



Analyzing Clinical Manifestations of Mucosal vs. Squamous Chronic Otitis Media: A Comparative Assessment

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Received Date: January 06, 2025; **Published Date:** January 28, 2025

Abstract

Background: In the quiet of a bustling town, where crowded homes offer little space for solitude, a common yet silent affliction persists-chronic otitis media. This condition, often unnoticed until it takes hold, causes a slow and steady loss of hearing, accompanied by the constant annoyance of ear discharge. While it affects a small percentage of the global population, its impact is most profound in areas where poverty, crowded living conditions, lack of awareness and poor healthcare make its presence more frequent.

Objective: To analyze the clinical characteristics of chronic otitis media in its mucosal and squamous subtypes and complications associated with Chronic Otitis media Squamous type.

Methods: This research followed a prospective, longitudinal, and analytical design involving 150 patients who exhibited symptoms of chronic otitis media. The study was conducted at the Otolaryngology Department outpatient clinic of Ahalia hospital, Burjeel Hospital Abu Dhabi UAE during the period from September 2017 to June 2021. Patients with prior surgical interventions or incomplete case histories were excluded from this study.

Results: Out of the 150 cases examined, 90 (60%) were diagnosed with chronic otitis media-mucosal, while 60 (40%) had chronic otitis media-squamous. Both groups included patients under 40 years of age. Regarding the etiological factors, oil or water exposure was the predominant cause in chronic otitis media-mucosal (60%), whereas in chronic otitis media-squamous, the most common causes were recurrent upper respiratory tract infections (80.5%) and oil or water exposure (60%). It is important to mention here that, most patients had two or more contributing factors. Ear discharge was the most prevalent clinical feature in both groups, affecting 89% of chronic otitis media-mucosal cases and 72% of chronic otitis media-squamous cases. Complications were primarily observed in the chronic otitis media-squamous group, with mastoid abscess being the most frequent complication, occurring in 1% of cases. That was mainly due to good medical services and awareness in UAE.

Conclusion: Younger individuals and those with limited access to health education experience higher rates of chronic otitis media. Therefore, it is necessary to disseminate health education on ear diseases, which can help lower the prevalence of the condition, particularly in developing countries.

Keywords: Chronic Otitis Media; Upper Respiratory Infection; Complications

Abbreviations

UAE: United Arab Emirates; WHO: World Health Organization; COM: Chronic Otitis Media.

Introduction

The United Arab Emirates (UAE) is experiencing rapid growth, with numerous infrastructure projects shaping a dynamic and vibrant atmosphere in the Middle East. Concurrently, an increasing incidence of ear, nose, and throat (ENT) disorders in Gulf countries is being observed, potentially due to environmental influences. The lack of detailed and reliable data further complicates the ability to fully assess this growing health concern. Effective diagnosis of ENT diseases is often reliant on obtaining an accurate clinical history from children or their parents. The World Health Organization (WHO) estimates that 42 million children globally suffer from hearing impairment, with otitis media being the leading cause [1,2]. This study aims to determine the exact magnitude of ENT diseases affecting children in the region, with the hope that the results will prompt health authorities to initiate public health campaigns, including television shows, seminars, and poster presentations, to raise awareness. Furthermore, ENT specialists are crucial in the prevention, early detection, and effective management of these disorders.

Chronic otitis media (COM) is an ongoing ear infection that affects the middle ear. It can lead to serious problems, such as the destruction of the ear drum and small bones in the ear, which may cause permanent hearing loss and continuous ear discharge [3]. There are different types of COM, which are now classified as healed COM, active or inactive mucosal COM, and active or inactive squamous COM, replacing the older terms like chronic suppurative otitis media [4]. COM is a fairly common condition, affecting anywhere from 0.5% to 30% of the population, with higher rates seen in poorer, overcrowded areas [5]. In our country, about .8% of people are affected by it. Factors such as age, low-income living conditions, and limited access to healthcare are linked to higher rates of COM [3].

In mucosal COM, a hole in the ear drum (called a perforation) may occur without much inflammation in the ear or mastoid bone if the condition is inactive. In the active form, there is constant inflammation in the ear lining, which often causes ear discharge that can be triggered by colds, water exposure, or even certain medications [6,7].

Squamous COM, on the other hand, can involve a pocket of skin growing into the ear drum (a retraction pocket), and if the condition is active, a growth called cholesteatoma may develop. This type of COM typically produces a bad-smelling

discharge and carries a higher risk of complications like infections in the mastoid bone, inner ear, and even the brain [8,9]. Though these complications are less common with mucosal COM, they can still happen.

Our study aims to compare the symptoms and clinical features of the two main types of COM-mucosal and squamous-to help us better understand how they differ and how to treat them more effectively [10].

Methods

This study included a prospective, longitudinal, and analytical design to examine 150 patients with characteristics of COM, all of whom attended the ENT outpatient clinics at Ahalia and Burjeel Hospitals in Abu Dhabi, UAE, from September 2017 to June 2021. Excluded from the study were patients who had undergone prior operative intervention or had inadequate or no prior information. The data were analyzed manually, focusing on frequency and percentage distribution. A total of 150 COM cases were part of the study. Among them, 90 cases (60%) were of the mucosal type, while 60 cases (40%) were squamous, as shown in Table 1. Information on the distribution of age and sex, causative factors, clinical characteristics, and complications can be found in (Tables 1-7).

Types	Number
CSOM -Mucosal	90
CSOM - Squamous	60

Table 1: Types of Otitis media (n=150).

Age (years)	Chronic Otitis media -Mucosal Type (N=90)	Chronic Otitis media - Squamous Type (N=60)
Below 10	30	4
Oct-20	24	14
20-30	20	20
30-40	6	16
40-50	6	6
More than 50 years	4	NIL

Table 2: Age distribution of patients in both COM mucosal and squamous.

Sex	Chronic otitis media (mucosal)	Chronic Otitis media (Squamous)
Male	62	37
Female	28	23

Table 3: Sex distribution in both mucosal and squamous type.

Etiological factor	Chronic otitis media (mucosal) (n=90)	Chronic Otitis media (squamous) (n=60)
Upper Respiratory Infection	54	30
Oil or water instillation	20	8
Over crowding	8	-
Family History	2	2
No factors involved	6	20

Table 4: Etiological factors responsible.

Clinical Features	Chronic otitis media (Mucosal) n-150
Otorrhea	94
Tinnitus	6
Audiological deficit	26
Otalgia	20
Dizziness	4

Table 5: Clinical features in chronic otitis media (Mucosal type).

Clinical Features	Chronic otitis media (squamous type) (n=60)
Otorrhea	26
Audiology deficit	40
Tinnitus	7
Dizziness	4
Headache	2
Diplopia	-
Vomiting	-

Table 6: Clinical features in chronic otitis media squamous type.

Complications	No. of cases of Chronic otitis media (Squamous Type)
Mastoid abscess	7
Labyrinthitis	2
Meningitis	1
Petrositis	2

Table 7: Complications in Chronic otitis media (squamous Type).

Discussion

Chronic Otitis Media (COM) is a significant health issue, especially in developing nations, with prevalence rates ranging from 0.5% to 30%. Individuals most affected tend to come from low socio-economic backgrounds, belong to younger age groups, and have a family history of the condition [11,12].

Our research showed that mucosal COM (60%) was more common than squamous COM (40%). The higher prevalence of mucosal COM could be attributed to the persistent ear discharge typically seen in these patients. This frequent discharge often prompts individuals to seek medical help sooner than those with squamous COM, where the discharge is minimal and patients usually visit the hospital only when complications arise or when a foul odor develops. Age-wise, patients below 40 years were more commonly affected, with 88% of mucosal cases and 90% of squamous cases falling in this group. The age involvement could be due to region-specific factors [13] in Tropical countries, such as different microbes in Upper respiratory infections [14], other traditional practices like pouring oil/water into the ears, and increased exposure to unprotected water bodies such as rivers and ponds.

Regarding gender distribution, our study found a higher prevalence in males. Cultural factors in Tropical countries may explain this trend; in many households, men are the primary decision-makers and more likely to prioritize health care, while women, in a male-dominated society, may not receive the same attention [15]. Additionally, men are more likely to swim in public places such as rivers, increasing their risk of water exposure. Findings from Kenna M study corroborate this observation, showing similar outcomes. Etiologically, our study found that oil or water exposure were responsible for 76% of COM cases, with a significant contribution from mucosal COM. Oil application during childbirth and frequent swimming in unprotected waters are common practices in tropical countries, that contribute to the high incidence of the condition. Other factors such as family history, bottle feeding, recurrent upper respiratory tract infections (URTIs), overcrowding, and laryngo-pharyngeal reflux (LPR) were also identified as significant contributors. The connection between recurrent URTIs and eustachian tube dysfunction, as well as overcrowding linked to low socio-economic status [11,12], is consistent with findings in previous studies.

In terms of clinical symptoms, ear discharge (98%) and hearing loss (80.7%) were the most common presentations in mucosal COM. However, a notable difference in our study was that ear discharge was reported as the primary symptom, possibly because patients find it more bothersome than hearing loss. For squamous COM, ear discharge (100%) and

hearing loss (93.7%) were the most frequent presentations, followed by earache (31.2%). Which found hearing loss to be more common than ear discharge.

Cholesteatoma was present in 87.5% of our patients, a higher rate. This could be due to local practices such as habitual nose-blowing, which may increase middle ear pressure and lead to the development of cholesteatoma [16]. The study by Solanki B, et al. [16] also observed the same trend, leading to similar conclusions. Regarding complications, none were observed in the mucosal cases, whereas 9.8% of squamous COM patients experienced complications, including mastoid abscess (5%), meningitis, labyrinthitis, petrositis, and lateral sinus thrombophlebitis [17,18]. George WB, et al. [17] and Smith JA, et al. [19] reported similar findings in their study, aligning with this observation. The frequency of complications in squamous COM aligns with the higher complication rate in squamous COM [19,20] no deaths occurred due to complications in our study.

Conclusion

The results demonstrate that COM is more frequently observed in younger patients and those who lack adequate health education. To reduce the incidence of this disease, it is vital to address health education on ear health as a priority. Moreover, timely diagnosis and treatment can effectively prevent the potentially harmful complications associated with ear diseases.

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