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Original Research Article

The Clinico-Epidemiological profile of Otalgia cases in a Tertiary hospital in Thiruvallur District, Tamil Nadu

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Conflict of interest: Nil

Abstract:

Background: Among the ENT complaints, Otalgia (ear pain) is the most common complaint, followed by hard of hearing in ENT outpatient department, but sufficient comprehensive epidemiological data is unavailable. This study aims to evaluate the clinico-epidemiological profile of otalgia cases in a tertiary care hospital in Thiruvallur District, Tamil Nadu, and highlight the risks associated with improper ear manipulation.

Methods: A retrospective cross-sectional study was conducted from April 2022 to May 2025, including 203 patients presenting with otalgia at a tertiary care center. Data for our study was collected using structured questionnaire and analysed based on clinical diagnosis and Out-Patient management from a tertiary care hospital.

Results: The following were the data: Adults (61.6%), Pediatric (39.4%). Among the Adults, female patients were predominant (62.1%). Otitis externa following improper ear manipulation was the commonest (33.5%), and Acute Otitis Media (19.7%). A significant association was found between age groups and diagnosis ($p < 0.001$), with pediatric patients predominantly presenting with acute otitis media (56.5 %) and adults with otitis externa (43.9 %).

Conclusion: In our study at Thiruvallur District many factors played an important role like, Age, Environmental factors, Humidity, Pollution and general living. To solve this problem, we need to adopt different measures, like generating health care awareness on ear care.

Keywords: Otalgia, Ear Pain, Otitis Externa, Acute Otitis Media, Referred Otalgia.

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Introduction

Among the ENT complaints, Otalgia (ear pain) is the most common complaint followed by hard of hearing in ENT outpatient department. The primary cause for Otalgia can be due to either ear diseases like otitis externa, chronic otitis media, otomycosis and impacted ear wax or it can be a referred pain. Chronic otitis media (COM) is one of the most common public health problems, encountered especially in children in rural areas. In South India, the prevalence is 6% among children in rural areas. [1,2]

The demographic distribution of otalgia is varied. Studies have revealed that otalgia has a male predominance with a male-to-female ratio of 1.7:1. 51 to 60 years age group was found to be the most affected.[3] A similar study from the Central part of India has showed a higher prevalence in females in the age group of 11–20.

Various studies have been done in Tamil Nadu regarding the epidemiological distribution of cases with otalgia. Temporomandibular joint dysfunction and cervical spondylosis were found to be common causes for referred otalgia in a study conducted at Chennai in individuals between 15–45 years.[4] A study from Vellore district showed 92% of children with acute otitis media had otalgia, along with fever and nasal symptoms.[5]

Our study is aimed towards the clinical and epidemiological profile of otalgia cases at a tertiary care hospital in Thiruvallur District, Tamil Nadu. With the help of demographic data, clinical presentations, and causative factors, the study aims to enhance the understanding and reveal the targeted management protocols for otalgia in this region.

Materials and Methods

Study Design and Setting: This is a descriptive cross-sectional study conducted at the Department of ENT in tertiary care hospital in Thiruvallur District, Tamil Nadu. The study analyzed clinical and epidemiological profile from April 2022 to May 2025 for patients with otalgia.

Study Population: All the patients coming to the ENT outpatient department with complaints of ear ache, were considered eligible for this study. Both primary otalgia and referred otalgia were included in our study, which amounted to total of 203 patients.

Inclusion Criteria

- Patients of all age groups and genders who presented with otalgia.
- Patients who were willing to participate and gave relevant clinical history.

Exclusion Criteria

- Patients who weren't willing for clinical examination or treatment.

Ethical Considerations: Ethical clearance was obtained from the Institutional Ethics Committee prior to the commencement of the study. Informed consent was obtained from all the participants or their guardians in case of minors.

Data Collection: A structured proforma was applied to collect the data as follows:

- Demographics (age, sex, Address)
- Duration of the symptoms
- Diagnosis
- Type of otalgia
- Associated comorbidities
- Management including the investigations and treatment

Statistical Analysis: Statistical analysis was done using the data collected. Statistical results were derived for various categories namely sex, age group, diagnosis and ear affected. Patients were categorized into pediatric (0–12 years), adolescent (13–19 years), adult (20–60 years), and elderly (>60 years) groups. Association between age, sex, and diagnosis were done using Chi-square tests. A p-value of <0.05 was considered statistically significant.

Results

Demographic Profile: Out of 203 patients with otalgia the majority were adults (20–60 years) 61.6% (n = 125), followed by pediatric (0–12 years) at 25.1% (n = 51), adolescents (13–19 years) at 10.8% (n = 22), and elderly (>60 years) at 2.5% (n = 5). [Table 1]

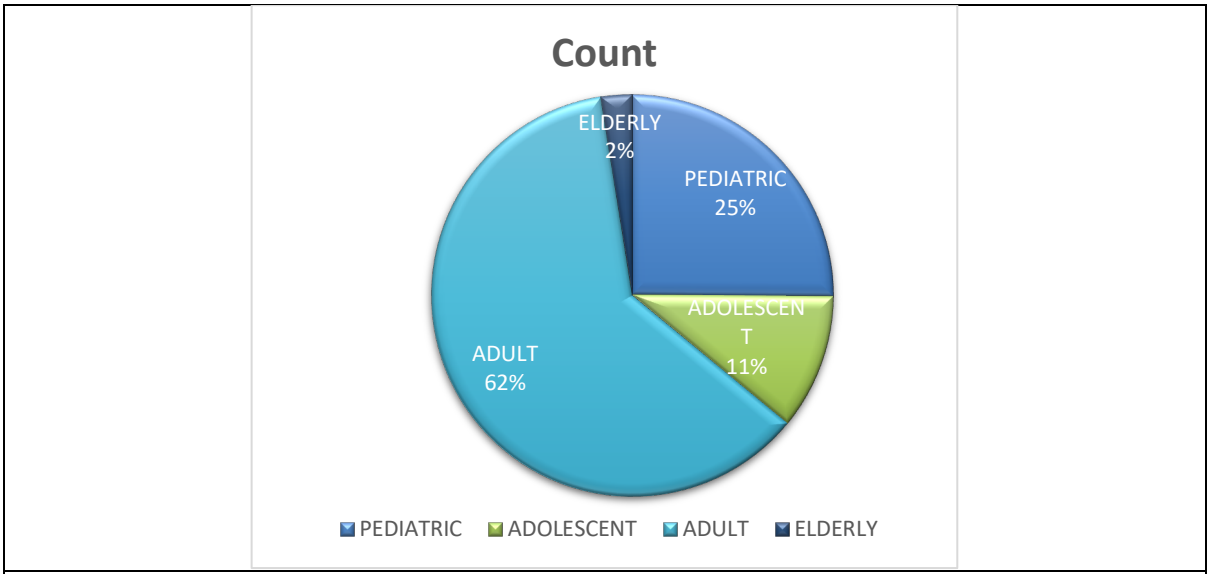

Figure 1: Age distribution

Table 1: Age categorization

Age Group	Count	Percentage
Pediatric (0–12)	51	25.1%
Adolescent (13–19)	22	10.8%
Adult (20–60)	125	61.6%
Elderly (>60)	5	2.5%

In this study, 126 females (62.1%) and 77 males (37.9%) presented to OPD, indicating a higher incidence of otalgia among women in this cohort. [Table 2]

Table 2: Gender distribution

Gender	Count	Percentage
Female	126	62.1%
Male	77	37.9%

Clinical Diagnosis

The various diagnosis based on the data collected was tabulated and found to be due to -

- Otitis externa (n = 68, 33.5%) (figure 2)
- Acute otitis media (AOM) (n = 40, 19.7%) (figure 3)
- Traumatic perforation of the tympanic membrane (n =6, 3 %) (figure :3)

Figure 2: Otitis externa

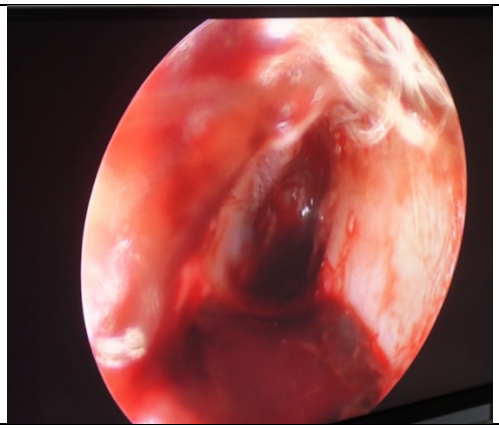

Figure 3: Acute otitis media (AOM)

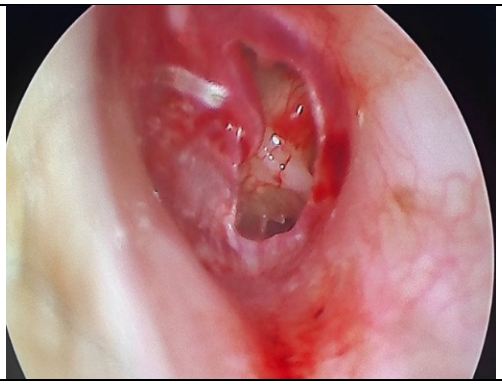

Figure 4: Traumatic perforation of tympanic membrane

Figure 4: Foreign body (Insect)

Comparison between age group and the causative etiology of otalgia was evaluated (Table 4)

- Paediatric patients (0-12 years) had the highest prevalence of AOM (56.5%).
- In the adult category, otitis externa was the most common cause (43.9%) followed by ET catarrh (15.4%) and otomycosis and impacted ear wax (12.2%).
- Among adolescent patients, otitis externa and otomycosis (28.9%) were equally distributed.

Table 3: Comparison of various etiologies of otalgia (N = 203)

Etiology of Otalgia	Number	Percentage of Affected Patients (%)
Otitis Externa	68	33.5
Acute Otitis Media (AOM)	40	19.7
Eustachian tube Catarrh following Upper Respiratory tract infection	25	12.3
Impacted Ear Wax	20	9.9
Otomycosis	17	8.4
Foreign Body	8	3.9
TMJ Arthralgia (Referred Otalgia)	8	3.9
Traumatic Perforation of the TM	6	3.0
Acute Tonsillitis (Referred Otalgia)	4	2.0
Acute Pharyngitis (Referred otalgia)	3	1.5
Others*	4	2.0
# Others include causes such as malignant otitis externa, bullous myringitis comprise a smaller proportion of patients		

Table 4: Comparison of the diagnosis versus the age group categories

	Otitis Externa	Acute Otitis Media	ET Catarrh	Otomycosis	Impacted Wax	Referred Otalgia
Paediatric (0-12 Years)	9 (19.6%)	26 (56.5%)	1 (2.2%)	0 (0.0%)	9 (19.6%)	1 (2.2%)
Adolescents (13- 18 Years)	4 (28.6%)	2 (14.3%)	3 (21.4%)	4 (28.6%)	0 (0.0%)	1 (7.1%)
Adults (19-60 Years)	54 (43.9%)	14 (11.4%)	19 (15.4%)	15 (12.2%)	10 (8.1%)	11 (8.9%)
Elderly (>60 Years)	1 (20.0%)	0 (0.0%)	2 (40.0%)	0 (0.0%)	1 (20.0%)	1 (20.0%)

Statistical Analysis: A Chi-square test of independence was performed to examine the relationship between age group and diagnosis. The results showed a statistically significant association:

Test Parameter	Value
Chi-square statistic	45.88
Degrees of freedom	9
p-value	6.35×10^{-7}
Result	**Significant**

Interpretation: The variation in diagnosis across age groups is statistically significant ($p < 0.05$).

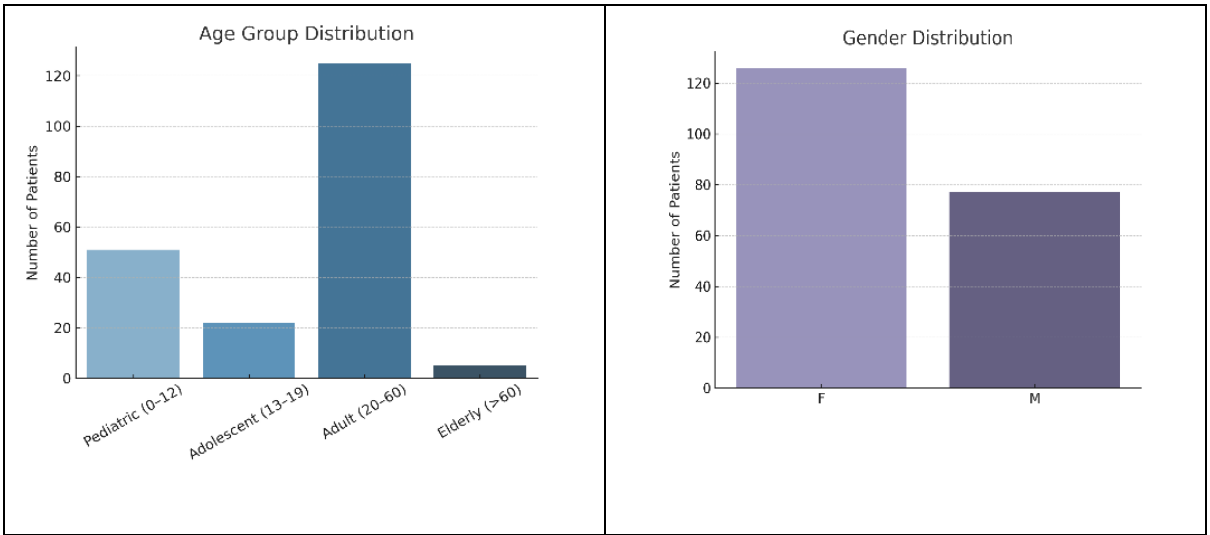

Figure 2: Bar graph showing distribution based on the age and gender

Discussion

Otalgia though frequent is often a challenging complaint in ENT practice. This study aims to evaluate the clinical epidemiological profile of otalgia cases in a tertiary care hospital in Thiruvallur District, Tamil Nadu. Our findings represent the biological, environmental and social factors in the clinical presentation and pathogenesis of otalgia.

In this study majority of our patients were adults aged 20–60 years (61.6%), followed by children (25.1%), which is in line with other Indian studies. [3,6]. Female predominance (62.1%) in this study may be attributed to gender differences in health-seeking behavior, as observed in Central Indian studies.[2]

Referred otalgia accounted for 7.4% of cases making it a significant cause for Otalgia especially when the ear examination proves to be normal. This aligns with the findings by Karmacharya and Sah (2020), who reported that 40% of otalgia cases were referred in nature in their tertiary care setup, with temporomandibular joint (TMJ), dental and cervical spine disorders as common causes. Wazen et al (1989) [7] and Yanagisawa et al (1992) [8] affirmed the need for considering referred otalgia as a cause of Otalgia. In our study, TMJ arthralgia, acute tonsillitis and acute pharyngitis were the main reasons contributing to referred otalgia.

The most common diagnosis was Acute otitis media (AOM), among the pediatric group, similar to international and regional studies that exhibited AOM as commonest cause of otalgia, in whom it was associated with upper respiratory tract infections.[9] The tropical and humid climate of Thiruvallur, Tamil Nadu, make children susceptible to such infections and increased incidence of upper respiratory tract infection.

In our study 43.9 % of our cases had Otitis externa, commonly among adults. Otitis externa is common in this area as the climate is highly humid and also due to poor personal and ear hygiene. Various studies from South India and African countries have also reported the same, where the climate and hygiene issues plays a significant role. [4,10] The other important primary ear etiologies include otomycosis and ear wax impaction.

The epidemiology of otalgia is highly influenced by socioeconomic conditions and climate. This area's hot and humid climate enhances bacterial and fungal infections, owing to the higher rate of otitis externa in this study. Limited access to medical care, clean water, and sanitation makes the disease more prevalent at this rural region.

The health-seeking behaviour and awareness are dependent on the socioeconomic status of the patient. Ear cleaning practices such as using unclean instruments are common in households, often leading to secondary infection and trauma.[10] Comorbidities like diabetes mellitus, hypertension and nutritional deficiencies, impair the immune system, increase the occurrence and recurrence of ear infections [11] especially otomycosis.

The main clinical implications of this study is the significance of considering referred causes of otalgia, in adults and the elderly. An extensive head and neck examination must be carried out after excluding ear pathologies to ascertain the cause of otalgia. Studies have revealed that TMJ dysfunction, dental caries and neoplastic lesions in the head and neck region may present exclusively with otalgia. [12,13]

The statistically significant relationship between age group and diagnosis ($p < 0.001$) confirms the requirement for age-specific diagnostic protocol. For example, in children the incidence of AOM is higher which is suggestive that the treatment protocol and preventive strategies such as vaccination and health awareness among parents may turn fruitful.

The large sample size and the detailed analysis make this study a significant one in this region.

Conclusion

This study states that there are the multiple factors contributing to otalgia in Thiruvallur district, highlighting that primary otologic infections are not the only cause for ear pain. There are other referred etiologies which can cause otalgia, such as acute tonsillitis, acute pharyngitis, dental caries and TMJ arthritis. Other similar studies from this region also observe that the clinical profile, socioeconomic status, environmental factors and cultural practices play a pivotal role in the occurrence of otalgia, aligning with the observations in our study.

Our results show a statistically significant association between age groups and the types of otalgia, making acute otitis media in pediatric patients, as the most common cause for otalgia, while in adults it was otitis externa. The previous researches also suggest similar age-specific causes of otalgia which states that the specific diagnostic and management protocols are essential for effective management.

The study calls for a multimodality approach towards early diagnosis, appropriate interventions, and community awareness on safe ear care. By establishing comprehensive public health protocols and implementing awareness among healthcare providers, it is possible to reduce the disease burden and improve the outcomes in this region.

In conclusion, for effective management of otalgia, a structured and comprehensive management plan is necessary keeping in mind the varied etiological factors, thereby enhancing patient's well-being and overall quality of care in Thiruvallur district.

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