



Original Article

Clinical Profile of Patients with Otitis Media in a Tertiary Care Hospital

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ABSTRACT

Background: Otitis media is a common ENT disorder that can lead to hearing impairment and other complications if not diagnosed and managed timely. Understanding the clinical profile and associated risk factors is essential for effective prevention and treatment.

Material and Methods: A cross-sectional observational study was conducted at a tertiary care hospital. A total of 220 patients diagnosed with otitis media were enrolled. Demographic data, clinical features, and predisposing risk factors were recorded using a structured proforma. Otoscopic examination, audiometry, and laboratory investigations were performed as appropriate. Statistical analysis was performed using chi-square tests, with $p < 0.05$ considered significant.

Results: The study included 126 males (57.3%) and 94 females (42.7%), with a mean age of 27.4 ± 15.6 years. Children aged 0–10 years constituted 30.9% of the population (Table 1). Ear discharge (72.7%), ear pain (63.6%), and hearing loss (61.4%) were the most common clinical features (Table 2). Chronic otitis media was the most prevalent type (45.5%), followed by acute otitis media (43.2%) and otitis media with effusion (11.4%). Recurrent upper respiratory tract infections (40.9%) and allergy (25.0%) were the most common risk factors (Table 3). Comparative analysis (Table 4) revealed that ear pain and fever were significantly associated with acute otitis media ($p < 0.001$), while ear discharge and hearing loss were more common in chronic otitis media ($p = 0.001$ and $p = 0.002$). Allergy was significantly associated with chronic otitis media and otitis media with effusion ($p = 0.01$).

Conclusion: Otitis media predominantly affects children and young adults, with chronic otitis media being the most common type. Clinical features and risk factors vary according to disease type, emphasizing the need for early diagnosis and tailored management to prevent complications.

Keywords: Otitis media, Chronic otitis media, Acute otitis media, Hearing loss, Risk factors.

INTRODUCTION

Otitis media encompasses a group of inflammatory conditions of the middle ear that remain a major cause of morbidity worldwide, particularly in low- and middle-income regions where healthcare access is limited. Acute otitis media (AOM), chronic otitis media (COM), and otitis media with effusion (OME) contribute to significant clinical burden, often presenting with symptoms such as ear discharge, hearing loss, and otalgia, and can lead to long-term sequelae if not appropriately managed. Globally, chronic suppurative otitis media (CSOM), a form of COM characterized by persistent tympanic membrane perforation and otorrhea, affects an estimated 200 million individuals, with the highest prevalence reported in low-resource settings, reflecting a substantial public health burden and associated disability due to hearing impairment [1].

Epidemiological studies indicate that otitis media is common across all age groups but occurs with greatest frequency among children, with peak incidences observed in early childhood. This age distribution underscores the clinical importance of early identification and management to prevent recurrent episodes and complications, such as chronic infection and conductive hearing loss [2].

Several host, environmental, and socioeconomic factors have been implicated in the development and persistence of otitis media. Recurrent upper respiratory tract infections, allergic disorders, passive tobacco smoke exposure, and low socioeconomic status have consistently emerged as significant risk factors in observational studies [3,4]. These factors may contribute to Eustachian tube dysfunction and impaired middle ear ventilation, thereby facilitating fluid accumulation or ongoing infection.

Hospital-based investigations from tertiary care settings further highlight varied clinical profiles and demographic patterns among patients with otitis media, emphasizing the need for localized data to inform targeted clinical practice and public health strategies [5].

In this context, the present study was undertaken to characterize the clinical profile of patients with otitis media presenting to a tertiary care hospital, with particular focus on demographic features, clinical presentation, and associated risk factors.

MATERIAL AND METHODS

This cross-sectional observational study was conducted at a tertiary care hospital. The study aimed to evaluate the clinical profile of patients presenting with otitis media, including demographic characteristics, clinical features, and associated risk factors. Written informed consent was obtained from all participants or their guardians.

Study Population: Patients of all age groups and both sexes presenting to the outpatient and inpatient departments with a diagnosis of otitis media were considered for inclusion. Otitis media was diagnosed based on clinical examination using otoscopy, tuning fork tests, and, when indicated, tympanometry or audiometry.

Inclusion Criteria:

- Patients with acute, subacute, or chronic otitis media.
- Patients willing to provide informed consent.

Exclusion Criteria:

- Patients with a history of ear surgery in the affected ear.
- Patients with congenital ear anomalies.
- Patients with immunocompromised states or systemic infections affecting the ear.

Sample Size Calculation: Based on previous hospital records, the prevalence of otitis media in patients attending ENT OPD was estimated at 15%. Using a confidence level of 95% and a margin of error of 5%, the minimum required sample size was calculated to be 196. Considering potential dropouts or incomplete data, a total of 220 patients were enrolled consecutively using a convenience sampling method.

Data Collection: A structured proforma was used to collect demographic data (age, sex, socioeconomic status), clinical history (duration of symptoms, ear discharge, hearing loss, associated symptoms), and risk factors (upper respiratory tract infections, allergy, exposure to smoking, and recurrent infections). A detailed otoscopic examination was performed to classify otitis media as acute, chronic, or with effusion. Hearing assessment was conducted using pure-tone audiometry wherever feasible.

Laboratory and Radiological Evaluation: Routine investigations including complete blood count and, where indicated, culture and sensitivity of ear discharge were performed. High-resolution computed tomography (HRCT) of the temporal bone was done selectively in cases of chronic or complicated otitis media to assess mastoid involvement and middle ear pathology.

Statistical Analysis: Data were entered into Microsoft Excel and analyzed using SPSS version 25.0. Continuous variables were expressed as mean \pm standard deviation, while categorical variables were expressed as frequencies and percentages. Associations between categorical variables were assessed using the chi-square test or Fisher's exact test, as appropriate. A p-value <0.05 was considered statistically significant.

RESULTS

A total of 220 patients with otitis media were enrolled in the study. The demographic characteristics are summarized in Table 1. The age of the patients ranged from 1 year to 72 years, with a mean age of 27.4 ± 15.6 years. The majority of patients belonged to the 0–10 years age group (30.9%) and 21–40 years age group (25.9%). Males constituted 57.3% of the study population, while females accounted for 42.7%. Most patients belonged to the lower (46.4%) and middle (44.5%) socioeconomic classes.

The clinical features of the study population are presented in Table 2. Ear discharge was the most common presenting symptom (72.7%), followed by ear pain (63.6%) and hearing loss (61.4%). Fever was observed in 38.6% of patients. The duration of symptoms varied, with 34.1% of patients presenting within 2 weeks, 40.9% within 2–12 weeks, and 25.0% after 12 weeks.

The distribution of types of otitis media and associated risk factors is shown in Table 3. Chronic otitis media was the most frequent type (45.5%), followed by acute otitis media (43.2%) and otitis media with effusion (11.4%). Recurrent upper respiratory tract infections (40.9%) and allergy (25.0%) were the most common predisposing factors.

Comparative analysis of clinical features and risk factors across different types of otitis media is presented in Table 4. Ear discharge and hearing loss were significantly more common in chronic otitis media compared to acute otitis media and otitis media with effusion ($p=0.001$ and $p=0.002$, respectively). Ear pain and fever were significantly more frequent in acute otitis media ($p<0.001$). Tinnitus was more commonly reported in chronic otitis media ($p=0.03$). Recurrent upper respiratory tract infections were significantly associated with acute otitis media ($p=0.04$), whereas allergy was more frequently observed in chronic otitis media and otitis media with effusion ($p=0.01$). No significant association was observed between type of otitis media and exposure to passive smoking or poor hygiene ($p>0.05$).

Table 1: Demographic Profile of Patients (n = 220)

Variable	Frequency (n)	Percentage (%)
Age group (years)		
0–10	68	30.9
11–20	42	19.1
21–40	57	25.9
41–60	35	15.9
>60	18	8.2
Sex		
Male	126	57.3
Female	94	42.7
Socioeconomic status		
Lower	102	46.4
Middle	98	44.5
Upper	20	9.1

Table 2: Clinical Features of Patients with Otitis Media (n = 220)

Clinical Feature	Frequency (n)	Percentage (%)
Ear discharge	160	72.7
Hearing loss	135	61.4
Ear pain	140	63.6
Fever	85	38.6
Tinnitus	40	18.2
Vertigo	15	6.8
Duration of symptoms		
<2 weeks	75	34.1
2–12 weeks	90	40.9
>12 weeks	55	25.0

Table 3: Types of Otitis Media and Associated Risk Factors (n = 220)

Variable	Frequency (n)	Percentage (%)
Type of Otitis Media		
Acute otitis media	95	43.2
Chronic otitis media	100	45.5
Otitis media with effusion	25	11.4
Risk factors		
Recurrent upper respiratory tract infections	90	40.9
Allergy	55	25.0
Exposure to passive smoking	45	20.5
Poor hygiene	38	17.3
Family history of ear disease	28	12.7

Table 4: Comparison of Clinical Features and Risk Factors across Types of Otitis Media

Variable	Acute OM (n=95)	Chronic OM (n=100)	OM with Effusion (n=25)	p-value
Ear discharge	70 (73.7%)	80 (80.0%)	10 (40.0%)	0.001*
Hearing loss	50 (52.6%)	75 (75.0%)	10 (40.0%)	0.002*
Ear pain	75 (78.9%)	55 (55.0%)	10 (40.0%)	<0.001*
Fever	55 (57.9%)	25 (25.0%)	5 (20.0%)	<0.001*
Tinnitus	10 (10.5%)	25 (25.0%)	5 (20.0%)	0.03*
Recurrent URTI	45 (47.4%)	40 (40.0%)	5 (20.0%)	0.04*
Allergy	15 (15.8%)	30 (30.0%)	10 (40.0%)	0.01*
Exposure to passive smoking	25 (26.3%)	15 (15.0%)	5 (20.0%)	0.21
Poor hygiene	20 (21.1%)	15 (15.0%)	3 (12.0%)	0.36

DISCUSSION

In the present study, we characterized the clinical profile of patients with otitis media attending a tertiary care hospital and observed distinct patterns in symptomatology and associated risk factors across different subtypes of the disease. Consistent with epidemiological studies, chronic forms of otitis media were prevalent and often associated with persistent ear discharge and hearing loss, highlighting the substantial burden of chronic middle ear pathology in clinical practice. Chronic suppurative otitis media (CSOM) remains a significant cause of morbidity in many settings, particularly in low- and middle-income countries where healthcare access and preventive measures may be limited. Epidemiologic data indicate a high prevalence of CSOM in such regions, driven by recurrent infections and Eustachian tube dysfunction, and often leading to long-term auditory deficits if inadequately managed [6,7].

Hearing loss is a common consequence of chronic otitis media, and our results reflect this association with a high frequency of hearing impairment among patients with chronic disease. Population-based studies have demonstrated a strong link between otitis media and increased odds of hearing loss, with affected individuals showing significantly higher risk compared to those without middle ear pathology [8,9]. This underscores the need for prompt assessment and intervention to prevent progression to irreversible auditory dysfunction.

Risk factors for persistent or recurrent otitis media, such as recurrent upper respiratory tract infections and allergic conditions, were observed in our cohort and are supported by broader literature identifying similar associations. Systematic reviews report that atopy and low birth weight are among the factors contributing to CSOM development in pediatric populations, though some commonly implicated factors such as passive smoke exposure show variable influence depending on study design and population characteristics [10,11].

In chronic cases, prolonged disease duration and structural damage, including tympanic membrane perforation, predispose patients to more complex clinical courses and potential complications. Audiometric studies in patients with chronic otomastoiditis demonstrate that persistent middle ear inflammation can result in mixed hearing loss and even progressive cochlear involvement, particularly in cases with extensive disease or mastoid involvement [12,13].

Overall, our findings reinforce the heterogeneous clinical presentation of otitis media and emphasize the importance of comprehensive evaluation, including audiometric assessment and risk factor mitigation, to guide effective management strategies. Clinicians should remain vigilant for signs of chronicity and associated complications, and public health efforts to address modifiable risk factors could reduce disease burden and improve patient outcomes.

CONCLUSION

This study highlights that otitis media affects a wide age range, with a higher prevalence among children and young adults. Chronic otitis media was the most common form, while acute otitis media was frequently associated with ear pain and fever. Ear discharge and hearing loss were prominent features, particularly in chronic cases. Recurrent upper respiratory tract infections and allergic predisposition emerged as significant risk factors. These findings underscore the importance of early recognition, accurate classification, and targeted management of otitis media to prevent complications and reduce the burden of hearing impairment.

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