



## Most common organisms involved in Cholesteatoma and the Antibiotic proper for this organisms.

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### Abstract

**Background:** Otitis media is an inflammation of middle ear , it is either acute or chronic ,chronic may be otitis media with effusion(intact tympanic membrane) or may be chronic suppurative otitis media( there is a perforation in the eardrum)which is an inflammation of middle ear mucosa and mastoid air cells for a period more than 3 months. This inflammation is either a sequely of acute suppurative otitis media (tubotympanic disease)or may be due to a cholesteatoma(atticoantral disease).

**Objective:** We try to determine type of bacteria that most commonly isolated in cholesteatoma type of csom and the sensitivity pattern of this bacteria to antibiotics.

**Material and Method:** We took 96 patients that we diagnose them clinically as cases of chronic suppurative otitis media(with attic perforation in the tympanic membrane)(which mean atticoantral type)and we stopped antibiotic treatment for 3 days(if the patient on this treatment) then we collect samples of pus from the affected ear and then we sent these samples to the lab.for bacteriologic study to evaluate the results.

**Results:** *Staph. aureus* was the most common microorganism involved in our cases of chronic suppurative otitis media followed by *Pseudomonas aeruginosa*.

Sensitivity pattern of *Staph.aureus* showed that cloxacilline was active against 85% of bacteria followed by Amoxiclave (80%),and clindamycine ( 80%),MRSA mainly sensitive to Vancomycine. While Sensitivity pattern of *Pseudomonas aeruginosa* showed that Ciprofloxacin was active against( 95%) of isolates followed by Amikacin(85%)followed by Gentamycin (81%), ceftazidime(80%)and ceftriaxone (50%)

**Conclusions:** Our study reveal that was *Staphylococcus aureus* the most common pathogen followed by *Pseudomonas aeruginosa*. isolated from chronic suppurative otitis media of cholesteatoma type.Cloxacilline was found to be the most suitable antibiotic for *Staphylococcus aureus*, clindamycine for penicillin allergic patient ,and vancomycine for MRSA. Ciprofloxacin was found to be the most suitable antibiotic followed by Amikacin and Ciftazidime for *Pseudomonas aeruginosa*. The resistance against Ceftriaxone was found to be high.

**Keywords:** chronic suppurative otitis media, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, cholesteatoma antimicrobial , ciprofluxacilline, otorrhoea.

## Introduction

Chronic suppurative otitis media is chronic inflammation of the middle ear and mastoid air cells(1).

Chronic suppurative otitis media is one of the common diseases in daily otolaryngology experience (2). It may be acute or chronic. The acute form usually associated with the infection in the upper aerodigestive tract(3).whereas persistent form known as chronic suppurative otitis media. Chronic form is still an important problem in developing countries (4).it is more common in kids belonging to lower socioeconomic group. Its seriousness is from its complications(5) This was studied by Shyamala R. who found that ignored cases move to the complications easily like mastoiditis and facial palsy(6).

Recurrent otitis media may cause destruction of small bones of the middle ear , seventh cranial nerve or inner ear resulting in permanent deafness(7). Complications occur more in atticoantral (cholesteatoma) type than tubotympanic (8) But in fact and in such a century that antibiotics is so evolved, complications has decreased in its occurrence (9)

Most common microorganisms found in chronic suppurative otitis media are *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Proteus mirabilis*, *Klebsiella pneumoniae* and *Escherichia coli* (10). Prayaga N.S.M. reach to a similar idea in his study and found that *pseudomonas* forms about 54% of the results of the cultures of his samples in the study(11) On the other hand, Shamweel A. found that *Staph. aureus* forms about 45% in comparison to the 19% of the *Pseudomonas* in his samples (12)

Antimicrobial treatment is used to eliminate the bacterial agents causing otitis media but most of the bacterial agents develop resistance (13).

Resistance style of the bacteria is continuously be altered (14).

In developing countries this regards as a dilemma due to misuse of the antibiotics (15).

## Aim of the study

To identify type of bacteria that responsible for chronic suppurative otitis media of atticoantral type and their sensitivity to antibiotics.

## Patient and Methods

This study was carried out at the outpatient department of Baquba teaching hospital since 5<sup>th</sup> of February 2014 to 10<sup>th</sup> of May 2016.

A total of 96 patients with unilateral or bilateral chronic suppurative otitis media were enrolled.

Age range from 1 year to 75 years old 56females and 40males.

Diagnosis was made clinically. detail clinical history regarding age, duration of otorhoea and any antibiotic treatment received.

Clinical examination were done differentiate acute otitis media and otitis externa.

Sterile cotton swabs were used to collect pus from discharging ears.

Ear discharge of more than 3 months duration were included in our samples.

Discharge of less than 3 months duration, discharge with intact tympanic membrane (otitis externa) and patient receiving antibiotics at time of presentation were excluded.

Overall microbiology of 101 samples was studied during 27 months.

The swabs were placed on MacConkey agar, Blood agar and Chocolate agar and incubated for 24-48 hours at 37C.

Isolated strains of bacteria were tested for susceptibility to antibiotics by Kirby Bauer method.

The antibiotics tested were Ciprofloxacilline, Amikacin, Ceftazidime, Gentamicine, Ceftriaxone and clindamycine.

## Results

A total of 96 patients were included in the study among them 5 had bilateral discharge. All 101 samples showed single while multiple microorganism growth was present in 9 samples.

Children and young adults were more affected and together comprise about 60 patients (62.5%) of total cases. Females (52 patients) (55%) were more commonly affected than males (44 patients) (45%).

Table1 show No. and percentage of both sexes that affected in CSOM in patients of our study

Gender	No.	%
Male	44	45%
Female	52	55%

*Staphylococcus aureus* was the most common bacterial agent found in chronic discharging ear (60%)

followed by *Pseudomonas aeruginosa* (25%) and by *Proteus* (7%), *Klebsiella* (5%) then *E coli* (3%).

Table 2:No. and percentage of each bacteria that result in culture and sensitivity tests in our study

Bacteria	No.	%
<i>Staph. aureus</i>	61	60%
<i>Pseudomonas</i>	25	25%
<i>Proteus</i>	7	7%
<i>Klebsiella</i>	5	5%
<i>E coli</i>	3	3%

Sensitivity pattern of *Staph. aureus* showed that cloxacillin was active against 85% of isolates ;and clindamycine is the choice in patients allergic to penicillin (80%), while vancomycine is useful in MRSA(90%)

Sensitivity pattern of *Pseudomonas aeruginosa* showed that Ciprofloxacillin was active against (95%) of isolates followed by Amikacin (85%) followed by Gentamycin(81%), ceftazidime (80%) and ceftriaxone (50%)

## Discussion

Chronic suppurative otitis media and various complications associated with the disease are among the most common conditions seen by ENT surgeons.

It is a persistent disease and often cause local destruction of middle ear structures that is irreversible.

We took 96 patients, aged 1-75 years old, 52 of them are female and 44 are males.

In this study chronic suppurative otitis media was found mostly among children and young age groups. Bijan B. was found same results and he noticed that 40% of his patients were between 11 and 30 years old (16)

Females were more commonly attacked than males.

Our results show that chronic suppurative otitis media in Baquba is mainly due to *staphylococcus aureus* followed by *Pseudomona saeruginosa*.

However, *Proteus mirabilis*, *Klebsiella* and *E. coli* also found.

Antibiotics resistant map was done against 8 antibiotics (Amikacin, Ciprofloxacilline, Ceftazidime, ceftriaxone , Gentamicine, Amoxiclav, clindamycine and vancomycine).

Flouroquinolones have a broad range of activity and it is found to be active against *Pseudomonas aeruginosa*.


This result is not comparable with other studies in Iraq that show *pseudomonas* is the most common bacteria in chronic ear discharge (17).

Also its comparable with studies abroad like that was done by Tahira Mansoor in Karachi (18).On conclusion *Staphylococcus aureus* was the most common pathogen followed by *Pseudomonas aeruginosa* isolated from chronic suppurative otitis media. Cloxacillin is treatment of choice for *Staph aureus*, clindamycine for penicillin allergic patients, and vancomycine for MRSA.

Ciprofloxacin was found to be the most suitable antibiotic followed by Amikacin and Ceftriaxone for *Pseudomonas aeruginosa*.

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