

**Original research article****Aerobic bacteriology of chronic suppurative otitis media****<sup>1</sup>Santosh Patil, <sup>2</sup>Shivani Manjrekar**<sup>1</sup>Assistant Professor, Department of ENT, JGMM Medical College, Hubballi, Karnataka, India<sup>2</sup>Associate Professor, Department of Community Medicine, SSPM Medical College, Kasal, Sindhudurg, Maharashtra, India**Corresponding Author:**

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**Abstract**

This study was carried out to investigate the aerobic bacteria involved and their antibiotic sensitivity pattern in patients with Chronic Suppurative Otitis Media (CSOM), as well as to give a guideline for empirical antibiotic therapy. *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Klebsiella* species, and *Proteus* species are the types of bacteria that are most commonly identified in patients with chronic suppurative otitis media. It is absolutely necessary to have an understanding of the local pattern of infection in order to be able to treat this condition effectively. In order to give a guideline for empirical antibiotic therapy, the purpose of this study is to identify the local pattern of aerobic bacteria that are engaged in instances of chronic suppurative otitis media and the antimicrobial sensitivity pattern of those microbes.

**Keywords:** Aerobic, bacteriology, CSOM**Introduction**

Middle ear infections are rather frequent, and one of the most prevalent types is called chronic suppurative otitis media, or CSOM. Infection of the middle ear that has lasted for more than three months and is accompanied by perforation of the tympanic membrane is the definition of CSOM that is considered to be the most acceptable <sup>[1]</sup>. It is one of the diseases that affects people of all ages, although it is most prevalent in children. The illness is more common in developing nations and can be attributed to the poverty in those nations <sup>[2]</sup>. Chronic suppurative otitis media has a significant influence on society in terms of the resources that are required in treatment, as well as the direct impact that chronic infection has on a patient's ability to hear <sup>[3]</sup>. It results in conductive and sensorineural hearing loss as well as having a negative impact on the development of children <sup>[4]</sup>. The use of topical therapy is typically the initial step in the treatment process for CSOM. Because of safety concerns regarding ototoxicity, the usage of ear drops containing aminoglycosides has been on the decline. Ear drops containing quinolone have been shown to have effective anti-pseudomonal and broad-spectrum antibacterial action, in addition to being non-ototoxic <sup>[5, 6]</sup>. *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Klebsiella* species, and *Proteus* species are the types of bacteria that are most commonly identified in patients with chronic suppurative otitis media <sup>[2]</sup>. It is absolutely necessary to have an understanding of the local pattern of infection in order to be able to treat this condition effectively. In order to give a guideline for empirical antibiotic therapy, the purpose of this study is to identify the local pattern of aerobic bacteria that are engaged in instances of chronic suppurative otitis media and the antimicrobial sensitivity pattern of those microbes.

**Aims and Objectives**

To study the Aerobic bacteriology of Chronic Suppurative Otitis Media.

**Materials and Methods**

The data for this study came from previous investigations, and it was based on samples that were sent in by the Ear, Nose and Throat Department (ENT). This study comprised a total of 60 purulent discharge samples from clinically diagnosed cases of CSOM that occurred between March 2020 and February 2021 and were sent to the Microbiology lab for culture and sensitivity testing. The samples were collected between March 2020 and February 2021. For the purpose of collecting the samples, sterile cotton swab sticks were utilized.

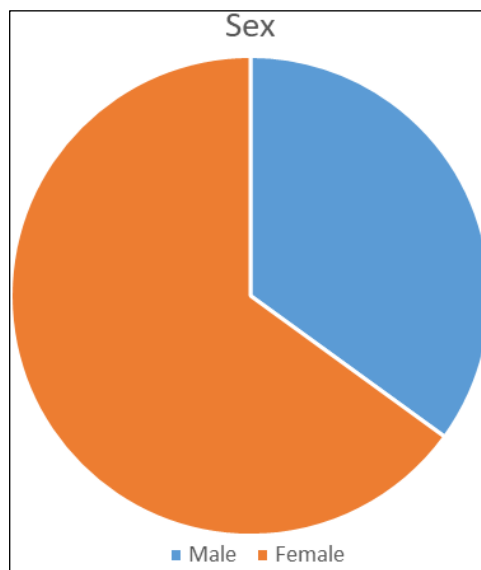
The pus swabs were cultivated on Blood and MacConkeys agar, and the mixture was incubated aerobically at 37 degrees Celsius for a whole day. Standard microbiological methods were utilized in order to identify each and every organism that was isolated <sup>[7]</sup>. Antimicrobial susceptibility tests were carried out via the Kirby-Bauer disc diffusion method, which was then updated based on the criteria provided by the Clinical and Laboratory Standards Institute <sup>[8]</sup>. The following antimicrobials were

included on the standard antimicrobial discs used for Staph aureus testing: oxacillin (1 g), cotrimoxazole (25 g), penicillin (10 U), cloxacillin (10 g), gentamicin (10 g), chloramphenicol (30 g), ciprofloxacin (5 g), and vancomycin (10 g). These discs were manufactured by HI Media Laboratories, ATCC 43300 from the American Type Culture Collection was utilized as the control for this experiment. Gentamicin (10 micrograms), chloramphenicol (30 micrograms), ciprofloxacin (5 micrograms), ceftazidime (30 micrograms), piperacillin (100 micrograms), carbenecillin (100 micrograms) and tobramycin (10 micrograms) were the typical antimicrobial discs used for Pseudomonas aeruginosa in HI Media. The organism designated as ATCC 27853 served as the control.

**Results**

**Table 1:** Mean age

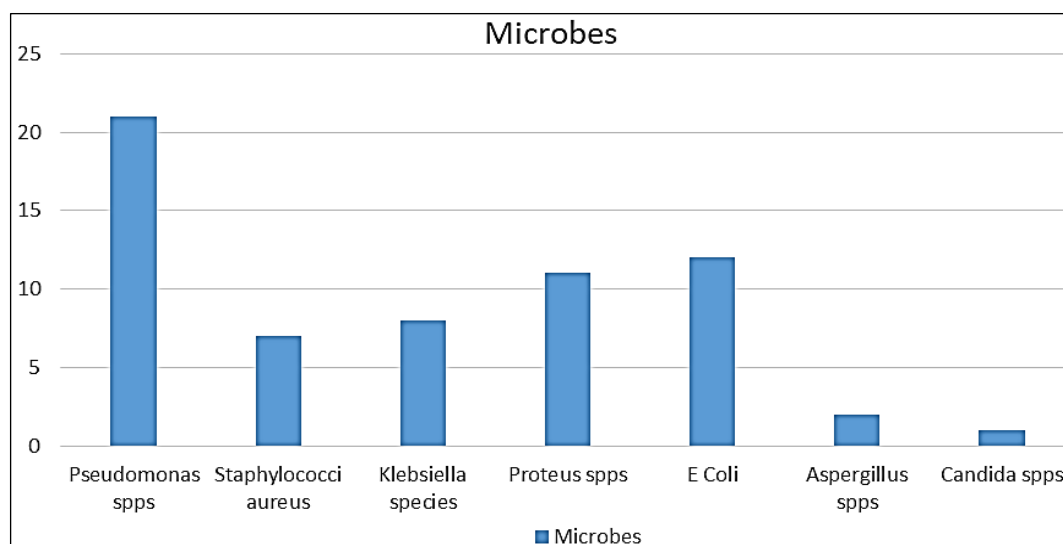
Mean Age	Standard Deviation
21.32 years	09.15 years



**Image 1:** Sex Distribution

**Table 2:** Microbiology

Microbes	Frequency
Pseudomonas spps	21
Staphylococci aureus	7
Klebsiella species	8
Proteus spps	11
E Coli	12
Aspergillus spps	02
Candida spps	01



Graph 2: Microbiology

### Discussion

CSOM is a disorder of the middle ear that is characterized by persistent or recurring discharge through a chronic perforation of the tympanic membrane. This discharge can be caused by a variety of factors, including infection, trauma or inflammation. As a result of the tympanic membrane's ability to get perforated, bacteria are able to enter the middle ear through the external ear canal. Ear discharge is typically the result of an infection of the mucosa that lines the middle ear. It is a chronic condition that carries a high risk of complications that cannot be reversed. Complications like this include things like recurrent otorrhoea, mastoiditis, labyrinthitis and facial nerve paralysis, as well as more serious consequences like cerebral abscesses or thrombosis<sup>[9]</sup>. Although if the occurrence of such consequences is uncommon, it is important for a patient who is currently dealing with active CSOM to keep them in mind. The accurate and effective treatment of all patients can be ensured by doing a bacteriological diagnosis as soon as possible. When choosing an antibiotic, it is important to consider how effective it is, how resistant bacteria are to it, whether it is safe, whether it poses a danger of toxicity, and how much it will cost<sup>[9]</sup>. In order to design a protocol for empirical antibiotic therapy, it is vital to have knowledge of the local bacteria, their pattern, and the antibiotic sensitivity of the microorganisms.

### Conclusion

In order to design a protocol for empirical antibiotic therapy, it is vital to have knowledge of the local bacteria, their pattern, and the antibiotic sensitivity of the microorganisms.

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