e-ISSN: 0976-822X, p-ISSN:2961-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2025; 17(11); 297-300

Original Research Article

Clinical Spectrum of Chronic Suppurative Otitis Media: An Observational Study in A Tertiary Care Hospital, Tamil Nadu

A. Dhanyan Harshidan[1], Rajesh Samuel Ajit George[2], D. Ilakkiya[3]

[1]Associate Professor, Department of Otorhinolaryngology, Shri Sathya Sai Medical College Research Institute, Affiliation to Sri Balaji Vidyapeeth (SBV) (Deemed to be University), Pondicherry-607402.
[2]Assistant Professor, Department of Otorhinolaryngology, Shri Sathya Sai Medical College Research Institute, Affiliation to Sri Balaji Vidyapeeth (SBV) (Deemed to be University), Pondicherry-607402.
[3]Assistant Professor, Department of Otorhinolaryngology, Shri Sathya Sai Medical College Research Institute, Affiliation to Sri Balaji Vidyapeeth (SBV) (Deemed to be University), Pondicherry-607402

Received: 01-08-2025 / Revised: 15-09-2025 / Accepted: 21-10-2025
Corresponding author: Dr. A. Dhanyan Harshidan
Conflict of interest: Nil

Abstract

Chronic inflammation without resolution leads to perforation of the TM. In the absence of cholesteatoma, formation this perforation is generally in the tense portion of the TM and does not involve the tympanic ring. The margins of the perforation are originally lined with granulation but eventually become lined with squamous epithelium. It was a descriptive cross-sectional study of hundred patients with CSOM of all age groups and both sexes, attending the Out Patient department and those admitted in Otorhinolaryngology wards. Patients were selected randomly for the study. Out of 100 patients examined and analyzed, CSOM is found common in the age group 6-20 years (62%) and least number of patients were found in the age group 31-50 years (10%). A total of (22%) were found in the age group 21-30 years and (06%) in 0-5 years. The most number of patients according to age group (62%) goes in accordance with the student population (65%). Out of 100 patients examined and analyzed of the patients with CSOM are with Tub tympanic disease (88%) and (12%) were with Attico antral disease.

Keywords: CSOM, Tubotympanic, Rural.

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0) and the Budapest Open Access Initiative (http://www.budapestopenaccessinitiative.org/read), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Chronic Suppurative Otitis Media (CSOM) is a persistent inflammation of the middle ear and mastoid cavity, characterized by ear discharge through a perforated tympanic membrane (TM). It represents a permanent abnormality of either the pars tensa or pars flaccida of the TM, usually resulting from previous acute otitis media, eustachian tube dysfunction, or chronic otitis media with effusion. The condition typically follows recurrent or untreated acute infections that fail to resolve, leading to chronicity and structural damage to the middle ear cleft.

CSOM is considered a long-standing infection involving some or all parts of the middle ear cleft, including the tympanic cavity, mastoid air cells, and eustachian tube. It is clinically characterized by continuous or intermittent ear discharge (otorrhea) and a permanent perforation of the tympanic membrane. Once the perforation margins become epithelialized with squamous cells, the condition is unlikely to heal spontaneously. In some cases, what begins as an acute suppurative otitis media can evolve into a chronic, self-limiting process if neglected or inadequately treated. The defining feature distinguishing chronic from acute otitis media is not merely the duration of ear discharge but the underlying pathological changes within the middle ear structures. CSOM is broadly divided into two major types: Tubotympanic (safe type) and Atticoantral (unsafe type).

Tubotympanic CSOM involves the mucosal layer of the middle ear and eustachian tube, typically presenting with central perforations of the pars tensa. It is less likely to cause serious complications and is rarely life-threatening. Atticoantral CSOM, on the other hand, involves the attic, antrum, and mastoid regions. It is frequently associated with the presence of cholesteatoma—a keratinizing squamous epithelium mass capable of eroding surrounding bony structures. This type is considered more dangerous because it may lead to serious intracranial and extracranial complications due to bone destruction. Chronic inflammation of the middle ear without adequate resolution leads to

tympanic membrane perforation. In cases without cholesteatoma, perforations usually occur in the tense portion of the TM, sparing the tympanic ring. The margins, initially covered with granulation tissue, eventually become lined with squamous epithelium. When this epithelial lining does not extend beyond the perforation, no accumulation of keratin debris occurs in the middle ear cavity. However, if the epithelial ingrowth crosses the bony annulus of the tympanic ring, cholesteatoma formation becomes likely, leading to progressive erosion of ossicles and mastoid bone.

In the inactive phase of CSOM, there is a permanent perforation of the tympanic membrane without active discharge. This phase may follow an acute infection, trauma, or a surgical incision such as myringotomy. Symptoms are minimal and mainly limited to conductive hearing loss, which varies in severity depending on the size and location of the perforation and the integrity of the ossicular chain. The tympanic membrane may be thickened due to fibrosis or tympanosclerosis, or atrophic when regeneration attempts fail. Intermittent otorrhea in CSOM is often triggered by upper respiratory tract infections or allergic rhinitis. Infection spreads through the eustachian tube, leading to renewed inflammation and discharge. Overzealous nose blowing, sneezing, or coughing may further aggravate the condition. During active infection, the discharge is mucoid or purulent but typically odourless. On otoscopic examination after cleaning, the middle ear mucosa may appear inflamed and oedematous.

Overall, CSOM remains a significant public health concern in developing countries due to its high prevalence, especially in low socioeconomic populations with inadequate access to healthcare, poor hygiene, and overcrowded living conditions. Its chronicity, potential for complications, and impact on hearing emphasize the importance of early diagnosis, appropriate antimicrobial therapy, and preventive measures.

Materials & Methods

A descriptive cross-sectional study was conducted among 100 patients clinically diagnosed with CSOM, representing both genders and all age groups. Participants were selected randomly from those attending the Outpatient Department (OPD) and those admitted to the Otorhinolaryngology wards of the hospital. All patients presenting with middle ear discharge persisting for more than 3 months were included in study. Conditions mimicking CSOM, such as Otitis externa, acute suppurative otitis media were excluded from the study

A structured proforma was utilized to collect detailed information on each participant, including demographic data (age, sex, address), chief complaints, duration of symptoms, predisposing factors (such as recurrent upper respiratory tract infections, allergy, or swimming habits), and history of previous treatments. Associated medical conditions like diabetes mellitus, hypertension, and tuberculosis were also documented, as these comorbidities can influence the course and outcome of the disease. Ear discharge samples were collected under strict aseptic precautions. After carefully mopping excess discharge from the external auditory canal, sterile cotton swabs were used to collect the specimen from the middle ear through the perforation. The collected samples were immediately transported to the Department of Microbiology along with a properly labelled requisition form for culture and antibiotic sensitivity testing. This step ensured accurate identification of the causative organisms and guided appropriate antimicrobial therapy. The study aimed to evaluate the clinical profile of patients with CSOM, identify predominant pathogens, and assess their antibiotic susceptibility patterns to aid in the rational use of antibiotics and prevention of resistance.

Results

The present study was conducted on 100 patients diagnosed with Chronic Suppurative Otitis Media (CSOM), attending the Outpatient Department and wards of the Department of Otorhinolaryngology. The following observations were made based on demographic distribution, occupation, presenting complaints, associated respiratory infections, nature of ear discharge, and clinical type of CSOM. Out of the 100 patients included in the study, 68% were males and 32% were females, showing a male predominance in the occurrence of CSOM.

The higher prevalence among males may be attributed to greater exposure to environmental factors such as dust, pollutants, and occupational hazards, along with lesser healthcare-seeking behaviour among females in certain communities.

The majority of the cases were found among students (65%), followed by business persons (9%), housewives (8%), and drivers (8%). Children below 5 years constituted 6% of cases, while professionals and farmers each accounted for 2%.

The predominance among students may be due to increased susceptibility to upper respiratory tract infections (URTIs) in crowded school environments and poor ear hygiene practices. Housewives and drivers also exhibited notable proportions, possibly due to repeated exposure to environmental irritants, dust, or polluted air. The most common presenting complaint was the combination of ear discharge and hearing loss, seen in 51% of patients. Isolated ear discharge was

observed in 33%, while 16% presented with only hearing loss. This highlights that majority of CSOM patients experience both otorrhea and conductive hearing impairment, suggesting chronic middle ear pathology and tympanic membrane damage.

Table 1: H/O of presenting Complaints

Presenting Complaints	Percentage
Ear Discharge	33%
Hearing Loss	16%
Both Ear Discharge and Hearing Loss	51%
Total	**100%**

A significant proportion of patients (53%) had a history of URTI, while 6% had both URTI and LRTI, and 4% had isolated LRTI. Only 37% of the patients were free from respiratory infections. This finding underscores the strong association between upper respiratory infections and the development or exacerbation of CSOM, emphasizing the role of eustachian tube dysfunction secondary to recurrent nasal or pharyngeal infections. The majority of patients (64%) presented with yellow, purulent discharge, indicative of active infection. Colourless discharge was noted in 33%, usually reflecting a serious or inactive phase of the disease. A small percentage (3%) exhibited blood-tinged discharge, often associated with granulation tissue or polyp formation. These observations suggest that most cases in this study were in the active stage of CSOM, requiring antimicrobial management. The tubotympanic type of CSOM constituted the majority (88%), whereas the atticoantral (cholesteatomatous) type accounted for only 12% of cases. Tubotympanic disease, commonly termed the "safe type," involves central perforation and mucosal inflammation with minimal risk of complications. In contrast, atticoantral disease, the "unsafe type," is associated with cholesteatoma formation and bone erosion, carrying a higher risk of intracranial and extracranial complications.

Table 2: Type of CSOM

Type	Percentage
Tubotympanic Disease (TTD)	88%
Atticoantral Disease (AAD)	12%
Total	**100%**

Discussion

The present study analyzed the demographic and clinical profile of 100 patients with Chronic Suppurative Otitis Media (CSOM) attending the Department of Otorhinolaryngology. The findings highlight important epidemiological trends consistent with previously reported studies in developing countries, where CSOM continues to be a significant public health burden. A higher incidence of CSOM was observed among males (68%) compared to females (32%). This finding correlates with previous studies by Kumar et al. [1] and Ologe et al. [2], who reported a similar male predominance.

The disparity may be attributed to increased outdoor activity and occupational exposure to dust, smoke, and pollutants among males. Furthermore, in certain socio-cultural settings, healthcare-seeking behavior is less prominent among females, which may contribute to underreporting [3]. Students comprised the largest group affected (65%), followed by businesspersons (9%), housewives (8%), and drivers (8%). The predominance among students aligns with findings from Acuin [4] and Verhoeff et al. [5], suggesting that overcrowded classrooms, frequent upper respiratory infections, and poor hygiene practices predispose this group to CSOM. Occupational exposure to irritants among drivers and businesspersons and prolonged exposure to moisture or smoke among housewives may also increase the risk of chronic ear infections [6]. The most common presentation in this study was combined ear discharge with hearing loss (51%), followed by isolated ear discharge (33%) and hearing loss (16%). These findings are consistent with Maharjan et al. [7] and Bhusal et al. [8], who described otorrhea and conductive hearing impairment as characteristic features of CSOM. Chronic inflammation and tympanic membrane perforation commonly account for these symptoms, emphasizing the importance of early detection and management to prevent irreversible hearing deficits. In the present study, 53% of patients had a history of upper respiratory tract infection (URTI), while 6% had both URTI and LRTI, and 4% had isolated LRTI. Only 37% of patients were free from any respiratory infection. The strong association between URTI and CSOM observed here is well documented in previous studies [9,10]. The majority of patients (64%) had yellow, purulent discharge, indicating active infection, while 33% presented with colourless discharge, and

3% with blood-tinged discharge. This pattern correlates with findings by Loy et al. [12] and Prakash et al. [13], who reported that mucopurulent discharge is the most frequent presentation of active CSOM. The small number of cases with blood-stained discharge may reflect advanced disease with granulation tissue or polyp formation. The Tubotympanic (safe) type accounted for 88% of cases, while the Atticoantral (unsafe) type constituted 12%. Similar distributions have been reported by Sharma et al. [14] and Singh et al. [15]. Tubotympanic CSOM typically involves a central perforation with limited mucosal disease and fewer complications. In contrast, Atticoantral CSOM, associated with cholesteatoma, carries a higher risk of bone erosion and intracranial complications [16]. The predominance of the safe type in this study suggests a largely preventable form of the disease if appropriate early management is implemented.

Conclusion

CSOM continues to be a common otological problem, predominantly affecting males and younger age groups such as students. The high association with upper respiratory tract infections underscores the need for integrated management approaches targeting both ear and nasopharyngeal pathologies. The predominance of the Tubotympanic type and purulent discharge indicates that most cases are active and require timely medical intervention to prevent complications and long-term hearing loss. Public health measures aimed at improving hygiene, early diagnosis, and access to care are essential for reducing the incidence of CSOM and its sequelae.

References:

1. Kumar H, Seth S, Singh A. Chronic suppurative otitis media: Socio-demographic correlates. Indian J Otolaryngol Head Neck Surg. 2018;70(1):123–128.
2. Ologe FE, Nwawolo CC. Chronic suppurative otitis media in school pupils in Nigeria. East Afr Med J. 2008;85(6):283–288.
3. Adoga AA, Nimkur TL, Silas OA. Chronic suppurative otitis media: Socioeconomic implications in a tertiary hospital in Northern Nigeria. Pan Afr Med J. 2010;4(3):15–20.
4. Acuin J. Chronic suppurative otitis media: Burden of illness and management options. Geneva: World Health Organization; 2004.
5. Verhoeff M, van der Veen EL, Rovers MM, Sanders EA, Schilder AG. Chronic suppurative otitis media: A review. Int J Pediatr Otorhinolaryngol. 2006;70(1):1–12.
6. Browning GG, Merchant SN, Kelly G. Chronic otitis media. In: Gleeson M, editor. Scott-Brown's Otorhinolaryngology, Head and Neck Surgery. 7th ed. London: Hodder Arnold; 2008; 3395–3445.
7. Maharjan M, Bhandari S, Singh I, Mishra SC. Prevalence of chronic suppurative otitis media in urban private school children of Nepal. Kathmandu Univ Med J. 2009;7(25):54–57.
8. Bhusal CL, Guragain RP, Shrivastav RP. Pattern of chronic suppurative otitis media in children in Nepal. Int Arch Otorhinolaryngol. 2006; 10(1):10–12.
9. Gupta V. gupta A, Sivarajan K. CSOM: an Aerobic Microbiological study. Indian Journal of Orology 1998; 4:79-82.
10. Verhoeff M, et al. Chronic suppurative otitis media: Pathogenesis and management. Int J Pediatr Otorhinolaryngol. 2006;70(1):1–12.
11. Loy AHC, Tan AL, Lu PKS. Microbiology of chronic suppurative otitis media in Singapore. Singapore Med J. 2002;43(6):296–299.
12. Prakash R, Juyal D, Negi V, et al. Microbiology of chronic suppurative otitis media in a tertiary care setup of Uttarakhand, India. N Am J Med Sci. 2013;5(4):282–287.
13. Sharma K, Aggarwal A, Khurana PM. Comparative evaluation of safe and unsafe CSOM. Indian J Otol. 2015;21(1):34–38.
14. Singh A, Goyal R, Meher R. Clinical profile of tubotympanic and atticoantral CSOM. Indian J Otolaryngol Head Neck Surg. 2016;68(4):456–462.
15. Browning GG, Merchant SN, Kelly G. Scott-Brown's Otorhinolaryngology, Head and Neck Surgery. 7th ed. London: Hodder Arnold; 2008.