding to medical treatment.

Patients not willing to undergo ESS

Patients who were not willing to give consent for participation in the study.

Methods Of Collection Of Data:

1. The cases selected for the study were subjected to detailed history taking and examination.
2. A routine hemogram (HB, BT, CT, TC, DC), blood sugar, routine renal function test, liver function test was done.
3. All the patients in active stage of the disease were treated with course of suitable antibiotic, systemic antihistamines and local decongestants when required.
4. Each patient underwent a systematic diagnostic nasal endoscopy and computed tomography of nose and paranasal sinuses.
5. All patients underwent endoscopic sinus surgery.

OBSERVATIONS & DISCUSSION

Computed Tomography Scan (CT scan) and Diagnostic Nasal Endoscopy (DNE) both the investigations have their own merits and demerits. In this study, we will see, the requirement of both is necessary or not in the diagnosis of Sino-nasal pathologies both individually and in combination.

In the present study of 70 patients, 52 patients were under category of Inflammatory/Infective lesions. For this group mean age was 33 which is comparable to studies like Rawat Ds (2013) (1) and Dasgupta et al (1997) (20) in which mean age group was 30.11 and 33 respectively.

Comparison of gender distribution of Inflammatory/Infective lesions with other studies

	No. of male (%)	No. of female (%)	Total
Present study	33 (63.46%)	19 (36.54%)	52
Rawat Ds (2013)	114 (63%)	67 (37%)	181
Dasgupta et al (1997)	115 (66%)	60 (34%)	175

Male predominance was found for Inflammatory/infective Sino-nasal lesions in the present study, male accounted for 63.46% of the lesions and female accounted for 36.54%.

The similar result was obtained by Rawat Ds (2013) (1) and Dasgupta et al (1997) (20).

The male dominance may indicate the genetic predisposition for developing various diseases in males or it could reflect the male dominated society where the male members are exposed to varied environmental stress factors in the process of earning a livelihood for the family (25).

In the present study nasal obstruction and nasal discharge were the

commonest symptoms which were present in 61(87.14%) and 45(64.28%) cases respectively. This can be explained by the presence of higher number (74.29%) of cases of chronic rhinosinusitis. The next frequently occurring complaint was headache present in 26(36.11%) cases. The other symptoms include, nasal bleeding 22(31.42%), which was one of the main complaints by patients of angiofibroma and hemangiomas. 5(7.14%) patients had complaint of pain; most of those were the patients who belonged to malignant lesions.

Distribution of symptoms and its comparison with other study				
Symptoms	Present study		Rawat Ds (2013)	
	No. of Patients	Percentage	No. of Patients	Percentage
Nasal blockage	61	87.14	229	86.74
Nasal discharge	45	64.28	173	65.53
Epistaxis	22	31.42	90	34.09
Headache	26	36.11	85	32.19
Sneezing	16	22.85	43	16.28
Disturbance of smell	7	10.00	100	37.87
Pain	5	7.14	18	6.81

Distribution of signs according to clinical and nasal endoscopic examination

Signs	Present study	
	No. of patients	Percentage
Nasal mucosa: congested	28	40.00
Nasal mucosa: pale	24	34.28
Nasal mucosa: normal	8	11.42
Inferior turbinate hypertrophy	22	31.42
Middle turbinate hypertrophy	10	14.28
Nasal polyps	50	71.42
Nasal mass	11	15.71
Sinus tenderness	21	30.00
Deviated nasal septum	35	50.00
Bleeds on touch	14	20.00
Mucin like material	8	11.42
Mucopus	5	7.14

In the present study by clinical and nasal endoscopic examination the commonest clinical sign was presence of polyps seen in 50 (71.42%) patients. Next most common sign was deviated nasal septum seen in 35 (50%) patients with most of them being asymptomatic. Nasal mass was seen in 11 (15.71%) patients. 14 (20%) patients were having bleed on touch sign which can be explained by comparatively large number of cases of angiofibroma, hemangioma. Sinus tenderness was present in 21 (30%) patients.

Sinus involvement according to CT scan in the present study

Sinus involved	No. of patients	Percentage
Maxillary	64	91.42%
Ethmoid	45	64.28%
Sphenoid	40	57.14%
Frontal	36	51.42%

In the present study, most common sinus involved is maxillary sinus (91.42%). The next sinus commonly involved is ethmoid (64.28%), followed by frontal (57.14%) and sphenoid (51.42%). Patients were also having simultaneous involvement of more than one sinus in the CT scan findings.

Few anatomical variants like septal deviation, paradoxical middle turbinate have kappa value 1, meaning a very good correlation between CT scan and DNE. Other variants also show a very good correlation, which means DNE findings are as reliable as CT scan for structures visualized by DNE like deviated nasal septum, paradoxical middle turbinate. But there are certain structures which can be only identified upon CT scan like Haller cells, Onodi cells.

It means both the method DNE and CT are complimentary to each other. Few structures are better visualized in DNE and few are better identified in CT.

Thus, both of them are prerequisite before undergoing ESS.

Diagnostic Nasal Endoscopy (DNE) can correctly identify inflammatory/infective conditions like rhinolith, nasolabial cyst with similar operative findings with a perfect kappa score 1. In cases of b/l nasal polyps, a very good level of correlation is seen between DNE and HPE with kappa score 0.87. AC polyp also showed a good level of

correlation with 0.69 kappa score.

DNE can grossly differentiate between benign lesion/polyp or malignant mass, but for the intricate anatomy CT scan is mandatory before ESS.

CONCLUSION

From the present study it is concluded that Sino-nasal pathology has a higher preponderance in male patients and is commonly seen in the age group of 20 to 40 years.

- Both nasal endoscopy and CT scan are objective measures that can increase accuracy of diagnosis in nasal pathologies.

- Diagnostic nasal endoscopy can prove to be a better diagnostic modality compared to CT scan when conditions like middle meatal secretions, condition of mucosa, 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 Sino-nasal diseases thereby preventing patient from unnecessary surgical exposure

- For areas that are not accessible to nasal endoscopy, CT can be useful in identifying disease and its extension.

- CT scan has got a better advantage compared to DNE in detecting the anatomical variants like haller cells, onodi cells, concha bullosa, olfactory fossa depth, as well as to know the condition of sinus cavity and the extent of disease in sinuses.

- CT scan is mandatory as pre-operative work up in patients undergoing ESS as it guides like a "Anatomic Road Map" on which to operate and to prevent per-operative and post-operative complications

- Histopathology gave a confirmatory diagnosis in all the cases in present series and was the gold standard investigation in all sino-nasal diseases.

- Nasal Endoscopy and CT scan when combined yield valuable information regarding anatomical variants, mucosal changes and extent and severity of the disease.

- It is concluded that nasal endoscopy and CT scan are complementary in the diagnosis and management of the Sino-nasal diseases but significant lesions can be missed on either clinical or radiological evaluation and a thorough histopathological evaluation should be done in all the cases of sino-nasal lesions for accurate diagnosis and management.