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A CROSS SECTIONAL STUDY OF USE OF DIAGNOSTIC NASAL ENDOSCOPIC (DNE) EVALUATION IN CASES SERIES OF CHRONIC SUPPURATIVE OTITIS MEDIA (CSOM) PATIENTS .

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KEYWORDS :

AIM OF THE STUDY –

To know the importance of diagnostic nasal endoscopy examination in evaluation of diagnosis of patients suffering with chronic suppurative otitis media

MAIN OBJECTIVE OF THIS STUDY-

The main objective this study is by doing diagnostic nasal endoscopy examination to rule out the main root cause of pathology involving in any of the following mentioned structures osteomeatal complex unit , swellings in nose and nasopharynx, choanal status , eustachian tube opening blockage at nasopharyngeal end , gross deviated nasal septum, bilateral hypertrophied inferior turbinates, paradoxical middle turbinate, adenoid hypertrophy, nasal polyposis. Materials and methods

The present cross-sectional study “DIAGNOSTIC NASAL ENDOSCOPIC EVALUATION IN CASES OF CHRONIC SUPPURATIVE OTITIS MEDIA” was conducted in department of Otorhinolaryngology & Head & Neck Surgery, AMC, VISAKHAPATNAM between January 2015 to November 2016. 100 patients with CSOM of both sexes, who met the inclusion criteria attending our OPD of ENT were selected for the study.

(a) Inclusion criteria:

1. Patients of both sexes between the age group of 10-60 years presenting with CSOM of both tubotympanic and atticointral types with active discharging ear.
2. Patients who gave consent for the above study.

(b) Exclusion criteria:

1. Traumatic perforation
2. Traumatic dislocation of ossicles
3. Acute infection of nose and PNS
4. Age < 10 years
5. Acute suppurative otitis media
6. Otitis media with effusion
7. Carcinoma of middle ear

100 patients fulfilling the above criteria were selected for the study. Complete clinical history, thorough ENT examination & Tuning fork tests, microscopic ear examination was done in all cases. Diagnostic nasal endoscopy (DNE) is a routine component of clinical evaluation of every patient with evidence of suspected disease of the Nose and PNS. Nasal endoscopy allows thorough evaluation of intranasal anatomy and identification of pathology that is impossible to see using standard techniques of anterior rhinoscopy and headlight or head mirror. It is proven to be more sensitive than computerised tomography (CT) for evaluation of accessible disease. The endoscope helps the examiner recognize changes that may remain hidden.

OBSERVATION AND RESULTS

The present study “Diagnostic nasal endoscopic evaluation in cases of chronic suppurative otitis media” was conducted during the period of January 2015 to November 2016 in 100 patients, attending our out-patient department (OPD) of otorhinolaryngology in our institution. The results and analysis of this study are as follows.

1. AGE DISTRIBUTION:

Age has a great influence on the course of disease. The disease is mainly observed in the age group of 10-30 years. The age of the patients ranged between 10-60 years..

TABLE 1: AGE DISTRIBUTION

Age group	No. of patients	Percentage
10-20	40	40
21-30	36	36
31-40	14	14
41-50	6	6
51-60	4	4

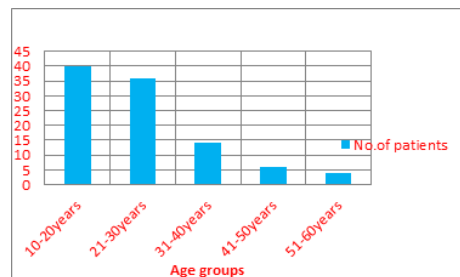


FIG 8: Bar chart of age distribution

2. SEX DISTRIBUTION:

Males were found to be slight dominating over females in this study. Out of the 100 patients included in this study 54 patients were males and 46 patients were females.

TABLE 2: SEX DISTRIBUTION.

Sex	No. of patients	Percentage
Male	54	54
Female	46	46

SEX DISTRIBUTION

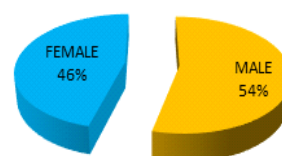


FIG 9: Pie chart of sex distribution

3. INCIDENCE OF SIDE OF THE EAR INVOLVED:

The side of involvement was equal and in 12 cases both ears were affected.

TABLE 3: INCIDENCE OF SIDE OF EAR INVOLVED

Side	No. of patients	Percentage
Right side	38	38
Left side	38	38
Both ears	24	24

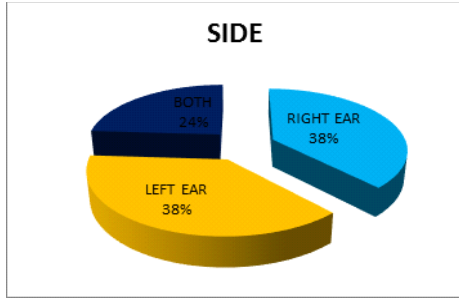


FIG 10: Pie chart of side of ear involved

4. TYPE OF CSOM

Out of 100 patients, Tubotympanic type of CSOM was noted in 54 patients and atticointral type of CSOM in 46 patients.

TABLE 4: TYPE OF CSOM

Type	No. of patients	Percentage
Tubotympanic	54	54
Atticoantral	46	46

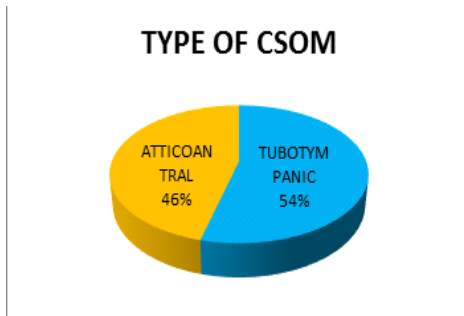


FIG 11: Pie chart of type of CSOM

5. PATHOLOGICAL FINDINGS OBSERVED DURING DIAGNOSTIC NASAL ENDOSCOPY

Out of the 100 patients in this study abnormal findings were noted 76 patients and in 24 patients no abnormality was detected.

TABLE 5: PATHOLOGICAL FINDINGS IN DNE

S.NO	PATHOLOGICAL FINDINGS	NO.OF PATIENTS	%
1.	Eustachian tube(ET) dysfunction	64	64
	a)Edema around the ET orifice	28	28
	Right	12	12
	Left	12	12
	Both	4	4
	b)Mucopurulent discharge over ET orifice	10	10
	Right	4	4
	Left	0	0
	Both	6	6
	c)Atrophy of ET orifice	12	12
	Right	2	2
	Left	2	2
	Both	8	8
	d)Patulous Eustachian tube	4	4
	e)Compression of ET orifice	10	10

2.	Deviated nasal septum	68	68
	a)Right side	32	32
	Posterior to middle turbinate	16	16
	Anterior to middle turbinate	12	12
	Spur	4	4
	b)Left side	36	36
	Posterior to middle turbinate	12	12
	Anterior to middle turbinate	12	12
	Spur	12	12
3	Adenoids	10	10
4	Pale boggy inferior turbinate	12	12
5	Inferior turbinate hypertrophy	8	8
	a)Right side	2	2
	b)Left side	6	6
6	Atrophy of turbinates	2	2
7	Enlarged Middle turbinate	32	32
	a)Right side	10	10
	b)Left side	22	22
8	Paradoxical middle turbinate	18	18
	a)Right side	12	12
	b)Left side	6	6
9	Double or second middle turbinate	6	6
	a)Right side	0	0
	b)Left side	6	6
10	Discharge from ostium of maxillary sinus	8	8
	a)Right side	2	2
	b)Left side	4	4
	c)Both	2	2
11	Discharge from sphenothmoidal recess	4	4
	a)Right side	4	4
	b)Left side	0	0
12	Large ethmoidal bulla	32	32
	a)Right side	12	12
	b)Left side	20	20
13	Bilateral ethmoidal polypi	2	2
14	Large Agger nasi cell	2	2
15	Medialized Uncinate process	34	34

6. CORRELATION BETWEEN PATHOLOGICAL FINDING AND TYPE OF CSOM:

Out of the 100 patients abnormalities were observed only in 76 patients (76%) and in 24 patients no abnormality was observed. Out of the 54 patients of tubotympanic type in 48 patients (88.8%) abnormality was noted and in 6 patients no abnormality was noted. Out of the 46 patients of atticointral type in 28 patients (60.8%) abnormality was noted and in 18 patients no abnormality was noted.

TABLE 6: CORRELATION BETWEEN PATHOLOGICAL FINDINGS AND TYPE OF CSOM

S.NO	PATHOLOGICAL FINDING	TUBOTYMPANIC	ATTICOANTRAL
1.	EUSTACHIAN TUBE DYSFUNCTION	42	22
	a)edema around the ET orifice	18	10
	b)discharge over the orifice of ET.	8	2
	c)atrophy of orifice of ET	6	6
	d)patulous ET	2	2
	e)compression of ET orifice	8	2
2.	Deviated nasal septum	42	26
3.	Adenoids	8	2
4.	Pale boggy inferior turbinate	8	4
5.	Inferior turbinate hypertrophy	6	2
6.	Atrophy of turbinates	2	-
7.	Enlarged middle turbinate	18	14
8.	Paradoxical middle turbinate	14	4
9.	Double or second middle turbinate	6	-
10.	Discharge from ostium of maxillary sinus	6	2
11.	Discharge from sphenothmoidal recess	4	-

12.	Large ethmoidal bulla	22	10
13.	Bilateral ethmoidal polypi	2	-
14.	Large agger nasi cell	2	-
15.	Medialized Uncinate process	22	12

7. Correlation Between Pathological Finding And Type Of Csom In Relation To Age Of Patients:

Out of the 100 patients in this study 40 were in age group of 10-20 years, 36 were in age group of 21-30 years, 14 were in age group of 31-40 years, 6 were in age group of 41-50 years, and 4 were in age group of 51-60 years.

TABLE 7: Correlation Between Pathological Finding And Type Of Csom In Relation To Age Of Patients:

S.No	Pathological finding	Tubotympanic					Atticoantral				
		10-20	21-30	31-40	41-50	51-60	10-20	21-30	31-40	41-50	51-60
1.	ET abnormality	20	12	6	4	2	6	6	4	2	2
	Edema around the orifice of ET	6	4	4	2	2	-	2	2	2	-
	discharge over the orifice of ET	2	4	-	2	-	2	-	-	-	-
	Atrophy of orifice of ET	2	4	2	-	-	2	2	-	-	2
	Patulous eustachian tube	2	-	-	-	-	-	-	2	-	-
	Compression of eustachian tube orifice	8	-	-	-	-	2	-	-	-	-
2.	Deviated nasal septum	20	14	4	4	-	6	10	4	4	2
3.	Adenoids	8	-	-	-	-	2	-	-	-	-
4.	Pale boggy inferior turbinate	8	-	-	-	-	2	2	-	-	-
5.	Compensatory hypertrophy of inferior turbinate	-	6	-	-	-	-	-	-	2	-

S.No	Pathological finding	Tubotympanic					Atticoantral				
		10-20	21-30	31-40	41-50	51-60	10-20	21-30	31-40	41-50	51-60
6.	Atrophy of turbinates	2	-	-	-	-	-	-	-	-	-
7.	Enlarged middle turbinate.	4	8	4	2	-	4	4	2	2	2
8.	Paradoxical middle turbinate	8	4	2	-	-	2	-	2	-	-
9.	Double or second middle turbinate	2	4	-	-	-	-	-	-	-	-
10.	Discharge from ostium of maxillary sinus	-	4	2	-	-	-	-	-	2	-
11.	Discharge from sphenoethmoid alrecess	-	2	2	-	-	-	-	-	-	-
12.	Large ethmoidal bulla	10	4	2	6	-	4	2	2	2	-
13.	Bilateral ethmoidal polypi	2	-	-	-	-	-	-	-	-	-
14.	Large agger nasi cell	-	2	-	-	-	-	-	-	-	-
15.	Medialized uncinat	8	10	2	2	-	4	6	-	2	-

8. CORRELATION BETWEEN PATHOLOGICAL FINDING AND TYPE OF CSOM IN RELATION TO SEX OF THE PATIENTS: Out of the 100 patients 54 were of tubotympanic type and 46 were of atticoantral type. Out of the 100 patients 54 were males and 46 were females. Distribution of pathological finding is as follows:

TABLE 8: Correlation between pathological finding and type of CSOM in relation to sex of the patients.

S.No	Pathological finding	Tubotympanic type of CSOM		Atticoantral type of CSOM	
		Male	Female	Male	Female
1.	Eustachian tube abnormality	24	18	10	12
	a)Edema around the orifice of ET	14	4	4	3
	b)Discharge over orifice of ET	2	6	2	-
	c)Atrophy of ET orifice	2	4	2	2
	d)Patulous ET	-	2	-	2
	e)Compression of ET orifice	6	2	2	-
2.	Deviated nasal septum	26	16	14	12
3.	Adenoids	6	2	2	-
4.	Pale boggy inferior turbinate	4	4	2	2
5.	Compensatory hypertrophy of inferior turbinate	4	2	-	2
6.	Atrophy of turbinate	-	2	-	-
7.	Enlarged middle turbinate	6	12	6	8
8.	Paradoxical middle turbinate	10	4	2	2
9.	Double or second middle turbinate	4	2	-	-
10.	Discharge from ostium of maxillary sinus	4	2	2	-
11.	Discharge from sphenoethmoidal recess	4	-	-	-
12.	Large ethmoidal bulla	12	10	4	6
13.	Bilateral ethmoidal polypi	-	2	-	-
14.	Large agger nasi cell	2	-	-	-
15.	Medialized UP	18	4	8	4

9. CORRELATION BETWEEN PATHOLOGICAL FINDINGS AND 10 CASES OF CSOM FOR WHICH SURGERY WAS DONE:

Out of the 100 patients in study only 10 cases were postoperative cases in which there was failure of surgery. Of which are 8 were tubotympanic type and 2 cases were atticoantral type and have previously undergone TYPE 1 tympanoplasty and cortical mastoidectomy respectively.

10. CORRELATION BETWEEN EUSTACHIAN TUBE DYSFUNCTION AND DEVIATED NASAL SEPTUM:

Out of the 100 patients in 64 patients Eustachian tube dysfunction was observed and in 68 patients deviated nasal septum was observed. In 54 patients both Eustachian dysfunction and DNS were observed.

DISCUSSION

The present study was conducted in our department of ENT, in our institution between January 2015 to November 2016. And in our study of 100 patients, with various ages between 10-60 years. We found that our results nearly correlated with the above study.

Sex distribution: In our present study of 100 cases, 54 were male and 46 were female, the M:F ratio is 1:1.7, which is in contrast to the existing literature.

Incidence of the side of ear involved: In our study of 100 patients, we found in 38 cases right ear were involved and in 38 cases left ear were involved and in 24 cases both ears were involved.

Type of CSOM:

In our study of 100 cases of CSOM, 54 were tubotympanic type (54%) and 46 were of atticoantral type (46%). In our study of 100 cases of CSOM, following diagnostic nasal endoscopy eustachian tube

abnormalities seen 64 cases(64%). Results of our study nearly correlates with the above study. In our study of 100 cases of CSOM, on diagnostic endoscopy we found deviated nasal septum in 68% cases, Eustachian tube abnormality in 64% cases, medialized uncinata in 34% cases, enlarged middle turbinate in 32% cases, large ethmoidal bulla in 32% cases% cases. .

CORRELATION BETWEEN PATHOLOGICAL FINDING AND TYPE OF CSOM:

In our study, Out of the 100 patients abnormalities were observed only in 76 patients (76%) and in 24 patients no abnormality was observed. Out of the 54 patients of tubotympanic type in 48 patients (88.8%) abnormality was noted and in 6 patients no abnormality was noted. Out of the 46 patients of atticointral type in 28 patients (60.8%) abnormality was noted and in 18 patients no abnormality was noted.

CORRELATION BETWEEN PATHOLOGICAL FINDING AND TYPE OF CSOM IN RELATION TO AGE OF THE PATIENT:

In our study out of 100 cases, 54 were of Tubotympanic and 46 were of Atticoantral type of CSOM. Out of the 54 patients of tubotympanic type in 48 patients (88.8%) abnormality was noted and in 6 patients no abnormality was noted. Out of the 46 patients of atticointral type in 28 patients (60.8%) abnormality was noted and in 18 patients no abnormality was noted.

Among cases of Tubotympanic type:Eustachian tube dysfunction/ abnormality was found to be more common in 10-20 Deviated nasal septum was found to be more common in 10-20 years age group(20),Enlarged middle turbinate was more common in 21-30 years age group(8),Paradoxical middle turbinate was more common in 10-20 years age group(10),Large ethmoidal bulla was more common in 10-20 years age group(10),Medialized uncinata was more common in 21-30 years age group(10).

Among cases of atticointral type:Eustachian tube dysfunction/ abnormality was found to be more common in 10-20 and 21-30 years age groups(6), Deviated nasal septum was more common in 21-30 age group(10),Enlarged middle turbinate was more common in 10-20 and 21-30 age groups(4),Paradoxical middle turbinate was more common in 10-20 and 31-40 years age groups(2),Large ethmoidal bulla was more common in 10-20 years age group years(4),Medialized uncinata was more common in 21-30 years age group(6).

CORRELATION BETWEEN PATHOLOGICAL FINDING AND TYPE OF CSOM IN RELATION TO SEX OF THE PATIENTS: In our study, Out of the 100 patients 54 were of tubotympanic type and 46 were of atticointral type. Out of the 100 patients 54 were males and 46 were females:

Among cases of tubotympanic type:Eustachian tube dysfunction was more common in males(57%),DNS was more common in males (61%),Adenoids were more common in males(60%),Pale boggy Inferior turbinate were equal in both sexes, Inferior turbinate hypertrophy was more common in males.(67%), Atrophy of turbinates was more common in females(100%), Enlarged middle turbinate was more common in females(67%), Paradoxical middle turbinate was more common in males(71%), Double middle turbinate was more common in males(67%),Discharge from ostium of maxillary sinus was more common in males(67%), Discharge from sphenoidal recess was more common in males(100%),Large ethmoidal bulla was more common in males(100%), Bilateral ethmoidal polyp was more common in females (100%),Large agger nasi was more common in males (100%),Medialized uncinata more common in males (81%)

Among cases of atticointral type of CSOM: Eustachian tube dysfunction was more common in females(54%), DNS was more common in males(53%),Adenoids were more common in males(100%),Pale boggy Inferior turbinate were equal in both sexes, Inferior turbinate hypertrophy was more common in females (.100%),Atrophy of turbinates - was not found in any case,Enlarged middle turbinate was more common in females (57%),Paradoxical middle turbinate was equal in both sexes,Double middle turbinate- was not found in any case,Discharge from ostium of maxillary sinus was more common in males(100%), Discharge from sphenoidal recess- was not found in any case, Large ethmoidal bulla was more common in females(60%),Bilateral ethmoidal polyp- was not found in any case, Large agger nasi was not found in any case, Medialized uncinata process more common in males(81%).

CORRELATION BETWEEN PATHOLOGICAL FINDINGS AND 10 CASES OF CSOM FOR WHICH SURGERY WAS DONE:

In our study of hundred cases of CSOM, there were 10 postoperative cases in which there was failure of surgery. Of these 10 cases 8 were of tubotympanic type and 2 were of atticointral type. The most common pathological finding in these cases was Eustachian tube dysfunction (60%) and the next commonest one is deviated nasal septum(40%).

CORRELATION BETWEEN EUSTACHIAN TUBE DYSFUNCTION AND DEVIATED NASAL SEPTUM:

Out of the 100 patients in 64 patients eustachian tube dysfunction was observed and in 68 patients deviated nasal septum was observed. In 54 patients both Eustachian dysfunction and DNS were observed. Out of with 20 were females and 34 were males. And of these, 38 were of tubotympanic type and 16 were atticointral type.

SUMMARY

It is a fact that the diseases of the middle ear cleft of both varieties take its origin from the pathology of the eustachian tube. Hitherto the status of the eustachian tubal opening could not be studied satisfactorily except by advanced techniques. On the advent of nasal endoscope new horizons have been explored, inaccessible sites have become accessible and accessible sites have become more accessible. Detailed examination of the nasal cavities including the turbinates, meati and openings of various sinuses and the nasopharynx including the openings of the eustachian tube etc. has become possible by means of nasal endoscopy. These facts regarding the origin of the pathological process of the middle ear disease have been confirmed in this present study. The purpose of this study is to study various abnormalities in the nose & nasopharynx leading to chronic suppurative otitis media. In our study we selected 100 cases based on our inclusion criteria, randomly from our out-patient department at GOVERNMENT ENT HOSPITAL ,VISAKHAPATNAM. Out of these 100 patients agegroups varied from 10-60 years. Age group with most number of patients is 10-20 years and age group with Least number of patients is 51-60years group. Out of these 100 cases, 54 were males and 46 were females. Both sides of the ear are involved equally. Both ears are involved in 24 cases. Among these 100 cases 54 were of tubotympanic type and 46 were atticointral type. In this study abnormalities of nose and nasopharynx were noted in 76 cases and In 24 cases no abnormality was detected. The major abnormality detected was Deviated nasal septum in 68 patients. Deviation was present on right side in 32 patients and on left side in 36 patients. Among these 68 patients, the deviation is posterior to middle turbinate in 28 cases and anterior to middle turbinate in 24 cases and spur in 16 cases. The second commonest abnormality detected is Eustachian tube dysfunction in 64 patients. Of these 64 patients edema around the orifice of eustachian tube was noticed in 28 patients, mucopurulent discharge over the orifice of eustachian tube was noticed in 10 patients, atrophy of the orifice of eustachian tube was noticed in 12 patients, patulous eustachian tube was noticed in 4 patients and compression of eustachian tube orifice by adenoids was noticed in 10 patients. The third most common abnormality is medialized uncinata it was noted in 34 Patients. The next commonest are enlarged middle turbinate noted in 32 cases, large ethmoidal bulla in 32 cases and paradoxical middle turbinate in 18 cases. other less common abnormalities are pale boggy turbinates seen in 12 cases, adenoids in 10 cases, discharge at maxillary ostium in 8 cases, discharge at sphenoidal recess in 6 cases double middle turbinate in 6 cases, atrophy of turbinates in 2 cases, bilateral ethmoidal polyposis and large agger nasi in 2 cases.

CONCLUSION

From our study of 100 cases of chronic suppurative otitis media, we have drawn following Conclusions:Among CSOM cases age group most commonly affected between 10-60 years is 10-20 years age group.Among CSOM cases sex more commonly affected is MALES.Among CSOM cases both ears are EQUALLY involved.Among CSOM cases more common type is TUBOTYMPANIC TYPE. Most common pathological abnormalities noted on diagnostic nasal endoscopy Were DEVIATED NASAL SEPTUM and EUSTACHIAN TUBE DYSFUNCTION and MEDIALIZED UNCINATE. Pathological abnormalities on diagnostic nasal endoscopy were more common TUBOTYMPANIC TYPE of CSOM. Pathological abnormalities like Deviated nasal septum, Eustachian dysfunction Medialized Uncinate process and paradoxical middle turbinate found to be more common in MALES. Pathological abnormality like enlarged middle turbinate, were more

common in FEMALES. Large ethmoidal bulla was found in EQUAL number of cases of both sexes. On the basis of findings of our current study it can be concluded that a thorough diagnostic nasal endoscopic evaluation of all Chronic suppurative Otitis Media patients is essential in comprehensive management of the disease.

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