Original Research Article

Bacteriological profile of chronic suppurative otitis media

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Abstract

Background: Chronic suppurative otitis media (CSOM) is the most common infection of the middle ear characterized by persistent or recurrent purulent discharge from the middle ear through a perforated tympanic membrane. Although it is a global disease, its incidence has remained relatively higher in developing countries and in poor socio economic group of populations **Aims and Objectives:** To study Bacteriological profile of chronic suppurative otitis media. **Methodology:** After approval from institutional ethical committee a cross-sectional study was carried out in the patients of Chronic Suppurative Otitis Media at the department of the Otolaryngology of a tertiary health care center during the one-year period i.e. June 2016 to June 2017. **Result:** In our study we have seen that the majority of the patients were in the age group of 10-20 were -31.94% followed by ;>60-27.78%, 50-60-12.50%, 40-50-11.11%, 20-30-9.72%.The majority of the patients were Female i.e. 61.11% and Males were 38.89%.The majority of the patients were having Bilateral disease i.e. 76.39% and 23.61% were unilateral. The most common organism isolated was Pseudomonas aeruginosa -41.72%, followed by Staph Aureus in 13.72%, Klebsiellaaerogens in12.12%, E.Coli in 9.12%, Proteus Mirabillis-7.51%, Peptostreptococcus Spp. In 3.78%, Propionibacterium-2.12%, No growth in 21%. **Conclusion:** It can be concluded from our study that the most common age was young and old age, most common in females and bilateral. The most common organism were Pseudomonas aeruginosa, Staph Aureus, Klebsiellaaerogens respectively.

Key Words: Chronic suppurative otitis media (CSOM), Etiology of CSOM, Bacteriology of CSOM.

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INTRODUCTION

Chronic suppurative otitis media (CSOM) is the most common infection of the middle ear characterized by persistent or recurrent purulent discharge from the middle ear through a perforated tympanic membrane. Although it is a global disease, its incidence has remained relatively higher in developing countries and in poor socio economic group of populations.[1]CSOM was found to be a single major cause of conductive deafness and was responsible for 60.27 % of cases.[2] Due to the recurrent nature of the disease and the development of drug resistant pathogenic organisms, the control of infection poses a great therapeutic challenge. In CSOM the wide range of microrganisms both aerobic (eg: Pseudomonas aeruginosa, Escherichia coli, streptococus pyogenes, proteousmirabils, klebsiela species) and anaerobic (eg: Bacteroids, Peptostreptococus, Propioni bacterium) and fungi (eg: Candida, Aspergilus, Penicilium and Rhizopus) are asocialted.[3] CSOM is an important cause of preventable hearing loss particularly in the developing world[4] and a reason of serious concern, particularly in children, because it may have long-term effects on early communication, language development, auditory processing, educational process, and physiological and cognitive development.[5] Early, microbiological diagnosis ensures prompt and effective treatment to avoid such complications. We found that the CSOM was more prevalent in first and second decade of life and accounted for 52% of the cases. High-prevalence of CSOM in children may be attributed to the fact that they are more prone to upper respiratory tract infections (URTIs).

Furthermore, cold weather pre-disposes children to URTI. Along with these poor socio-economic status and unhygienic conditions and improper sanitation habits can further predispose to recurrent ear discharge.[6,7].

MATERIAL AND METHODS

After approval from institutional ethical committee a cross-sectional study was carried out in the patients of Chronic Suppurative Otitis Media at the department of the Otolaryngology of a tertiary health care center during the one-year period i.e. June 2016 to June 2017 all the patients except who don't given the written consent and who were immunocompromised were excluded from the study. During the one-year total 72 patients were included into the study. The details of the patients like age, sex and laterality etc. was retrieved. The samples of discharge from affected ears were taken with all the aseptic precautions, these samples were sent for the culture and Microscopy, after this the organism was confirmed.

RESULT

Table 1: Distribution of the patients as per the age

Age	No.	%
10-20	23	31.94
20-30	7	9.72
30-40	5	6.94
40-50	8	11.11
50-60	9	12.50
>60	20	27.78
Total	**72**	**100.00**

The majority of the patients were in the age group of 10-20 were -31.94% followed by ;>60-27.78%, 50-60-12.50%, 40-50-11.11%, 20-30-9.72%.

Table 2: Distribution of the patients as per the sex

Sex	No.	%
Male	28	38.89
Female	44	61.11
Total	**72**	**100.00**

The majority of the patients were Female i.e. 61.11% and Males were 38.89%.

Table 3: Distribution of the patients as per the laterality

Laterality	No.	%
Unilateral	17	23.61
Bilateral	55	76.39
Total	**72**	**100.00**

The majority of the patients were having Bilateral disease i.e.76.39% and 23.61% were unilateral.

Table 4: Distribution of the patients as per the Organism isolated

Organism	No. of Cases (n=72)	%
Pseudomonas aeruginosa	30	41.72%
Staph Aureus	10	13.72%
Klebsiellaaerogens	9	12.12%
E.Coli	7	9.12%
Proteus Mirabillis	5	7.51%
Peptostreptococcus Spp.	3	3.78%
Propionibacterium	2	2.12%
No growth	15	21%

The most common organism isolated was Pseudomonas aeruginosa -41.72%, followed by Staph Aureus in 13.72%, Klebsiellaaerogens in12.12%, E.Coli in 9.12%, Proteus Mirabillis-7.51%, Peptostreptococcus Spp. In 3.78%, Propionibacterium-2.12%, No growth in 21%

DISCUSSION

The chronic otitis media (COM) is defined as a permanent perforation of the tympanic membrane, which does not close by itself, and an inflammatory reaction in the mucosa of the middle ear. Two main forms of COM are distinct: the chronic suppurative otitis media and the cholesteatomatous COM. Bacterial infection is often the cause of exacerbation and treatment failure in CSOM[12]Suppurative otitis media with its unpleasant symptoms and complications may be a catastrophe for the marvellously structured organ, the ear, on which much of our appreciation of life and human activity depends. It is a privilege for an otorhinolaryngologist to preserve, repair and take utmost care of the structure and function of this wonderful organ, in whatever condition it is presented. It is a challenge especially in children to prevent the progress of acute suppurative otitis media to a chronic disease [8]. A WHO/CIBA Foundation workshop [9]in 1996 defined Chronic suppurative otitis media as a stage of disease in which there is chronic infection of the middle ear cleft, i.e., eustachean tube, middle ear and mastoid, and in which a non-intact tympanic membrane (e.g., perforation or tympanostomy tube) and discharge (otorrhoea) are present for at least 2 weeks or more. Chronic suppurative otitis media (CSOM) was earlier defined as persistent or intermittent infected ear discharge from a non intact, perforated tympanic membrane, at least for 12 weeks. Those cases in which there is only central perforation of tympanic membrane without any discharge, they are referred to as inactive CSOM. There are two main varieties of CSOM viz. mucosal (or tubotympanic) type of CSOM and squamous (or atticoantral) CSOM. Active tubotympanic CSOM was rechristened active mucosal chronic otitis media (COM) for sometime but the international symposium on recent advances in otitis media, in 1999 preferred the term chronic suppurative

otitis media (CSOM) to COM which would mean 'a chronic perforation with chronic otitis media.[10] CSOM is one the most commonly encountered diseases in the day to day practice of otorhinolaryngology. It requires remarkable and patient management, especially in the children of poorer socio-economic strata, as they do not or cannot access adequate and persistent treatment for this chronic affliction.[11] In our study we have seen that the majority of the patients were in the age group of 10-20 were -31.94% followed by ;> 60-27.78%, 50-60-12.50%, 40-50-11.11%, 20-30-9.72%. The majority of the patients were Female i.e. 61.11% and Males were 38.89%. The majority of the patients were having Bilateral disease i.e. 76.39% and 23.61% were unilateral. The most common organism isolated was Pseudomonas aeruginosa -41.72%, followed by Staph Aureus in 13.72%, Klebsiellaaerogens in12.12%, E.Coli in 9.12%, Proteus Mirabillis -7.51%, Peptostreptococcus Spp. In 3.78%, Propionibacterium-2.12%, No growth in 21%. These findings are similar to Mohit Srivastava and *et al*, they found Pseudomonas aeruginosa was found to be the most common isolated bacteria (40.65% [100/246]), followed by Staphylococcus aureus (14.63% [36/246]), Klebsiella aerogenes (11.78% [29/246]) and Proteus Mirabilis (10.56% [26/246]). Among the anerobic organ-isms Peptostreptococcus (5.69%) was the most common followed by Propionibacterium (4.06%) and Bacteroids spp. (3.65%)[13]

CONCLUSION

It can be concluded from our study that the most common age was young and old age, most common in females and bilateral. The most common organism were Pseudomonas aeruginosa Staph Aureus, Klebsiellaaerogens respectively.

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