

Original Article

Prevalence of Fungal Infection in Chronic Suppurative Otitis Media – A Study at Tertiary Care Hospital in Kanpur

Nashra A¹, Deepak S¹, R Sujatha²,

1. Ph.D Scholar, Department of Microbiology, Rama Medical College Hospital and Research Centre Kanpur (India)
2. Tutor, Department of Microbiology, Rama Medical College Hospital and Research Centre Kanpur (India)
3. Prof and Head, Department of Microbiology, Rama Medical College Hospital and Research Centre Kanpur (India)

ABSTRACT

Background: Chronic otitis media (CSOM) is a harmful infection prevalent mostly in developing countries due to indiscriminate uses of local steroid and antibiotics in the ear either alone or combination. Humidity also plays a major contributing factor in the etiology of otitis media.

Objective: To know the prevalence of fungal infection in chronic suppurative otitis media.

Method: The study was conducted on 100 cases of recurrent discharging ear at the out patient door of Deptt of E.N.T and Dept. of Microbiology, Rama Medical College Hospital and Research Centre, Mandhana Kanpur.

Results: Out of 100 cases, 24 were found fungal positive having the prevalence rate of 24%. Females are affected more (54%) than males. The total number of fungi isolated is 24 (24%). Among the fungi *Aspergillus flavus* is most common 14 (58.3%).

Key words: Chronic suppurative otitis media, Fungal infection, and antibiotics.

Introduction

Chronic suppurative otitis media (CSOM) is a disease of multiple etiology and well known for its recurrence and persistence. The wide spread use of irregular and irrational usage of antibiotics, systemic and local use of antibiotics in to ear has precipitated the fungal infection secondary to bacterial infection. As a result the prevalence of fungal infection is high among the chronic otitis media patients. Infection may occur at any age groups with a peak at 2 years of age. Generally patients with tympanic perforation which continue to discharge for periods from 6 week to 3 months are recognized as chronic suppurative otitis media (CSOM) cases[1]

Chronicity of ear discharge is important factor in the cause of fungal infection of otitis media. It causes humid condition in the ear and alters the pH to alkaline. epithelial debris which eventually helps the growth of fungus. Topical use of steroid and antibiotics cause the fungal infection in the middle ear[2,3]. The common organism isolated in fungal are *Aspergillus* spp. and *Candida albicans*. Many other fungus are also isolated like other species of *Aspergillus* which are *Aspergillus niger*, *Aspergillus flavus*, *Aspergillus terreus*, *Aspergillus fumigates*. Chronic suppurative otitis media (CSOM) also causes saprophytic fungal diseases caused by saprophytic fungi such as *Penicillium*, *Mucor* spp., *Rhizopus* spp, *Fusarium* spp and *Exophiala* spp.

Material And Methods

This hospital based cross sectional study was carried out for a period of seven months (Jan 2017 to July 2017) in the Department of Microbiology, Rama Medical College Hospital and Research Centre. Patients attending ENT, OPD and IPD at Rama Medical College Hospital and Research Centre formed the source of the sample for the study.

Total 100 patients clinically diagnosed chronic suppurative otitis media having discharging ear with past history of local use of antibiotics and steroid till 7 days before were taken in account. Two sterile cotton swab of ear discharge from each patient were collected aseptically and processed in Microbiology lab. 1st swab was used for 10% KOH (potassium hydroxide) mount preparation under microscope to study the spores and hyphae. 2nd swab was inoculated in sabaurod dextrose agar (SDA) with chloromphenicol (10micro gm) and kept at 22⁰C to 25⁰C for 2 weeks. Isolate was identified for colony morphology and microscopic examination with

lactophenol cotton blue (LCB) mount to identify the fungus according to standard procedures by Rippon[4].

Results

Sample from hundred clinically diagnosed cases of Chronic suppurative otitis media attending ENT OPD and IPD Hospital and were studied in the Department of Microbiology, Ram Medical College Hospital and Research centre.

Sex	Total no. of Cases studies	Total no. of positives	Percentage
Male	46	34	44.7%
Female	54	42	55.3%
Total	100	76	100%

Table-1 : Sexwise distribution of CSOM cases.

Out of hundred cases 46 were males and 54 were females, out of 46 males studied 44.7% were positive for culture and out of 54 females 42 were positive for the culture. Above table shows incidence of CSOM was higher in females compare to males.

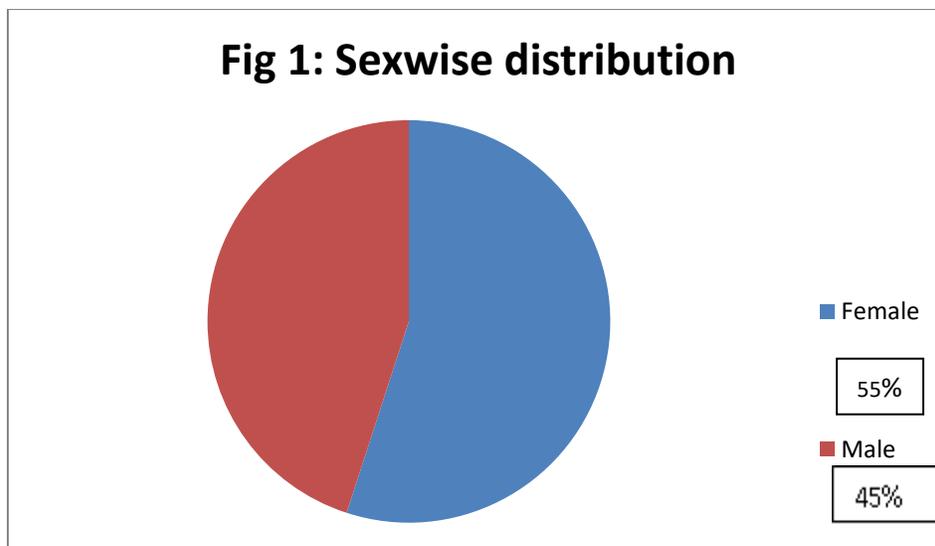


Fig-1: Sex wise distribution

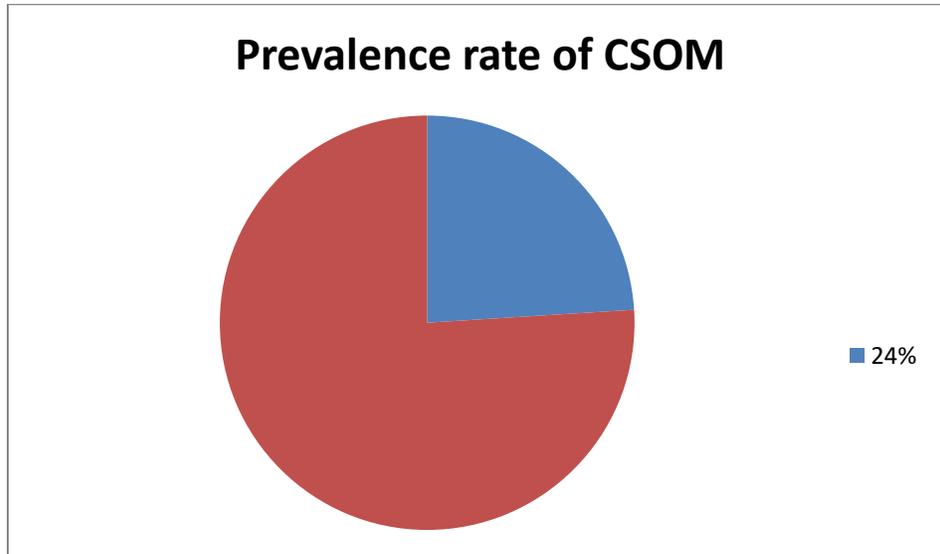


Fig-2: Prevalence rate of CSOM

The total number of fungi isolated is 24 whereas, the Prevalence rate is 24%. Among the fungi *Aspergillus flavus* is not common.

FUNGUS	NO. OF ISOLATES (n= 24)	%
<i>Aspergillus flavus</i>	14	58.3%
<i>Aspergillus niger</i>	10	41.6%

Table-2 : Shows the total number of fungi isolated in the present study.

The total number of fungi isolated is 24 (24%). Among the fungi *Aspergillus flavus* is most common (58.3%).

Discussion

Overall prevalence rate of fungal infection among the chronic suppurative patients in this study was 24%. The same observation was made by Reena Roy et al 29.5%[5]. Our study also commensurate with Dr. Rachna Dhingra et al, who studied 150 cases of CSOM and found the positivity rate of fungal infection 36(24%)[6]. Others like Sengupta et al found 24.8% and Khanna V, et al reported 23.63% fungal infection in their studies which are in agreement with present study[3,7].

Out of hundred cases 46 were males and 54 were females, out of 46 males studied 44.7% were positive for culture and out of 54 females 42 were positive for the culture, which is similar to the study observation of Reena Roy et al[5] who found females 57% were most commonly affected.

The most dominant fungi isolated in culture in this study , were *Aspergillus flavus* relatively closer with Sengupta et al[3] 19.35% and Rachna et al[6] 33.33%. followed by *Aspergillus niger*. This finding was similar with the finding of Rachna et al[6] where *Aspergillus Niger* was 44.4%.

Conclusion

CSOM like other chronic disease can limit an individual's employability and quality of life. Experts declare that when prevalence of CSOM is > 3% it must be targeted as a high-priority disease.[8] Patient should take care to keep the ear environment dry by mopping. Awareness to be provided to patient and parents regarding associated risk factors, local care, bathing in dirty or contaminated water etc.

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CORRESPONDING AUTHOR

Dr. R.Sujatha

Professor and Head of Department of Microbiology

Rama Medical College Hospital& Research Centre,Mandhana, Kanpur, U.P.

EmailID: drsujatha152@gmail.com