Bacteriology and culture sensitivity of ear discharge in Chronic Otitis Media

Imad, Mohtasim Billah, Sanaullah, Sadia Farhad

ABSTRACT

BACKGROUND: Chronic otitis media is a common problem especially in the under developed part of the world causing a number of complications. Improper use of antibiotics is a major contributing factor .This can be prevented by knowing the involved organisms and their sensitivity to different types of anti microbes.

OBJECTIVE: To find out the frequent microbes involved in chronic otitis media(COM) and their sensitivity to various anti bacterials.

MATERIALAND METHODS : In our study 170 patients visiting E.N.T. OPD At Mardan Medical Complex Teaching Hospital Mardan from January 2016 to December 2016 for discharging ears were included. Patients already treated elsewhere partially treated or with complications were excluded from the study .Thorough history, physical examination and investigations were done .Pus swabs were taken from discharging ears under strict aseptic technique and sent to BKMC Pathology lab for culture and sensitivity.

RESULTS: Out of 170 patients,102 were Males and 68 Females .Most frequently isolated organism was Pseudomonas Aeuroginosa (64.7%) followed by StaphAureus(25.88%) and Proteus (4.7%) etc. Sensitivity to ciprofloxacin, imepenem, amikacin and polymyxin was found in different cases. Most of the organisms were found resistant to Gentamicin , Pencillin and Erythromycin.

CONCLUSION: Microbial study and culture sensitivity determines the organisms involved in chronic otitis media and to treat the disease with proper antimicrobials for successful outcome.

Key Words : *ear discharge , chronic otitis media , Culture/sensitivity*

This article may be cited as: Imad, Billah M, Sanaullah, Farhad S. Bacteriology and culture sensitivity for ear discharge in chronic otitis media. JSMC 2017;7(2):83-85

INTRODUCTION

Chronic otitis media is one of the common problems being presented at outpatient department of Otorhinolaryngology department. It affects all ages[1] and both sexes, being more common in childhood, often following acute otitis media secondary to upper respiratory tract infections[2].

It is also one of the frequent cause of hearing loss in children and young adults affecting their quality of life and learning abilities. It has been reported that 65-330 Million individuals have discharging ears, 60% of whom suffer from significant hearing loss[3].

Chronic otitis media is defined as permanent abnormality of pars Tensa or Flacida ,most probably a result of previous acute otitis media or secretory otitis media.

Chronic otitis media has been reported as a frequent reason why children are prescribed antibiotics[4] and undergo surgery in their early years of life. It is more common in the developing countries[5] because of poor socioeconomic status and lack of hospital facility.

The various organisms isolated in chronic otitis media, are Staph Aureus, Streptococcus Pneumoniae , Haemophalous Influenza , Moraxella Catarrhalis , Pseudomonas Aeruginosa and Proteus etc.[6,7,8,9]

Aim of the study was to identify the common organisims involved in chronic otitis media and look for their sensitivity to different antibiotics available. This will help us in early and proper management of chronic otitis media, preventing its complications and unnecessary use of antibiotics[10].

MATERIALAND METHODS

A prospective and descriptive study was done at department of ENT and Pathology MMCTH/BKMC from 1st January 2016 to 31st December 2016. A total of 170 patients visiting out patient department of ENT were included in the study. All ages and both sexes were included in the study. All patients in the study came for the first time treatment of the problem of ear discharge. Patients who were already treated somewhere else and those with known complications were excluded from the study.

1. Bacha Khan Medical College Mardan

Correspondence: Dr. Imad
Associate Professor of E.N.T.
Bacha Khan Medical College Mardan
Email:imad.hameed@yahoo.com Cell #: 03339155434

Received: May 23, 2017 Accepted: November 13, 2017

Disposable sterile swab, manufactured by medical packing corporation Camanillo-sa USA , was taken from the discharging ear with full aseptic techniques and sent to Microbiology Section on the same day. Initially a slide was prepared for gram staining and the specimen was incubated at 37^0C. Media used were Macconkey agar, Blood agar and Nutrient agar. After 24 hours incubation plates were examined for morphology, shape, margin Haemolysis Pigment production and smell. Final identification was done by gram staining and various Biochemical tests like Oxidase, Catalase ,Urease and Dnase tests.

Antibiotic sensitivity was performed by disc diffusion method using Mueller Hinton agar and after 18 hours incubation at 37^0C final sensitivity result was recorded as per CLSI (clinical laboratory standard institute) guidelines.

RESULTS

A total of 170 patients were included in the study with 102 Males and 68 Females(table.1) . Age range was 1 year to 45 years (table.2) with mean 16 yrs, median 11 yrs and mode of 6 yrs .The most commonly isolated organism was Pseudomonas Aeurginosa .It was found in 110(64.7%) cases ,followed by Staph aureus 44(25.88%) and Proteus 8(4.7%).Klebsiella and E-coli were found in 2 (1.17%)cases each. 2 (1.17%) cases showed mixed Pseudomonas plus Staph aureus and 2(1.17%) and (1.17%) Staph aureus plus E.coli (Table.3) .

Most of the organisims were found sensitive to Ciprofloxacin ,Imepenem ,Amikacin and Polymyxin sensitivity pattern was variable from case to case . Resistance to Gentamicin Penicillin and Erythromycin was seen in all cases.

DISCUSSION

Chronic otitis media is one of the common ear diseases of early childhood. Lower Socio-economic status, overcrowding, bad hygiene and malnutrition has been suggested as contributing factors in under developed countries[11].

Chronic otitis media is a disease of insidious onset and can have serious complications if not treated properly and timely[12].

The commonly isolated bacteria in C.O.M are Pseudomonas aeuroginosa, Staph aeures, Klebsiella, though streptococci, Haemophilous Influenza and Moraxella Catarrhalis have also been found[13]. Bacterial culture may be monobacterial, polybacterial or mixed[14]. Only two cases in our study were polybacterial, the rest of all were monobacteraial. Male Gender was found more at risk in our study. This is in accordance with the study by Zakzouk[4] and Egbe[13] et al .

Pseudomonas aeruginosa was the most common organisim in our study followed by Staph Aeureus and Klebsiella. Salman AA et al have

TABLE. 1: SEX DISTRIBUTION

GENDER	NO. OF PATIENTS	PERCENTAGE (%)
Male	102	60
Female	68	40

TABLE.2: AGE DISTRIBUTION

AGE GROUP (YEARS)	NO. OF PATIENTS	PERCENTAGE (%)
0-20	118	69.41
21-40	44	25.88
41-45	08	04.70

TABLE .3: ORGANISIMS ISOLATED

ORGANISIM	NUMBER	PERCENTAGE (%)
Pseudomonas aeruginosa	110	64.7
Staphylococus aerues	44	25.88
Proteus	8	4.7
Klebsiella	2	1.17
E.coli	2	1.17
Pseudomonas aeruginosa+staph. Aerues	2	1.17
Staph Aerues+ E .Coli	2	1.17

reported Staph Aureus to be the predominant organisim in chronic otitis media[12]. This is similar to the study by EGBE [13] and PN Morthy et al[14].

In our study most of the involved bacteria were found to be more sensitive to Ciprofloxacin. This is in accordance with the study by Pn morthy[14]. Amikacin and Imipenem have also been found effective in our study in those cases where resistance to Ciprofloxacin was reported. Morthy considered biofilm formation by bacteria as the cause of resistance.

CONCLUSION

This study shows that a variety of organisms can be involved in chronic otitis media with a variable sensitivity pattern. The organisms commonly isolated in our study were Pseudomonas Aeroginosa and Staph Aureus .They were found to be more sensitive to Ciprofloxacin, Imipenem and Polymyxin B. Therefore it is important that microbiological study should be done regularly to find out the organism involved and its sensitivity pattern. This will help in proper antibiotic prescription of chronic otitis media, reducing its complications and limiting the emergence of resistant bacteria.

REFERENCES

1. Khan IA, Ahmad SM.Bacteriology and antibiograms of chronic otitis media among children in Hyderabad. j evolution med dent sci. 2016;94(5):6924-8.
2. Gupta R, mittal M.A study on clinical and epidemiological profile of chronic suppurative otitis media(csom)at a tertairy care cente. int j of med sci and pub health .2016;5(5):1021-4.
3. Ghsh A, Rana A Prasad S. Prevelance of fungal infection in chronic supportive otitis media- a study at tertairy care hospital in Western Utter Pradesh. Indian j of Microbiology r. 2015; 2(3):159-62.
4. Zakzouk SM , Hajjaj MF. Epidemiology of chronic supportive otitis media among Saudi children-a comparative study of two decades. Int j of ped Otorhinolaryngology. March 2002;62:215-8.
5. Oyeleke SB.Screening for bacterial agents responsible for otitis media and their antibiogram. African j of Microbiology r .may 2009;3(5):249-52.
6. Viswanatha B, durganna S, Ravikumar R, Siddapa MV, Vincent P .Bacteriology of active squamous type of chronic otitis media with complications. research in otol rhinol laryngol.2014;3(2):9-15.
7. Abdullah FE ,Khatri PK ,Aizadjali NA , Ali AD ,Bhagia G.Ear infections in karachi:the frequency and antibiotic resistance of bacterial isolates. Pak j med sci.2011;27(1):77-81.
8. Hiari MA .Chronic suppurative otitis media:microbial and antimicrobial findings.int j of advanced research.2016 ;4(1):1315-20.
9. Muftah S, Mackenzie I, Fragher B,Brabin B.Prevalence of chronic suppurative otitis media(csom) and associated hearing impairment among school-aged children.oman med j. 2015;30(5): 358-65.
10. Agrawal A, kumar D, Goyal A ,Goyal S Singh N, khandelwal G .Microbiological profile and their antimicrobial sensitivity pattern in patients of otitis media with ear discharge.indian j of otol.jan 2013;19(1):5-8.
11. Adbikari P, Josbi S, Baral D, Kharel B .Chronic Supporative Otitis Media In Urban Private School Children Of Nepal .Braz J Otol Rhinol Laryngol .Sep 2009;75(5):669-72 .
12. Ahmad SA , Hameed A,Hameed M , Nisa MU.Analysis of bacteriological profile chronic supporative otitis media with cholesteatoma.p j m h s.sep 2009 ;3(3): 265-6.
13. Egbe C, mordi R, Omoregie R, Enabulele O. Prevelance of otitis media in okada community ,edo state, nigeria. maced j med sci. Sep 2010; 3(3): 299-302.
14. Moorthy PN ,lingaiah J ,katari S ,Nakirakanti A .Clinical application of a microbiological study on chronic suppurative otitis media. I johns.2013;2:290-4.