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Original Research Article

Echoes of neglect – the pediatric burden of chronic otitis media

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ABSTRACT

Background: Chronic otitis media (COM) is a major cause of morbidity among children, particularly in developing regions, where socioeconomic and environmental factors contribute to its high prevalence. This study aimed to evaluate the prevalence, clinical profile, predisposing factors, and management of COM among pediatric patients.
Methods: This cross-sectional, hospital-based study was conducted over one year (April 2025-March 2026) in the ear, nose, and throat (ENT) outpatient department. A total of 200 pediatric patients aged 5-15 years diagnosed with COM were enrolled. Demographic characteristics, clinical presentation, and predisposing factors were recorded using a structured questionnaire. All patients underwent otoscopic examination and tuning-fork tests. Data were analyzed using statistical package for the social sciences (SPSS).
Results: Of 1,740 pediatric patients screened, 200 were diagnosed with COM, giving a hospital-based prevalence of 11.49%. There was a male predominance, with a male-to-female ratio of 1.44:1. The highest proportion of cases occurred in the 8-10-year age group. Ear discharge was the most common symptom (72%), followed by ear pain (14%) and hearing loss (12%). Unilateral disease predominated, and central tympanic membrane perforation was the most frequent otoscopic finding. Objective hearing impairment was detected in 68 patients (34%) and showed a significant association with the duration of symptoms ($p<0.05$). Management was predominantly medical, including antibiotics, topical ear drops, and nasal decongestants.
Conclusions: Pediatric COM remains a significant cause of morbidity and hearing impairment. Modifiable factors such as poor hygiene and bathing in open ponds highlight the need for community awareness, health education, and improved living conditions in rural areas. Early diagnosis and appropriate treatment are essential to prevent long-term complications.

Keywords: Chronic otitis media, Pediatric, Prevalence, Otorrhea, Hearing loss, Cross-sectional study

INTRODUCTION

Diseases of the middle ear, especially among children under five, impose a major burden on healthcare systems and account for nearly one-third of pediatric consultations.[1] Chronic suppurative otitis media (CSOM) affects an estimated 65 to 330 million individuals globally, with the highest prevalence in low-income regions.[2] Without proper treatment, CSOM can result in extensive tympanic membrane perforations, damage to the ossicular chain, progressive hearing loss, and, in severe cases, intracranial complications.[3]

CSOM is characterized by persistent inflammation of the middle ear, perforation of the tympanic membrane, and continuous ear discharge. Early diagnosis and proper management are crucial to prevent long-term complications such as hearing loss.[4] The high prevalence of acute otitis media in children-affecting up to 60% by the age of seven-plays a major role in the development of chronic otitis media (COM).[4] Effective management must

therefore consider the varied causes and presentations of the condition.[5]

The incidence of COM ranges from 0.5% to 2% in developed nations, compared to 3% to 57% in developing regions.[6] The higher rates seen in developing countries, particularly among lower socioeconomic groups, are linked to factors such as malnutrition, overcrowding, poor hygiene, limited healthcare access, and recurrent upper respiratory infections.[7]

Acute otitis media is typically a self-resolving condition that is managed within primary care settings, with diagnosis relying on clinical presentation and otoscopic examination.[4] Antibiotic therapies is advised for high-risk populations, including infants younger than six months and children exhibiting severe symptoms.[1,8]

Research conducted in India and other regions reveals considerable variation in the prevalence of CSOM and associated hearing loss. Verma et al reported that 15.3% of children were affected by CSOM, with 61.7% experiencing hearing impairment.[9] Likewise, Adhikari et al identified a 5.4% prevalence of CSOM among school-aged children in Kathmandu.[10]

Despite the widespread occurrence of CSOM, there remains a lack of comprehensive population-based data in developing countries, underscoring the need for further research on ear infections as well as enhanced diagnostic and treatment approaches.[1,2,11]

This study aims to evaluate the prevalence, clinical profile, along with the management of COM among pediatric patients.

METHODS

Study design

This cross-sectional, hospital-based study was conducted in the ENT outpatient department (OPD) to assess the prevalence and management of COM among pediatric patients.

The study spanned one year, from April 2025 to March 2026, and included children aged 5 to 15 years who attended the OPD for evaluation.

Study population

A total of 200 pediatric patients diagnosed with chronic otitis media were included in the study.

Inclusion criteria

Children aged between 5 and 15 years, diagnosis of chronic otitis media, confirmed through clinical examination and otoscopic findings.

Exclusion criteria

Children with acute otitis media, children with congenital ear anomalies or other ear diseases unrelated to chronic otitis media, cases with traumatic perforation of tympanic membrane, deaf and Mute children, children who have undergone prior ear surgeries.

A detailed history was obtained, including any past ear discharge, hearing loss, or other relevant medical information. If ear discharge was present, it was cleaned before examination. Each patient underwent an otoscopic examination, and any pathological findings were documented. Information regarding possible predisposing or contributing factors, as well as socioeconomic background, was also collected.

In total, 200 patients were examined, of whom 72 had bilateral CSOM.

Data collection

Data were gathered using a structured questionnaire that covered the following aspects.

Demographic information

Age, gender, and socioeconomic status.

Clinical presentation

Symptoms such as ear discharge, hearing impairment, and pain.

Clinical details

Duration of illness, nature of symptoms, side of ear involvement, site and size of tympanic membrane perforation, and the condition of the tympanic cavity mucosa.

Past medical history

Frequency of otitis media episodes and any previous treatments received.

The clinical examination included the following.

Otoscopy to evaluate the condition of the tympanic membrane.

Tuning fork tests to assess the degree and type of hearing loss.

Ethical considerations

The study received approval from the institutional ethics committee or review board, and informed consent was obtained from the parents or guardians of all participants.

Statistical analysis

Descriptive statistics were employed to summarize the collected data, and all analyses were conducted using statistical package for the social sciences (SPSS) software. A p value of less than 0.05 was considered statistically significant.

In this cross-sectional study, 200 school children aged between 5 and 15 years were examined. Otoscopic evaluation was performed, followed by a detailed ENT assessment for cases diagnosed with CSOM. The findings were analyzed statistically.

Hospital prevalence was 11.49%; number of patients with chronic otitis media was 200; total number of pediatric patients were 1,740; calculated prevalence was calculated as follows.

$$Prevalence = (200 \div 1{,}740) \times 100 = 11.49\%$$

Among the 200 patients studied, 118 were males and 82 were females, resulting in a male-to-female ratio of 1.44: 1.

Proportion of patients with ear discharge

A total of 144 patients presented with ear discharge as the primary symptom; the percentage of patients with ear discharge was 72% (144 out of 200); the median duration between the onset of otorrhea and seeking medical consultation was 4 months.

RESULTS

The study comprised 200 pediatric participants, including 118 (59%) males and 82 (41%) females. The age-wise distribution of cases was as follows.

COM

The overall prevalence of chronic otitis media among children attending the ENT outpatient department was 11.49%. When analyzed by age and gender, the highest prevalence was observed in the 8–10-year age group for both boys and girls.

Clinical presentation

The most frequently reported symptoms among the patients were as follows.

Ear discharge was observed in 144 patients (72%), with the left ear being affected more often than the right.

Hearing loss was reported by 24 patients (12%).

Ear pain was noted in 28 patients (14%).

Table 1: Demographic characteristics of the study population (n=200).

Characteristics	Number	Percentage (%)
Male	118	59
Female	82	41
Total	200	100

Table 2: Clinical presentation of chronic otitis media (n=200).

Clinical symptoms	Number	Percentage (%)
Ear discharge	144	72
Ear pain	28	14
Hearing loss	24	12
Fever	4	2
Total	200	100

Table 3: Hearing impairment among study participants (n=200).

Degree of hearing loss	Number	Percentage (%)
No hearing impairment	132	66
Mild hearing loss	44	22
Moderate hearing loss	24	12
Severe hearing loss	0	0
Total	200	100

Fever was present in 4 patients (2%).

The duration of symptoms differed among patients, with most reporting a symptom duration of approximately eight months.

Management

Treatment primarily involved medical therapy. The most frequently prescribed medications were antibiotics, ear drops, and nasal decongestants.

Hearing loss

Out of the 200 patients, 68 (34%) exhibited some degree of hearing impairment-44 (22%) had mild loss, 24 (12%) had moderate loss, and none had severe hearing loss.

A significant correlation was found between hearing loss and the duration of symptoms, particularly the presence of ear discharge ($p<0.05$).

DISCUSSION

This study, conducted over one year in school-aged pediatric patients attending the ENT outpatient department, found a prevalence of chronic otitis media of 11.49%, with a slight predominance in males. Most patients came from rural areas, suggesting that factors such as poor sanitation, bathing in open ponds, and malnutrition may contribute to the development of the disease. These findings highlight that improving awareness, education, and addressing these contributing factors could help reduce the disease burden.

Unilateral ear involvement was observed in the majority of cases. The most frequent presenting symptom was otorrhea, with or without ear pain, followed by hearing impairment in the affected ear. The study also noted significant morbidity in terms of financial costs and missed school days.

Most cases of chronic otitis media were of the tubotympanic type, likely due to the bothersome profuse ear discharge, which was the most common complaint. On otoscopic examination, central perforation was the most frequent finding, while double perforation and attic perforation were less common. Among the 200 patients, 68 had varying degrees of hearing loss; however, only 24 patients reported experiencing reduced hearing at the time of presentation.[2,4,12,13]

Limitations

This was a hospital-based, cross-sectional study conducted in a single center with a relatively small sample size of 200 children aged 5-15 years, which may limit the generalizability of the findings. Selection and recall bias cannot be completely excluded. The cross-sectional design does not allow assessment of causal relationships or long-term disease progression and treatment outcomes. Hearing assessment was primarily based on clinical and tuning-fork examination, and microbiological evaluation of ear discharge was not routinely performed. Furthermore, although several socioeconomic and environmental factors were documented, their independent association with chronic otitis media was not evaluated using multivariate analysis.

CONCLUSION

The study concluded that modifiable factors such as overcrowding, poor hygiene, and bathing in open ponds can be addressed through increased awareness and proper education on preventive measures. Active involvement of government authorities to improve living conditions in rural areas and address the predisposing factors for chronic otitis media is essential. Early medical consultation, prompt treatment, and adherence to preventive measures can help slow disease progression, prevent complications, and reduce the overall morbidity associated with the condition.

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