



CORRELATION BETWEEN CHRONIC SUPPURATIVE OTITIS MEDIA AND DEVIATED NASAL SEPTUM OF THE IPSILATERAL SIDE.

ENT

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ABSTRACT

Introduction: Chronic Suppurative Otitis Media (CSOM) is chronic and persistent infection of middle ear cleft presenting with a permanent perforation, with or without ear discharge, it frequently has an underlying nasal pathology, which can worsen the middle ear disease secondary to Eustachian tube dysfunction, leading to negative middle ear pressure, tympanic membrane retraction, chronic otitis media with effusion and/or cholesteatoma and is also an important cause of preventable hearing loss. thus this study has been undertaken to establish correlation between CSOM and DNS of the ipsilateral side. **Method:** A study was conducted in the ENT department of Basaweshwar Teaching and General Hospital, MRMC, Gulbarga, Karnataka. The study group included 100 randomly selected patients with CSOM from the outpatient department. A pre-designed proforma was utilized for the study. Detailed history was taken, followed by a thorough ENT examination, and relevant investigations were performed. **Results:** In this study, the prevalence of nasal disease in patients with CSOM was 80 %. Out of 80 patients, 70 patients had co-existent DNS. Among the 70 cases, 58 patients showed ipsilateral DNS. **Conclusion:** Patients who have CSOM secondary to nasal and/or PNS pathology need to have both problems addressed. Therefore, those needing ear surgery should have nasal problems attended to first, if an ear operation is to be meritorious.

KEYWORDS

Chronic Suppurative Otitis Media (CSOM), Deviated Nasal Septum (DNS), Ipsilateral nasal deviation, Middle ear infection, Eustachian tube dysfunction

INTRODUCTION

The term chronic suppurative otitis media (CSOM) describes a chronic middle ear disease and is defined as 'chronic inflammation of the middle ear and mastoid cavity, which presents with recurrent ear discharge or otorrhea through a tympanic membrane perforation.

Chronic inflammation and changes within the ME cleft are not necessarily associated with a non-intact eardrum.⁽¹⁾

The main risk factors associated with chronic suppurative otitis media are a) frequent episodes of acute otitis media, b) upper respiratory tract infections, c) any trauma affecting the tympanic membrane, and d) poor nutrition and living conditions.⁽²⁾

The middle ear cleft constitutes the following namely, Eustachian tube, tympanic cavity, attic, aditus, antrum and the mastoid air cells which are found to be in continuity with the epithelium of nose and nasopharynx through a patent Eustachian tube (ET).⁽³⁾

Since the mucosa of the nose and paranasal sinuses are in continuity with the mucosa of the middle ear cleft, pathologies in the sinonasal region can influence the normal health of the middle ear & mastoid.

Chronic infections of the nose and paranasal sinuses (PNS) can lead to Eustachian tube dysfunction.

The presence of a DNS can transform the laminar airflow in the nasal cavity to that of a turbulent nature and further contribute to persistence of middle ear pathology.

Other pathologies such as allergic rhinitis, nasal polyposis and nasopharyngeal pathologies namely, adenoids & tumours of the nasopharynx can also cause chronic obstruction of ET, in turn leading to CSOM.

Patients who have CSOM secondary to nasal and/or PNS pathology need to have both problems addressed. Therefore, those in need of ear surgery should have nasal and PNS problems attended to first, if an ear operation is to be meritorious.³

Therefore the objective of this study is to find the correlation between CSOM and the DNS of the ipsilateral side.

METHOD

Study: A cross-sectional study done in Basaweshwara Hospital of

Mahadevappa Rampure medical college, in the department of ENT from December 2024 to May 2025.

No. Of Patients: 100

Inclusion Criteria: All patients with mucosal or squamosal CSOM.

Exclusion Criteria: Patients with traumatic dislocations of ossicles, fungal otitis externa, patients with traumatic tympanic membrane perforations, patients with acute infections of nose and paranasal sinuses, patients with sinonasal malignancies or malignancies of the middle ear, patients with associated medical comorbidities like diabetes mellitus, immunocompromised states and diagnosed cases of ciliary dyskinesia, patients with acute suppurative otitis media/otitis media with effusion and patients not willing for the study.

Methodology

In this study, all the patients with mucosal or squamosal type of COM were included.

Written informed consent of the patient was taken in their vernacular language.

A pre-designed proforma was filled, documenting the age, sex, address and clinical information including chief complaints, duration of symptoms, predisposing factors and any previous history of treatment. All patients fulfilling the inclusion criteria were subjected to detailed examination which included general physical examination, careful examination of ear, nose and throat.

Otoscopic and thorough microscopic examination of the tympanic membrane was carried out.

Tuning fork tests were also performed.

A detailed nose and paranasal sinus examination was done.

Rigid diagnostic nasal endoscopy (DNE) was performed in all patients to evaluate presence of DNS

Statistical Analysis: The statistical data collected will be analyzed statistically using software version IBM SSPS version 25.0. For qualitative data, the Chi-square/ Fisher test with a p-value of <0.05 will be considered significant.

RESULTS

Table 1: Gender Distribution Of CSOM Patients

Sex	Frequency	Percentage
Males	42	42%
Females	58	58%
Total	100	100%

Table 2: Distribution Of CSOM Patients On The Bases Of Age

Age	Frequency	Percentage
0-10	4	4%
11-20	33	33%
21-30	22	22%
31-40	20	20%
41-50	21	21%
Total	100	100
Mean±SD	25±5	
RANGE	0-50	

Table 3: Distribution Of CSOM Patients On The Bases Of Affected Ear

Affected ear	Frequency	%
Right ear	48	48%
Left ear	38	38%
Bilateral ears	14	14%
TOTAL	100	100

Table 4: Distribution Of CSOM Patients According To The Type Of CSOM

Type of COM	Frequency	%
Right mucosal	40	40%
Left mucosal	35	35%
Bilateral mucosal	8	8%
Right squamosal	7	7%
Left squamosal	8	8%
Bilateral squamosal	2	2%
TOTAL	100	100

Table 5: DNE Findings

DNE finding	Frequency
Right DNS	57
Left DNS	13

Table 6 : Number Of Patients Showing Co-existent CSOM And DNS And Number Of Patients Showing Direct Correlation

Variables	N	%	P value
CSOM	100	100	
CSOM+DNS	70	70	0.001
DIRECT CORRELATION	58	58	0.3

In this study we had 42% males and 58 % females in the study (table 1) and maximum were in the 2nd decade of their life (table2), followed by 21-30 year old patients, and then 41-50 year olds, youngest of age 7years and oldest being 59 years old and the mean age being 25 years old.

Table 3 shows the laterality of the patients' affected ear. The majority had right ear affected (48%), while 14% had bilateral ears affected, and the rest had infection in their left ear.

83% of our cases were of mucosal COM while the rest were of squamosal type (table 4).

In this study, we wanted to highlight the role of nasal disease (DNS) in the pathogenesis of CSOM. DNE revealed that DNS was noted in 70 patients, of which right sided DNS was seen in 57 patients while left sided DNS was noted in 13 of the patients. (Table 5)

10% showed no deviation of the septum. Other findings noted during DNE were mucoid discharge, polypoidal changes, hypertrophied inferior turbinates and hypertrophied adenoids.

Out of the 70 patients with DNS we found that 58 patients had a direct correlation with the COM on the side. (Table 6).

DISCUSSION

In our study, CSOM was more common in females (58%) as compared to males (42%). Female to male ratio was 1.3:1. Likewise, similar conclusions have been made by other researchers such as Rajat Prakash, et al⁽⁵⁾ and Mansoor T, et al⁽⁶⁾ but is also in contrast with other researchers, such as Kumar H, Seth S. et al⁽⁷⁾. Swetha S. Shankar et al⁽³⁾ where they found males to be more predominant.

As our study involved a random selection of cases, the predominance of female patients over male patients may be only an incidental finding. Moreover, no knowledge of anatomical differences in male and female ear structures has been reported.

The age group with the highest percentage of presentation of CSOM was found to be between 11-30 years, the number accounted for 55% of our cases. This finding corroborates well with the observations made by other researchers, Osazuwa F et al⁽⁸⁾ Wariso et al⁽⁹⁾ and Shyamla R et al⁽¹⁰⁾.

High-prevalence of CSOM in children may be attributed to the fact that they are more prone to upper respiratory tract infections (URTIs). Furthermore, cold weather pre-disposes children to URTI.^(11,12)

Poor hygiene and unorthodox approach to treatment like the use of unconventional ear drops and concoctions such as oil and honey into the middle ear may initiate the proliferation of opportunistic pathogens leading to blockage of the eustachian tube.

Out Of 100 patients with CSOM, 83% had mucosal disease and 17% of them had squamosal disease, meaning there is a higher prevalence of safe disease than unsafe disease.

An institutional study by Kumari et al.⁽¹³⁾ conducted in Hyderabad, Telangana showed a high prevalence of squamosal disease (47.3%) when compared to mucosal type (18.5%). Another study by Basak et al.⁽¹⁴⁾ in West Bengal reported the prevalence of mucosal disease to be 86% and of squamosal type to be 14%.

In the present study, out of 100 cases, 48% had disease of the right ear, 38% had left ear involvement and 14% had bilateral disease.

In this study, we wanted to highlight the role of nasal disease (DNS) in the pathogenesis of CSOM. DNE revealed that DNS was noted in 70 patients, of which right sided DNS was seen in 57 patients while left sided DNS was noted in 13 of the patients.

10% showed no deviation of the septum. Other findings noted during DNE were mucoid discharge, polypoidal changes, hypertrophied inferior turbinates and hypertrophied adenoids but a representation of the same has not been made, as our study focused only on DNS as a nasal pathology. These findings were consistent with findings noted by Sankaranarayanan et al and Prem et al.^(15,16)

The presence of a DNS can transform the laminar airflow in the nasal cavity to that of a turbulent nature and further contribute to the persistence of middle ear pathology,³ which is why we found a significance in the 70 patients who presented with DNS.

However, we could not establish the same relevance in the direct correlation, which could be due to less sample size.

Due to the vast prevalence of the disease a larger sample size could have been taken.

In a similar study done by Shankar SS et al³, in which they studied 120 patients with CSOM and its correlation with the ipsilateral DNS, found a highly significant p value in the direct correlation, proving that a larger sample size would have effectively addressed this issue.

CONCLUSION

Chronic nasal pathologies like DNS are an important causative factor in cases of persistent CSOM as they can cause eustachian tube dysfunction, and based on our study we can conclude that a significant correlation is present. Therefore, we strongly recommend a comprehensive nasal examination for all CSOM cases to ensure more precise and effective treatment and reduce chances of recurrence

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