

Microbiological Portrayal of Active Mucosal Com in Western Maharashtra



Medical Science

KEYWORDS : Mucosal Chronic Otitis Media, Antibiotic, Ear Discharge.

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ABSTRACT

Active mucosal chronic otitis media (COM) is one of the most common ENT manifestations seen in all age groups. It is the inflammation of middle ear cleft. The aim of this study is to identify the bacterial isolates causing mucosal COM and to study their antibiotic susceptibility. The study was carried out in a medical college with tertiary care hospital in pune from August 2015 to January 2016 for a period of six months. 92 patients presenting to ENT opd with ear discharge diagnosed as active mucosal COM were considered for study. Under otomicroscopic examination ear swab was taken and sent for microbiological analysis. The most commonly isolated bacteria was Pseudomonas aeruginosa followed by Staphylococcus aureus, Klebsiella Pneumoniae, Escherichia coli were isolated which were sensitive to Ciprofloxacin, Imipenem, Gentamicin and least sensitive to Ceftazidime, Cefoperazone. In the era of developing antibiotic resistance the present study helps us in judicious use of antibiotics by microbiological analysis.

INTRODUCTION:

Active mucosal COM formerly known as safe csom is the persistent inflammation of middle ear with otorrhoea and defect in tympanic membrane. This inflammation of the middle ear is quite common in the developing world [1] The disease usually occurs after upper respiratory viral infections followed by invasion of pyogenic organisms [2]. Complications of untreated case of Otitis media include tympanic membrane perforation, hearing impairment, middle ear granulation, facial nerve palsy early diagnosis assures proper and appropriate treatment. The complications of COM have been reduced to a greater extent because of the invention of antibiotics. But irrational use of antibiotics has lead to the emergence of resistant organisms to the commonly used drugs. This study is carried out to know the exact bacterial etiology of COM and their antibiotic susceptibility pattern. This knowledge is very important for the clinicians for appropriate management .Treatment of the cases after studying the antimicrobial susceptibility pattern will help in preventing the emergence of resistant strains in the community.



Figure 1

MATERIALS AND METHODS

Ninety two patients with diagnosed case of Mucosal COM(Fig-1) in ENT OPD who were not on antibiotics were included in the present study. A short history of complaints of the patient regarding his personal details, duration of discharge, associated symptoms was obtained. Patients on antibiotic therapy, patients with cholesteatoma, pregnant women, seropositive patients were excluded from the study. Under strict aseptic conditions ear discharge was collected from middle ear under otomicroscopy guidance and maintaining the asepsis the swabs were sent for microbiological analysis in department of microbiology for bacterial culture. The swab was cultured in nutrient agar, blood agar and Mac conkey agar plates. The antibiotic susceptibility testing of the bacterial isolates was done by Kirby-Bauer's disc diffusion method on Mueller Hinton agar. The organisms were identified by their morphology, cultural characteristics, and pigment production followed by conventional biochemical tests.

OBSERVATIONS AND RESULTS

The study was carried out in a total of 92 patients comprising 38

males and 54 females reporting to ENT opd. There was no statistically significant sex or age predilection for a sample for a sample of 92 patients to become culture positive in our study. Eighty out of ninety two (86.9%) COM cases showed positive bacterial growth. It was seen that most common organism isolated was Pseudomonas aeruginosa(Fig -2) 29 cases(36.25%) followed by Staphylococcus aureus (Fig-3) 24 cases (30%) among isolated bacterias(Graph-1).29 cases showing Pseudomonas aeruginosa were sensitive to Imipenem (95%), Ciprofloxacin

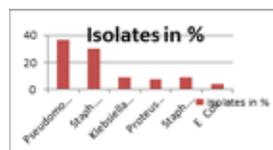


FIGURE 2
(82%), Ceftazidime (78%) and resist- Figure 2
ant to Piperacillin/ Tazobactam (69%)
, Cefoperazone (62%), Cefotaxime(58%)(Graph-2).

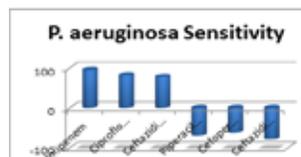


Figure 3
24 cases showing Staphylococcus aureus were sensitive to Ciprofloxacin (86%), Gentamicin (70%), Ofloxacin (68%), Linezolid (57%), and resistant to Co- trimoxazole (85%), Amikacin (70%), Cefotaxime (77%), and Erythromycin (57%)(Graph-3). Gram negative bacteria other than Pseudo- monas aeruginosa were mostly

GRAPH 1

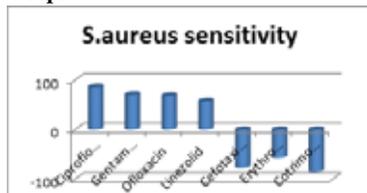


GRAPH 2



sensitive to Ciprofloxacin (89%) and resistant to Cefotaxime (44%), Cefoperazone (37.5%). Staphylococcus saprophyticus was mostly sensitive to Ciprofloxacin (84%) and Beta hemolytic Streptococci were sensitive to Bacitracin.

Graph 3



DISCUSSION:

Active mucosal chronic otitis media is one of the most common ENT manifestations reporting to ENT opd and should be adequately treated. Most of the patients came with symptoms of aural discharge, decreased hearing and pain in the ear. Eighty (80) out of ninety two(92) samples of COM patients were positive for bacterial growth the culture positivity rate was 86.9%. In studies done by Vikas Khanna et al the culture positivity was 84%[3].The most common type of tympanic membrane perforation was central. In our study, 38 were males and 54 were females. Thus females were affected more in our study which is in accordance with Loy et al [4].In our study it was seen that most common organism isolated was Pseudomonas aeruginosa (36.25%) followed by Staphylococcus aureus (30%) among bacterial causes. Klebsiella Pneumoniae 8.7%,ProteusMirabilis 7.5%,Staphylococcus Saprophyticus 8.7%, Escherichia Coli 3.7%, Others 5%. These results were corresponding with the studies of Mansoor et al [5] who found out Pseudomonas aeruginosa as the most common isolates from the discharge of CSOM similarly Osazuwa F et al[6]found that Pseudomonas aeruginosa (28.3%) was the predominant bacteria in their study followed by Staphylococcus aureus(21.0%).Similarly Pseudomonas aeruginosa was the most prevalent organism from CSOM cases reported in several studies[7,8].while some studies showed that Staphylococcus aureus was the most common isolate in their study[9].Antibiotic sensitivity was tested for all the organisms isolated. In our study Ciprofloxacin emerged as the most effective antibiotic useful for the patients in which is sensitive against more than 84% of Pseudomonas, Staphylococci and other pathogens. Although Pseudomonas aeruginosa was more sensitive to Imipenem (95%), but was almost 82% sensitive to Ciprofloxacin. In our study Pseudomonas which were resistant to Ciprofloxacin were sensitive to Imipenem which is a similar finding observed by Jang et al. [10].The resistance to ciprofloxacin and other drugs by bacteria can be explained by the principle of Bio Films which gives us a detail knowledge of bacterial resistance pattern[11].Ciprofloxacin a fluoro-quinolones is a non ototoxic drug readily available drug. Because of its widespread availability and less toxicity it is haphazardly used and thus many bacteria have started developing resistance. The same thing was highlighted by Loy et al., [12] in his study regarding emergence of resistance among the organisms. Therefore after this study we use oral Ciprofloxacin empirically as a first line of treatment for active mucosal COM at our institute. Only those patients who fail to respond even after 2 weeks of ciprofloxacin treatment are subjected to culture and sensitivity test of their ear discharge under strictly aseptic condition. This has enabled us to successfully shorten the course of ear discharge and curtail the time involved in microbiological study.

CONCLUSION Pseudomonas aeruginosa was the most common pathogen followed by Staphylococcus aureus in cases of active mucosal COM in our study. Most of them were sensitive to Ciprofloxacin, Imipenem, and Gentamicin and least sensitive to Cefazidime, Cefoperazone. Thus we use Ciprofloxacin as a first line of treatment for active mucosal COM at our institute. The resistance pattern of the micro organisms usually keeps changing. Judicious use of antibiotics is necessary for the prevention of development of antibiotic resistance. We should educate the patients about completing the duration of treatment and should not be stopped in middle so as to avoid resistance.

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