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RESEARCH ARTICLE
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"TO STUDY THE PREVALENCE AND ASSOCIATED RISK FACTORS OF CHRONIC SUPPURATIVE OTITIS MEDIA IN PATIENTS AT A TERTIARY CARE CENTRE, UTTAR PRADESH".

Deepak Kumar[1], Reyazul Janat [2], Sanjay Nigam[3], Nashra Afaq[4], Nusrat Nabi[5], Firoza Bano[6], Madhu Yadav[7*]

[1]Assistant Professor and Head, Department of Microbiology, Uma Nath Singh Autonomous State Medical College, Jaunpur, India.
[2]Assistant Professor, Department of ENT, Madhubani Medical College and Hospital, Madhubani Bihar, India.
[3]Professor, Department of Pathology, Rama Medical College Hospital and Research Centre, Mandhana, Kanpur, Uttar Pradesh, India.
[4]Research Associate, Department of Microbiology and Central Research Laboratory, Rama Medical [4]College Hospital and Research Centre, Mandhana, Kanpur, Uttar Pradesh, India.
[5]Associate Professor, Department of Pharmacology, Hamdard Institute of Medical Sciences and Research, New Delhi, India.
[6]Associate Professor, Department of Community Medicine, Al-Falah School of Medical Sciences and Research Centre, Faridabad, Haryana.
[7*]Associate Professor, Department of Microbiology, G.S.V.M. Medical College, Kanpur, Uttar Pradesh, India.

***Corresponding Author:** Dr. Madhu Yadav
*Associate Professor, Department of Microbiology, G.S.V.M. Medical College, Kanpur, Uttar Pradesh, India, Email ID: madhu15dec@yahoo.com

Abstract

Introduction: Otitis media is an inflammation of the middle ear cleft with or without intact tympanic membrane. It is known to be one of the most common childhood infections and a leading reason for antibiotic prescriptions in the developed world. The global burden of CSOM varies between 1 and 46%. A prevalence of 4% or greater indicates a public health problem that needs urgent attention.

Aim and Objective: To determine the prevalence and identify the role played by various associated factors responsible for onset of CSOM and its subtypes leading to hearing loss in the Uttar Pradesh, Indian population.

Material and Methods: This was a cross-sectional, descriptive and analytical study carried out in the ENT Department and the Microbiology Department at a tertiary care centre, Uttar Pradesh for a period of 1 year. All the patients that were diagnosed with chronic suppurative otitis media from January 2023 to December 2023were included.

Results: In the present study a total of 2300 patients visited the ENT OPD were included out of which 189 cases were diagnosed of having CSOM were studied. The prevalence of CSOM was reported to be 8.2%. Majority of the cases were in the 11 - 15 years age group, i.e., 51.9 %. It was also noted that Tubotympanic type was the most commonly reported and accounted for 125 (66.13) whereas Atticoantral type was 64(33.8 %). It was observed that most of the CSOM cases presented with upper respiratory tract infection were 44.44 %.

Conclusion: Improvement in socioeconomic status and health-care facilities is helpful in reducing the prevalence of CSOM. Creating awareness among the rural community against the ear disease through teachers, guardians, students and community health workers, and motivating the rural community to visit the nearest health-care facility for any ear-related problems in future.

Keywords: CSOM,Prevalence, Risk Factors, Tubotympanic, Atticoantral

INTRODUCTION

Otitis media is an inflammation of the middle ear cleft with or without intact tympanic membrane. It is known to be one of the most common childhood infections and a leading reason for antibiotic prescriptions in the developed world. It was first described by Hippocrates as early as 450 B.C. and continues to present itself even today as one of the most perplexing universally observed medical problems of childhood and a leading cause of hearing loss [1].

It is a common health problem in a developing country like India especially in the lower socio economic status. Overcrowding, poor hygiene and housing conditions, poor nutrition, frequent upper respiratory tract infections are some of the risk factors contributing to the condition [2, 3]. The global burden of CSOM varies between 1 and 46%, A prevalence of 4% or greater indicates a public health problem that needs urgent attention [4]. Over 90% of the burden is borne by countries in the South-east Asia and Western Pacific regions, Africa, and several ethnic minorities in the Pacific rim. CSOM is uncommon in the Americas, Europe, the Middle East, and Australia [5].

Nearly 90% of CSOM is mostly seen in younger children less than 2 years of age but its occurrence may also be seen in adults [6,7]. The vulnerability of CSOM in relation to aetiopathogenesis is due to the involvement of multiple factors such as demographic, genetic, environmental and other health related factors like infections, allergy, asthma, eustachian tube dysfunction, cleft palate, and adenoid hypertrophy etc [8-10]. The presence of fluid in middle ear leads to long term morbidity with varying degrees of hearing loss in children and adults [11,12].

Chronic suppurative otitis media is also one of the most common ear diseases found in India. In India, it is the most important cause of deafness and takes a considerable amount of clinical and operative time of otolaryngologists. Though imminently preventable, the progression from a benign upper respiratory infection (URI) to an acute otitis media with perforation and recurring/persistent infection (CSOM) leading ultimately to hearing loss is depressingly quite common in rural areas of India. The aetiology and pathogenesis of otitis media are multifactorial and include genetic factors, infections, allergy, environmental exposure, social and racial factors, and Eustachian tube dysfunction. During the recent decades, the incidence of CSOM has sharply declined due to improvements in housing, hygiene and antimicrobial chemotherapy but still is it a common disease [13].

Therefore, the present study was undertaken to determine the prevalence and identify the role played by various associated factors responsible for onset of CSOM and its subtypes leading to hearing loss in Uttar Pradesh.

MATERIAL AND METHODS

This was a cross-sectional study conducted in the Outpatient Department of ENT and the Microbiology Departmemt at a tertiary care centre, Uttar Pradesh over a period of one year from January 2023 to December 2023. For this study, there were a total of 2300 patients visited the ENT

OPD during the study period of which 189 cases were diagnosed as having CSOM and these 189 cases were studied.

Inclusion Criteria

1. Patients aged 5 to 30 years were taken for the study.
2. Patients of both sexes.
3. Patients with complaints of CSOM.

Exclusion Criteria

1. Patients aged 30 years and who did not consent to be the part of study.
2. Patients with any other medical problem

Cases were selected based on the above criteria. Detailed clinical history was taken such as age, gender, occupation, residential address, personal history and history of present illness including ear pain, ear discharge, fever. Socioeconomic status was calculated according to the modified Kuppuswamy socioeconomic status scale proposed by the Government of India, which takes into account education, occupation, and income. Ear, nose and throat (ENT) examination was done in all the cases.

All the cases were screened and examined with the help of the otoscope. Chronic form of suppurative otitis media was classified into safe (tubotympanic) and unsafe (atticoantral) type.

1. Tubotympainc type: In these type central perforations of all variety were included (active, quiescent and inactive state)
2. Atticoantral type: Posterosuperior marginal perforation and perforation of pars flaccida, retractions with granulations and or cholesteatoma at similar site.

Routine investigations were done for all the cases and culture sensitivity test of the ear discharge was done wherever possible.

Statistical analysis:

Data recorded on the case report from and structured proforma were subsequently entered into a spreadsheet. Data management and analysis were performed using Microsoft Excel.

Ethical clearance:

The ethical committee clearance certificate was duly taken before starting of the study by Institutional Medical Ethical Committee.

RESULTS

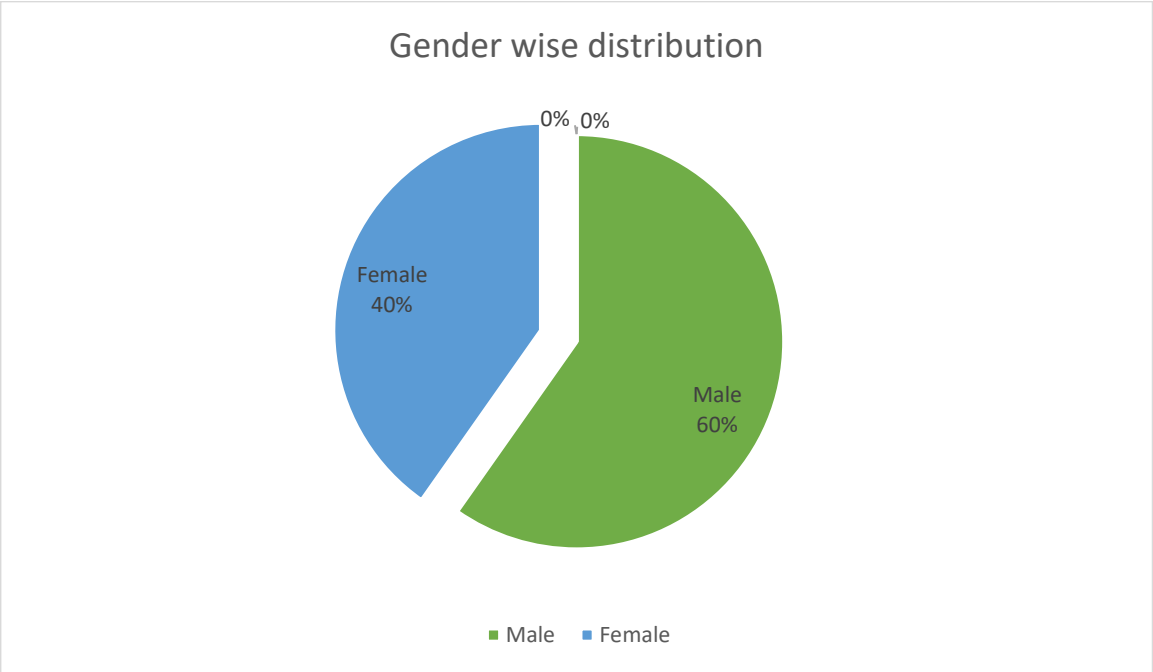
In the current study a total of 2300 patients visited the ENT OPD ward during the study period of included out of which 189 cases were diagnosed of having CSOM and these 189 cases were studied. The prevalence rate was observed to be 8.2%.

In the present study, the age of the patients ranged from 05 years to 30 years. Majority of the cases were among 11-15 years i.e., 51.9%.followed by 5-10 years and least in the age group pf 21-30 years of age(Table No 1).

Age group	No.	Percentage (%)
5 -10	49	26.7%
11-15	95	51.9%
16-20	26	14.2%
21-30	19	10.3%

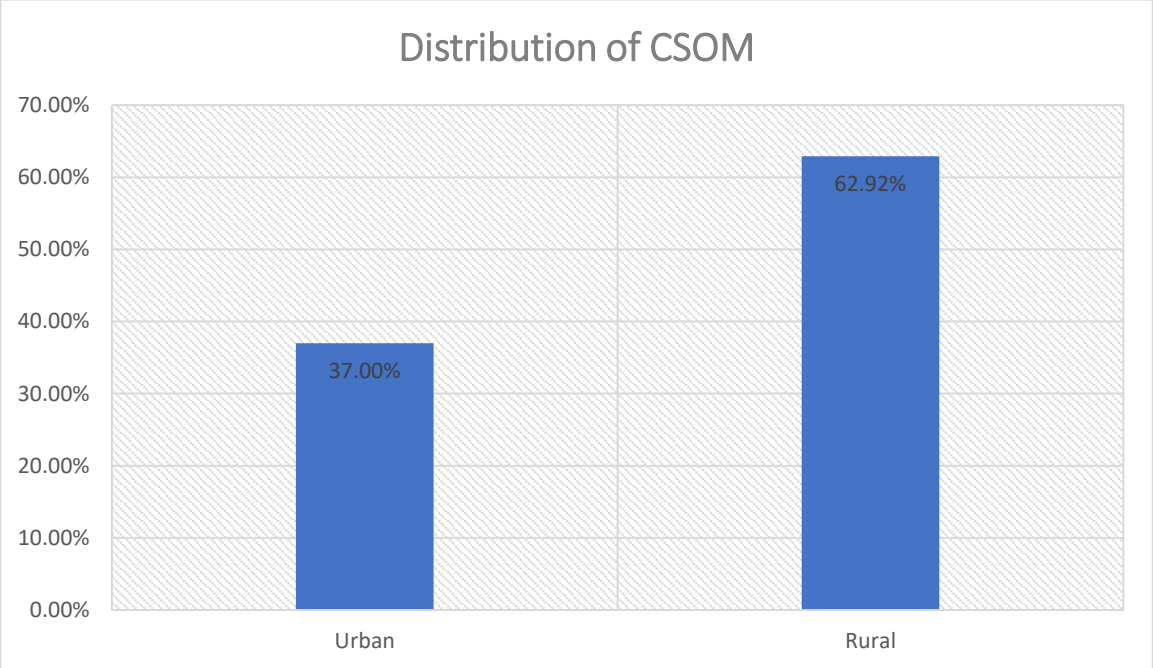
Table No. 1 Age wise distribution of cases

From the Graph No. 1 it was observed that there were 113 (60%) males and 76 (40%) female patients. The male to female ratio was noted to be 1:4.(Graph No.1).



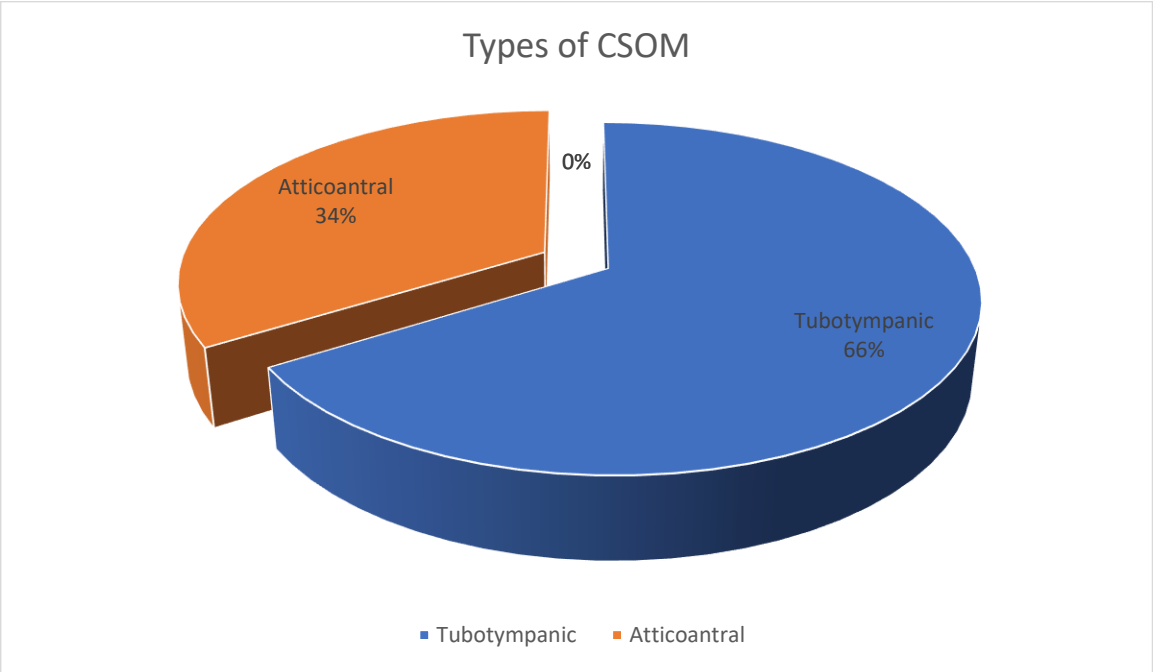
Graph No. 1.Gender wise distribution of the cases

In the present study, majority of the population were from Rural areas 119 (62.96%) and 70 (37.0%%) cases from the Urban areas (Graph No. 2).



Graph No.2: Demographical profile of suspected cases.

In the present study, Tubotympanic type was most commonly reported and constituted about 125(66.13), whereas Atticoantral type was noted in 64(33.8%) cases (Graph No. 3.).



Graph No. 3: Distribution of cases according to types of CSOM.

Tubotympanic type CSOM was seen in 69(36.5%) cases on right side, 34 (17.9 %) on left side and bilaterally in 22(11.6 %) cases. The Atticoantral type was seen 43 (22.7%) on right side, 12 (6.3%) cases on left side and bilaterally in 9 (4.7 %) cases. (Table No. 2 and Table No.3).

CSOM	NO. OF CASES	PERCENTAGE
Right side	69	36.5%
Left side	34	17.9%
Bilaterally	22	11.6%

Table No.2 : Distribution of side of Tubotympanic CSOM.

CSOM	NO. OF CASES	PERCENTAGE
Right side	43	22.7%
Left side	12	6.3%
Bilaterally	9	4.7%

Table No. 3 : Distribution of side of Atticoantral CSOM.

Associated factors	No. of cases	Percentage
Upper respiratory tract infection	84	44.44%
Chronic Tonsillitis	38	20.10%
Sinusitis	34	17.98%
Nasal allergy	11	5.8%
Other factors	24	12.69%

Table No. 4: Clinical Risk Factors Associated with CSOM.

In the present study, most common associated factors in CSOM cases were upper respiratory tract infection 44.44% , chronic tonsilitis 20.10% and sinusitis 17.98%. (Table No..4).

DISCUSSION

CSOM is a common disease to come across in day-to-day ENT practice. It is associated with permanent changes of middle ear and structural abnormality of pars tensa or pars flaccida that

occurs due to inadequately treated acute otitis media, eustachian tube dysfunction, negative middle ear pressure or chronic otitis media with effusion [14, 15].
Chronic suppurative otitis media is still relevant in poor socioeconomic developing countries, particularly in sub-Saharan Africa [16–18]. The prevalence of CSOM in the present study was observed to be 8.2% which was within the limits of those obtained in the African literature [19, 20]. The high risk of the disease in this part of the world is probably related to poverty, poor access to health care and a lack of understanding that acute otitis media can eventually lead to chronic suppurative otitis media [21]. CSOM affected all age groups in this series. CSOM is thought to develop in early childhood, often as a result of poorly managed acute otitis media, with the potential to spill over into adulthood, accounting for recurrent episodes of chronic ear discharge that can last for many years [22,23,24].
The present study was undertaken to determine the prevalence of CSOM in hospital visiting patients and to determine the associated risk factors for CSOM.

In present study we observed that the maximum number of cases for CSOM found in the age group of 11-15 years of age followed by 5-10 years of age and least in the age group of 21 years and above. This study was similar to the study performed by other author Taoussi et al.[25] where the maximum number of cases for CSOM was found in the age group of 0-15 years (27.8%). There was another similar study by Kaur et al.[26] and G. Shyametet al.[27] where Majority of the children (47.12%) in the urban school belonged to age group of 13–15 years whereas those (34.70%) in the rural school belonged to age group of 9–12 years and where the majority of the cases were among 11- 15 years i.e., 56.6 %, followed by 23.3 % between 5 - 10 years.

In the present study the maximum number of isolates was found in Males 113 (59.7%) as compared to the Females 76 (40.2%). The male to female ratio was 1:4. This finding was in accordance with G.shyamet et al., [27] where 103 (68.6 %) males and 47 (31.3 %) female patients were noted. The male to female ratio was 2.2:1. Similar observation was been made by Taoussiet al [25] where the male sex represented 52.2% (n=47) while the female sex represented 47.8% (n=43), both with a sex ratio of 1.09 respectively.

In our study, Tubotympanic type was most found to be commonly reported and constituted about 125 (66.13), whereas Atticoantral type was noted in 64(33.8%) cases. This study was similar to the study performed by G.shyamet et al.,[27] where the Tubotympanic type was most commonly reported and constituted about 80 % (100 / 150), whereas Atticoantral type was noted in 20 % cases. This study was in accordance with the study by Kaur et al. [26].

The prevalence of unilateral disease with central perforation was more common compared to that of bilateral disease. This was in agreement with that reported in the existing study. The prevalence of unilateral disease is believed to be good as it proffers a better prognosis in limiting the risk of disability from accompanying hearing loss than for bilateral disease.
In our study, Tubotympanic type CSOM was seen in 69(36.5 %) cases on right side, 34 (17.9 %) on left side and bilaterally in 22(11.6 %) cases. The Atticoantral type was seen 43 (22.7 %) on right side, 12 (6.3 %) cases on left side and bilaterally in 9 (4.7 %) which was in-between the rates reported by G.shyamet et al.[27] and Kaur et al.[26].

In the present study, most common associated factors in CSOM cases were upper respiratory tract infection 44.44%, chronic tonsilitis 20.10% and sinusitis 17.98%. This finding was in accordance with Kaur et al. [26] where the major clinical risk factors associated were malnutrition followed by URI, chronic tonsillitis, and adenoid hypertrophy. And parallel study by G.shyamet et al. [27]was reported where the most common associated factors in CSOM cases were upper respiratory tract infection and chronic adeno tonsillitis.

In the current study, prevalence of CSOM was observed to be 8.2%. Similar study by other research investigator G.shyamat et al [27] was reported where the total prevalence of CSOM was found to be 7.5% and in the study done by Singhal A et al.[28] the prevalence of CSOM was found to be 6.46 % which was in support to the present study.

CSOM is characterised by persistent ear discharge through a perforated tympanic membrane for more than 2 weeks [29]. It is one of the leading causes of preventable disabling hearing impairment leading to poor scholastic performance, delayed speech and language development and poor cognition. The global burden of CSOM varies between 1 and 46%.
Over 90% of the burden is borne by countries in the South-east Asia and Western Pacific regions, Africa, and several ethnic minorities in the Pacific rim.
CSOM is still a prevalent pathology in a developing country like India. It is a matter of serious concern with regard to long term affects like early communication, language development and educational progress. At present the scenario has improved due to better health care services and good access to health facilities. There is a need for better knowledge of the illness, better ear care and screening programme for early detection and management of CSOM.

CONCLUSION

The prevalence of CSOM in our study was observed to be 8.2 % and was more common in the 11-15year age group. CSOM was more common in the Rural areas. Upper respiratory tract infection is a frequent mode of presentation of CSOM. To conclude, it can be said that CSOM is still an important cause of morbidity. Improvement in socioeconomic status and health-care facilities is also helpful in reducing the prevalence of CSOM. Creating awareness among the rural community against the ear disease through teachers, guardians, students and community health workers, and motivating the rural community to visit the nearest health-care facility for any ear-related problems in future.

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AUTHORS CONTRIBUTION:

All the authors have contributed in planning ,and designing the study, dataanalysis,writing,and reviewing of the manuscript.LSInterviewed the study participants and collected the data.

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Consent for publication: **All authors have given consent for publication**

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