

COMPARATIVE STUDY OF AURAL SWAB CULTURE IN CHRONIC SUPPURATIVE OTITIS MEDIA AND THROAT SWAB CULTURE IN CHRONIC TONSILLITIS

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ABSTRACT

Introduction: Infections of the middle ear and throat are very common in South India and accounts to about 40-50% of the total ENT out patient. **Aims:** A comparative study of the throat swab culture and aural swab culture were undertaken to find out the causative organism. **Materials and Methods:** In a total of 200 cases throat and aural swabs were taken, and culture was done to isolate the pathogenic organism associated with chronic suppurative otitis media (CSOM) and chronic tonsillitis. **Results:** Out of 200 cases 195 (97.5%) yielded bacterial isolates and fungal isolates in 9 cases. The maximum incidence of bacterial pathogens in CSOM was found in 62 out of 200 cases (31%) and in chronic tonsillitis these were in 55 out of 200 cases (27.5%). These pathogens were seen in the age group of 6-10 years. The most common pathogenic organisms seen in CSOM and chronic tonsillitis were *Pseudomonas aeruginosa*, *Proteus mirabilis*, *Klebsiella* species and *Staphylococcus aureus*. **Conclusion:** The majority of infections occurred due to *P. aeruginosa*, *P. mirabilis*, *Klebsiella* species and *S. aureus* in both CSOM and chronic tonsillitis. The most common antibiotic useful in both CSOM and chronic tonsillitis were cefotaxime, trimethoprim sulfamethoxazole, gentamycin, kanamycin, netilmicin and ofloxacin.

Key words: Otitis, Tonsillitis, Swab culture

INTRODUCTION

Infections of the middle ear and throat are very common in South India. Forty to fifty percent of attendance in the ENT out-patient department of Vinayaka Mission Kirupananda Variyar Medical College and Hospital, Salem, consists of cases of infections of middle ear cleft and throat. Poor economic conditions, illiteracy and lack of personal hygiene are the factors for the prevalence of this condition. When complications occur then only the patients come for treatment.

In the pre-antibiotic era, the treatment of middle ear infections and chronic tonsillitis were far from satisfactory.

With the advent of antibiotics, significant improvement has taken place in the treatment, but irrational use of antibiotics has produced resistant strains, which do not respond to any drug. Hence, we propose to study the incidence of bacterial infection in these cases of chronic suppurative otitis media (CSOM) and chronic tonsillitis.^[1]

MATERIALS AND METHODS

Throat and aural swabs were collected from 200 cases attending the ENT outpatient department of Vinayaka Missions Medical College.

Collection of the throat swab

The patient was asked to hold his mouth open and breathe deeply. A good light was placed to illuminate the throat. By pressing the tongue by tongue depressor, the throat swab was quickly and firmly but gently rubbed over the tonsils, particularly on the area of purulent exudate.

Collection of aural swab

External ear canal was cleaned well with a dry sterile swab. The pus from the middle ear was collected with another dry sterile swab under good illumination.

Culture media

Culture media like blood agar, MacConkey agar and glucose broth were used. The bacterial and fungal isolates were identified by a suitable microscopic examination and biochemical testing.

RESULTS

From the study of 200 cases, Tables 1 and 2 give the age-wise distribution of bacterial isolates from the cases of CSOM and chronic tonsillitis.

CSOM and chronic tonsillitis

Of 200 cases, 195 (97.5%) yielded bacterial isolates and fungal isolates in 9 cases. The maximum incidence of CSOM was found in 62 out of 200 cases (31%) and in

Table 1: The age-wise distribution of bacterial isolates from the cases of CSOM

Isolates	Age in years						Total
	1-5	6-10	11-15	16-20	21-25	26-30	
<i>Klebsiella species</i>	15	5	6	5	2	1	34
<i>Coliform</i>	6	2	6	-	1	1	16
<i>P. aeruginosa</i>	11	17	7	7	4	4	50
<i>P. mirabilis</i>	5	10	5	1	3	6	30
<i>E. faecalis</i>	-	1	-	1	-	-	2
<i>S. viridans</i>	2	4	-	1	1	-	8
<i>S. albus</i>	5	3	4	-	1	-	13
<i>S. aureus</i>	8	13	3	2	1	2	29
<i>E. coli</i>	1	2	1	-	-	-	4
<i>Mucormycosis</i>	-	5	4	-	-	-	9
No growth	1	3	-	-	-	1	5

CSOM: Chronic suppurative otitis media, *P. aeruginosa*: *Pseudomonas aeruginosa*, *P. mirabilis*: *Proteus mirabilis*, *E. faecalis*: *Enterococcus faecalis*, *S. viridans*: *Streptococcus viridans*, *S. albus*: *Staphylococcus albus*, *S. aureus*: *Staphylococcus aureus*, *E. coli*: *Escherichia coli*

Table 2: The age-wise distribution of bacterial isolates from the cases of chronic tonsillitis

Isolates	Age in years						Total
	1-5	6-10	11-15	16-20	21-25	26-30	
<i>Klebsiella species</i>	14	5	7	6	1	2	35
<i>Coliform</i>	7	3	1	1	1	3	16
<i>P. aeruginosa</i>	7	9	7	4	4	3	34
<i>P. mirabilis</i>	4	10	5	3	4	3	29
<i>E. faecalis</i>	2	1	-	1	-	-	4
<i>S. viridans</i>	3	8	3	1	1	-	16
<i>S. albus</i>	3	2	4	-	1	-	10
<i>S. aureus</i>	9	15	5	4	3	1	37
<i>E. coli</i>	2	2	1	-	-	1	6
No growth	2	5	-	1	-	-	9
<i>H. influenzae</i>	1	-	2	1	-	-	4

P. aeruginosa: *Pseudomonas aeruginosa*, *P. mirabilis*: *Proteus mirabilis*, *E. faecalis*: *Enterococcus faecalis*, *S. viridans*: *Streptococcus viridans*, *S. albus*: *Staphylococcus albus*, *S. aureus*: *Staphylococcus aureus*, *E. coli*: *Escherichia coli*, *H. influenzae*: *Haemophilus influenzae*

chronic tonsillitis it was in 55 out of 200 cases (27.5%) were seen in the age group of 6-10 years. The most common pathogenic organisms seen in CSOM and chronic tonsillitis were *Pseudomonas aeruginosa*, *Proteus mirabilis*, *Klebsiella species* and *Staphylococcus aureus*.

DISCUSSION

Many workers^[2-8] studied the bacterial profile in tonsillitis cases, and the organisms prevalent were

Streptococcus pyogenes, *S. aureus*, *Streptococcus pneumoniae*, *Haemophilus influenzae* and *Escherichia coli*. No growth was found in 9.4%. In our study we have found *Klebsiella species*, *P. aeruginosa*, *P. mirabilis* and *S. aureus* to be predominant and no growth was found in 2.5% of CSOM and 4.5% in chronic tonsillitis cases.

CONCLUSIONS

- The common bacterial isolates were *P. aeruginosa*, *P. mirabilis*, *Klebsiella species* and *S. aureus*. In CSOM and chronic tonsillitis maximum incidence occurred in 6-10 years.
- We observed the diseases were prevalent in the children of poor socio-economic status and undernourished children
- The most common antibiotic useful in both CSOM and chronic tonsillitis were cefotaxime, trimethoprim sulfamethoxazole, gentamycin, kanamycin, netilmycin and ofloxacin.
- The wide spread use of antibiotics and steroid ear drops resulted in fungal infection of the ear especially mucormycosis.

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