

## Causative and Clinical Correlates of Patients with Chronic Suppurative Otitis Media: A Hospital-Based Study

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**Abstract :** This prospective hospital-based study was conducted on 50 patients with chronic suppurative otitis media (CSOM). Those with acute exacerbation of their disease were excluded. Patients satisfying inclusion criteria were interviewed on a semi structured proforma for demographic details and hygiene related practices. A detailed history was elicited followed by ENT examination and pure tone audiometry. The mean age of female patients was 36.33 years with a Standard Deviation of 15.21 years, while that of male patients was 25.43 years with a Standard Deviation of 10.11 years. 13(26%) patients had severe aural disease. The difference in the proportion of men and women having tympanic membrane perforation was statistically highly significant ( $X^2=10.67$  and  $p=0.001$ ). 1(2%) of the patients required bilateral tympanoplasty while 5 (10%) of the patients required unilateral modified radical mastoidectomy. 32 (64%) of those who needed surgery had deferred the procedure.

**Keywords** – CSOM, Otorrhoea, Earache

Date of Submission: 10-07-2018

Date of acceptance: 27-07-2018

### I. Introduction

CSOM is a common cause of hearing impairment and disability occasionally leading to acute mastoiditis and fatal intracranial complications.[1] It is an important cause of preventable hearing loss particularly in the developing world and is characterised by persistent discharge from the middle ear through a tympanic perforation. CSOM typically produces mild to moderate conductive hearing loss. This is due to perforation of the eardrum and erosion of the middle ear ossicular chain due to osteomyelitis.[2]

CSOM accounts for 3-80% of the burden of hearing impairment meaning that CSOM contributes more than half to the global burden of hearing impairment and that elimination of CSOM can potentially reduce the global burden by 4/5ths. Mastoiditis and its complications are the most common causes of deaths from CSOM.[2] The commonly encountered intracranial complications were otitic meningitis, lateral sinus thrombosis, and cerebellar abscess while the extracranial complications are mastoid abscess, postauricular fistula, and facial palsy.[3]

The 1993 World Development Report estimated a loss of 5.12 million DALYs[Disability Adjusted Life Years] due to otitis media, 91% of which were from developing countries.[2] Poor living conditions and lack of access to medical facilities are major risk factors in the development of CSOM.

### II. Objective

The aim of this cross sectional hospital-based study was to assess the demographic and causative factors and clinical picture of patients with chronic suppurative otitis media.

### III. Materials And Methods

**3.1. Place of study:** This study was conducted in a hospital in Maharashtra in Western India.

**3.2. Inclusion criteria:** Patients aged 18 years and above, of either sex, with chronic aural conditions having the disease for more than 6 months and who gave written informed consent were included.

**3.3. Exclusion criteria:** Patients suffering from acute exacerbation of the disease were excluded.

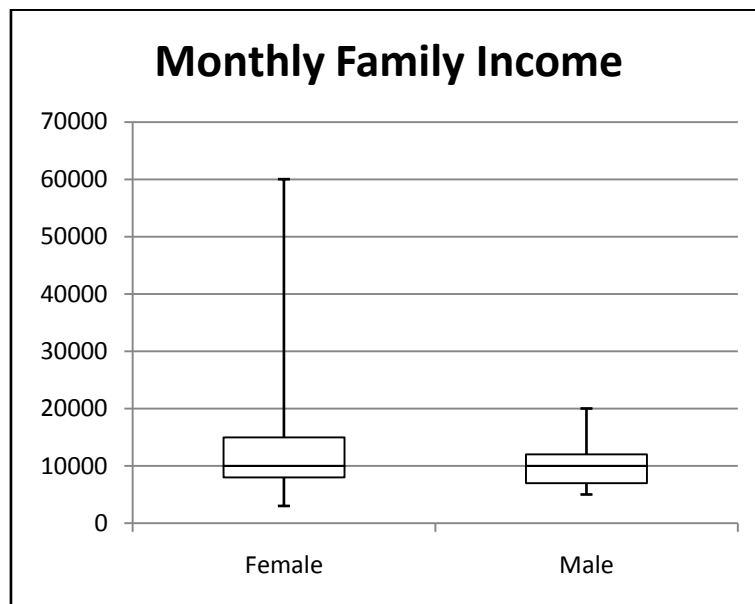
**3.4. Procedure:** Patients satisfying inclusion criteria were interviewed on a semi structured proforma for demographic details and hygiene related practices. A detailed history was elicited followed by ENT examination and pure tone audiometry.

**3.5. Statistical analysis:** The obtained data were tabulated and statistically analysed using EpiInfo Version 7.0 (public domain software package from the Centers for Disease Control and Prevention, Atlanta, GA, USA).

Continuous data were presented as Mean and Standard Deviation (SD). Categorical data were presented as percentages. The standard error of difference between two means was calculated. Statistical significance was determined at  $p < 0.05$ .

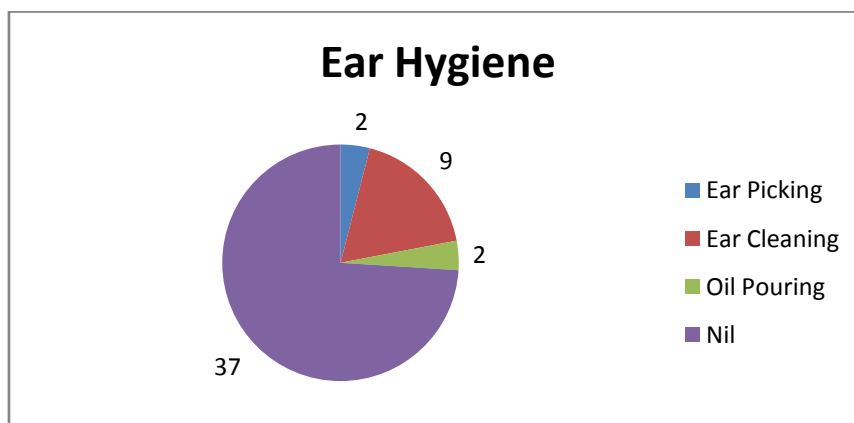
#### IV. Results And Discussion

**4.1. Demographics:** Of the 50 patients, 72% (n=36) were females and 28% (n=14) were males. The mean age of female patients was 36.33 years with a Standard Deviation of 15.21 years, while that of male patients was 25.43 years with a Standard Deviation of 10.11 years. Most of the participants 47 (94%) were residing in the same district where the hospital is located but only 7(14%) were natives of the district. 36 (72%) of the patients were married while 16 (32%) of the patients were illiterate. 40 (80%) of the patients were unemployed. 31 (62%) of the patients had not got the surgery done even when they knew that they needed it. The mean monthly income of patients was Rs. 11940/- with a Standard Deviation of Rs.8524.65. In a study at Malawi, an increased risk of CSOM was observed in children sleeping in a house with more than 2 children. [4]



**Fig. 1:** Boxplot of family income of patients

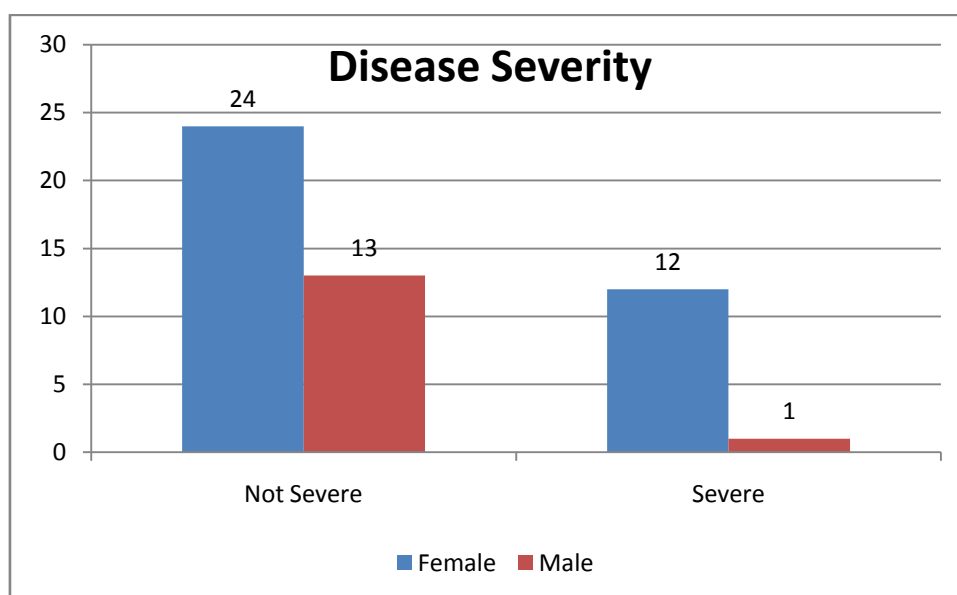
**4.2. Hygiene Habits:** All of the patients had a bath with soap and water but 2 (4%) patients had a bath 3-4 times a week. 9 (18%) patients indulged in ear cleaning with an ear bud, 2 (4%) patients indulged in occasional ear picking with matchsticks and 2 (4%) patients indulged in occasional pouring of coconut oil in the ear. Poor living conditions an aural hygiene was an important risk factor in the development of CSOM. [2]



**Fig. 2:** Pie Chart depicting ear hygiene habits

**4.3. Diseases:** 11 (22%) of the patients had active bilateral disease on otoscopy. 40 (80%) of the patients had tympanic membrane perforation out of which 33 (66%) were women and 7 (14%) were men. The difference in the proportion of men and women having tympanic membrane perforation was statistically highly significant

( $\chi^2=10.67$  and  $p=0.001$ ). 13 (26%) patients had severe aural disease. In a study High Resolution Computerised Tomography was found to be of immense value in assessment of chronically discharging ears, especially to look for bone erosion and the integrity of the ossicles due to its high resolution. [5]



**Fig. 3:** Bar diagram depicting disease severity

**4.4. Symptoms:** 6 (12%) of the patients had symptoms in both the ears, 20 (40%) patients had symptoms in the ear while 24 (48%) patients had symptoms in the right ear. Otorrhoea was the main symptom with 46 (92%) patients complaining about the same. 23 (46%) patients complained of decreased hearing while 13 (26%) complained of earache.

**4.5 Audiometry:** 20 (40%) of the patients had bilateral hearing loss. The difference in the prevalence of bilateral hearing loss between male and female patients was statistically insignificant ( $p=0.308$ ). 41 (82%) of the patients had conductive hearing loss while 9 (16%) had mixed hearing loss. The difference in the prevalence of conductive hearing loss between male and female patients was statistically insignificant ( $p=0.217$ ). 22 (44%) patients had mild hearing loss, while 21 (42%) have moderate hearing loss and 7 (14%) of the patients had severe hearing loss. In a recent study the incidence of sensorineural deafness increased with the presence of Diabetes Mellitus, smoking, duration of disease, presence of active discharge and the increase in size of perforation.[6] In an Indian study moderate to severe hearing loss was considered as an indicator of incudal necrosis.[7]

**4.6. Treatment:** Topical antibiotics combined with aural toilet is the first-hand treatment for CSOM. [8] All patients were treated with a standard regimen of 15 days post-operative oral antibiotic regimen containing fluoroquinolones and penicillins. 1(2%) of the patients required bilateral tympanoplasty while 5 (10%) of the patients required unilateral modified radical mastoidectomy. Rest 44 (88%) of the patients were treated with unilateral tympanoplasty. Doing mastoidectomy reduces the need for revision procedures. [9] In a study relating endotracheal tube function to the outcome of tympanoplasty it was inferred that poor endotracheal tube function due to nasal septum deviations did not affect the outcomes of tympanoplasty. [10] In another American study outcomes of tympanoplasty with or without mastoidectomy were comparable in non-choleosteatomous CSOM patients. [11] 32 (64%) of those who needed surgery had deferred the procedure. The difference in the mean incomes of those who deferred surgery and those who did not was statistically insignificant ( $z=1.29$ ,  $p=0.194$ ). Early diagnosis and treatment of CSOM were responsible for low prevalence of CSOM amongst school children in a Tanzanian study. [12]

## V. Conclusion

Very few patients indulged in occasional ear picking with matchsticks and pouring of coconut oil in the ear. 11 (22%) of the patients had active bilateral disease on otoscopy. 26% patients had severe aural disease. Otorrhoea was the main symptom with a substantial number of patients complaining about the same. 41 (82%) of the patients had conductive hearing loss. 44 (88%) of the patients were treated with unilateral tympanoplasty.

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Shweta Baviskar "Causative and Clinical Correlates of Patients with Chronic Suppurative Otitis Media: A Hospital-Based Study" IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 17, no. 7, 2018, pp 01-04