

A DESCRIPTIVE STUDY OF FUNGAL INFECTIONS IN CHRONICALLY DISCHARGING EARSSujatha S¹, Venugopalan P. G²**HOW TO CITE THIS ARTICLE:**

Sujatha S, Venugopalan P. G. "A Descriptive Study of Fungal Infections in Chronically Discharging Ears". *Journal of Evidence based Medicine and Healthcare*; Volume 2, Issue 34, August 24, 2015; Page: 5206-5210, DOI: 10.18410/jebmh/2015/724

ABSTRACT: BACKGROUND: Chronic Suppurative Otitis Media (CSOM) is a disease of multiple aetiology and well known for its persistence and recurrence inspite of treatment and are the bearbug of otologist, paediatrician and general practitioner. One of the reasons for the refractoriness to treatment and chronicity is coexisting fungal infection of the ear. **OBJECTIVES:** Are to find out the prevalence of fungal infections in chronic discharging ears and to identify and isolate the type of fungus prevalent in these ears. **MATERIALS AND METHODS:** Tertiary care hospital level descriptive study was conducted in 50 cases of CSOM with actively discharging ears for a period of one year starting from February 2013. For all the cases aural swabs were collected from the diseased ear and were used for direct microscopic examination in potassium hydroxide wet mount. Ear swab was cultured on Sabouraud's dextrose agar plate for fungal cultures. The patient characteristics were prospectively recorded and results were analysed. **CONCLUSION:** There is high prevalence of coexisting fungal infection in actively discharging ears of CSOM patients.

KEYWORDS: CSOM, Fungal infection, Discharging ears.

INTRODUCTION: Chronic Suppurative Otitis Media (CSOM) is a widely encountered clinical entity since Hippocrates. It is an inflammatory condition of the ear that causes recurrent ear discharge through a perforation in the eardrum.^(1,2) This has always been a subject of active speculations, differences of opinion and controversies. CSOM and its complications are the bearbug of otologist, paediatrician and general practitioner. It is a disease of multiple aetiology and well known for its persistence and recurrences inspite of treatment. One of the reason for the refractoriness to treatment and chronicity is coexisting fungal infection of the ear. This opinion is shared by Callahan et al. (1960) and Sengupta et al.⁽³⁾

In this study the mycological aspects of chronic otitis media with actively discharging ears is studied.

OBJECTIVES OF STUDY: The objectives of the study are to find out the prevalence of fungal infections in chronic discharging ears and to identify and isolate the type of fungus prevalent in these ears.

MATERIALS AND METHODS: This is a tertiary care hospital level descriptive cohort study. A group of 50 cases of CSOM with actively discharging ears, attending ENT outpatient Department of medical college Trivandrum for a period of February 2013-january 2014 are included in the study.

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Inclusion Criteria:

1. Patients with tubo-tympanic type of CSOM with a central perforation with discharging ears.

Exclusion Criteria:

1. Actively discharging ears on antibiotic treatment either systemic antibiotics or topical eardrops atleast 14days immediately preceeding to presentation in hospital.
2. Cases complaining of chronic otorroea postoperatively.
3. Patients with attico-antral type of CSOM with attic or posterior marginal perforation.

The clinical features of patients included in the study were similar that all have chief complaint of active ear discharge with a history of more than 3 months duration, a central perforation most often in antero inferior quadrant of tympanic membrane and a conductive hearing loss ranging from 30 dB SPL to 55 dB of SPL measured by pure tone audiometry.

METHODOLOGY: All selected cases as per inclusion and exclusion criteria given above were included in the study. Aetiopathological factors causing the chronicity of disease and a detailed history were taken and a thorough ENT examination was done according to the proforma given.

For all the cases aural swabs were collected from the diseased ear in a sterile test tube before any local medication was instilled. The swabs were used for direct microscopic examination in potassium hydroxide wet mount and by gram staining. Ear swab was cultured on Sabouraud's dextrose agar plates irrespective of the direct demonstration of fungal elements in potassium hydroxide preparation. Inoculation of culture swabs was done under aseptic conditions to avoid any serial contamination. After inoculation cotton plugs were replaced and culture tubes incubated at 37 degree Celsius for 10 days. They were examined daily for the pattern of fungal growth at the site of inoculation. This is an important provision to exclude false positive reaction due to airborne contaminations. It was unnecessary to add antibiotics to this medium, low pH and high glucose content was sufficient to suppress bacterial growth. Generally good fungal growth was obtained after 3-5 days of incubation. As a routine procedure the tubes were retained for six weeks before discarding them as negative. Aspergillus species were easily identified by the presence of typical conidiophores and candida species as budding yeasts and occasional pseudohyphae.

Ethical Considerations: Protocol of the study was approved by the Institutional Review Board of Medical College Trivandrum and is in accordance with Helsinki Declaration of 1975 revised in 2000.

Statistical Analysis: Various possible factors were statistically compared including age, sex, presence of fungus and fungal species.

RESULTS: The highest number of cases (36%) was in the age group of 21-30 years followed by 26% in the 31-40 age group. Only 6% belong to 0-10 age group. There were 46% females as against 54% males. Of the 50 cases of chronic suppurative otitis media with otorrhoea, fungus

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was isolated in 16 cases.(32%) Only Aspergillus and Candida was isolated. The most commonly isolated fungus was candida albicans (22%) Aspergillusniger was isolated in five cases (10%).

DISCUSSION: In the present study majority of cases (36%) were in the age group of 21-30 years. In a study conducted by Reena Ray et al⁽¹⁾ highest incidence was seen in the third decade (32%). The same observation was made by Baruah although the incidence was much higher i.e. 71%.^[4] This is in agreement with Laxmipati and Baskaran.^[5] In a study by Harvinderkumar et al, amongst the 100 cases of chronic suppurative otitis media which were studied, 47 were positive in the second and third decades of life and 17 were positive children below the age of 10 years.⁽⁶⁾

There was no statistically significant sex or age predilection for a sample to become culture positive in our study.

In our study fungus was isolated in 32% cases. Candida albicans was found to be the predominant fungus in 22%. Aspergillusniger was isolated in 10%. This is in accordance with Proctor et al, who studied 215 cases and obtained a maximum growth of Candida in 42.8% cases and a maximum growth of Aspergillus in 30.9% cases,⁽⁷⁾ while in a Singapore study on 90 patients of otitis media, Loy et al, found that fungi accounted for 8.8% of the isolates and that the fungal organisms which were commonly isolated were Aspergillus sp (33.3%), followed by Candida sp (22.2%),⁽⁸⁾ this may be attributed to the environmental effect (hot and humid) on the cases of otitis media which were studied in this area.

The present series revealed no mixed infection with fungi of various combinations. The results are similar with those of Anarullah et al, where no mixed infection was detected.⁽⁹⁾

CONCLUSION: It is evident that a regular laboratory examination with a definite search for fungi and bacteria is desirable in all the cases of chronic suppurative otitis media, with continuous otorrhoea and who do not respond to the antibacterial treatment. Prolonged use of topical antibiotics or antibiotics-steroids ear drops may cause suppression of bacterial flora and the subsequent emergence of fungal flora. This probably increases the incidence of fungal superinfection.⁽¹⁾ The routine use of topical antibiotics in chronic suppurative otitis media at the onset is not justifiable.

Fungus isolated	Unilateral	Bilateral	Percentage
Aspergillus niger	5	0	10
Candida albicans	8	3	22

Table showing fungus isolated from ears

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Figure showing age distribution

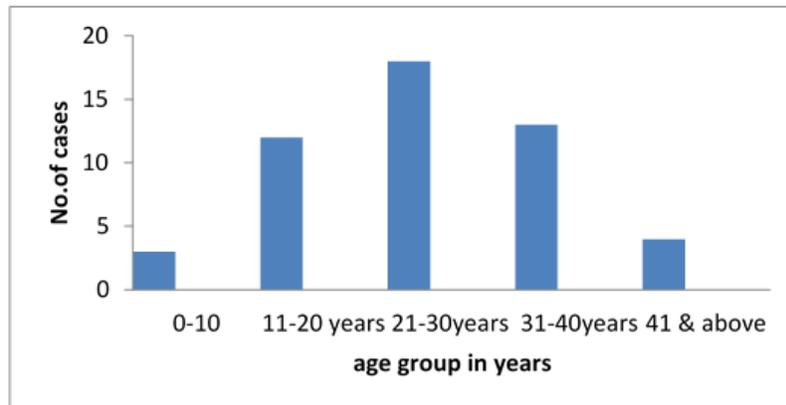


Figure showing aspergillus niger

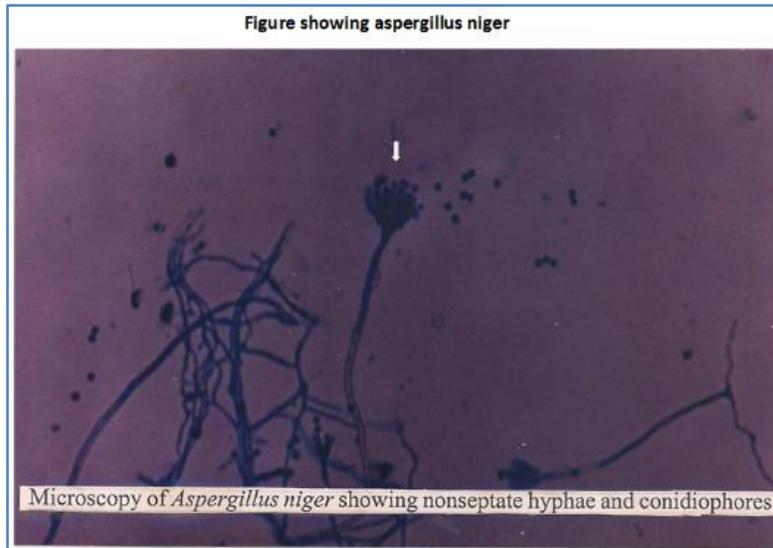
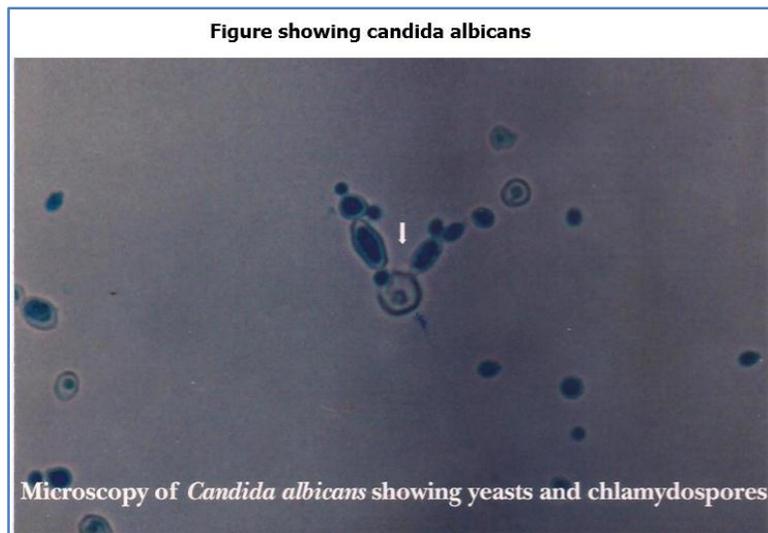


Figure showing candida albicans



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