

Original Research Article

CLINICAL AND MYCOLOGICAL STUDY OF OTOMYCOSIS: OUR EXPERIENCE

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ABSTRACT

Background: Otomycosis or Fungal otitis externa is a commonest condition encountered in ENT practice. It is a superficial fungal infection of the external ear canal that sometimes leads to complications involving the middle ear. The condition is worldwide in distribution, but is more common in humid tropical and sub-tropical regions. As this condition is more common in our region, as the climatic condition predispose to otomycosis. Hence, this present study is taken to know the predisposing factors and common fungal isolates seen in patients with otomycosis visiting our hospital. **Aims and objective:** To Study the predisposing factors and common fungal isolates seen in patients with otomycosis in our region.

Materials and Methods: The present study was conducted on 150 clinically diagnosed cases of otomycosis attending the ENT OPD for a period of one year. Ear discharge specimens were collected on two sterile cotton swabs. Direct Examination of the specimen was carried out by Gram stain and 10% KOH Preparation. All specimens were inoculated on Sabouraud Dextrose Agar. Identification of fungi was done as per standard protocol.

Results: Out of 150 patients fungal isolates were found in 134 cases (89.33%). The highest incidence was noted in the age group of 31-40 years, more prevalent in females (61.19%), with unilateral distribution more on right ear. Pain in the ear was commonest symptom (98.50%) followed by itching (95.52 %) and Most common fungi isolated were *Aspergillus Flavus*, *Aspergillus Niger* and *Aspergillus Fumigatus* followed by *Candida* Species.

Conclusion: It is concluded from our study that otomycosis is one of the commonest condition seen with prevalence varying with climatic conditions, but warm humid environment support their growth, and the human ear canal is ideal for their proliferation. It occurs in men and women of all ages and is usually a unilateral disease. *Aspergilli* were considered as predominant fungi for Fungal otitis externa. The study also concludes that patients have to be educated not to use unsterile materials to clean the ears which will be effective in prevention of Fungal otitis externa.

Keywords: Fungal otitis externa, *Aspergillus*, *Candida*, External Auditory Canal, Otagia.

INTRODUCTION

Otomycosis or Fungal otitis externa is a common condition encountered in a general otolaryngology clinic setting and its prevalence in this study is 7% among patients who presented with signs and symptoms of otitis externa. It is almost in accordance with other studies. [1] It is a pathologic entity, with candida and aspergillus the most

common fungal species. [2,3] It is not clear that the fungi are the true infective agents or mere colonization species as a result of compromised local host immunity secondary to bacterial infection. Various predisposing factors include a humid climate, presence of cerumen, instrumentation of the ear, increased use of topical antibiotics / steroid preparations, [4] immunocompromised host, patients who have undergone open cavity mastoidectomy

and those who wear hearing aids with occlusive ear mold. The infection is usually unilateral and characterized by inflammatory itching, scaling and otalgia. Sometimes fungal otitis externa presents as a challenging disease in presence of otorrhoea, for its long term treatment and follow up, yet its recurrence rate remains high.

MATERIALS AND METHODS

The present study was carried out on 150 clinically diagnosed cases of otomycosis attending the Department of ENT OPD at ESIC Medical college and hospital Gulbarga. The study was conducted over a period of one year. Ethical clearance was obtained from the Institutional Ethical Committee. An informed consent was obtained from all the patients before the start of study.

Inclusion Criteria: Patients diagnosed with otomycosis based on Symptoms like Otagia, Itching, aural fullness, Otorrhoea and Impaired hearing with Ooscopic findings like appearance of cotton wool debris/foul smelling discharge, wet blotting paper appearance or creamy white debris.

Exclusion Criteria: Patients on oral & topical antibiotic & antifungal drops and negative fungal isolates by direct microscopy or culture were excluded from the study.

Methodology: After clinical diagnosis of otomycosis was made, all the cases were subjected for fungal examination by taking with sterile cotton swabs from fungal like debris seen in the infected ear canal and sent immediately to microbiology laboratory and subjected for 10% Potassium Hydroxide (KOH) Preparation, Grams Stain

Examination & Sabouraud Dextrose Agar (SDA) inoculated media were incubated at room temperature and were followed for two weeks. For isolation of fungi growth on media were confirmed by Lacto phenol cotton blue (LCB) preparation and Grams Stain.

RESULTS

Out of 150 clinically diagnosed cases of Fungal otitis externa only 134 cases produced positive fungal isolates, these constituted 89.33 % which were taken up for further studies. Highest incidence was noted in the age group of 31-40 years (28.1%). In our study it has been found that the incidence of Fungal otitis externa was higher in females 82 cases (61.19%) than in males 52 cases (38.80%) with laterality to right ear.

As depicted in Table 1 it was observed in our study that most common predisposing factor was use of unsterile materials/swabs for cleaning the ear in 106 cases (79.10 %). The use of unsterile materials varied from Safety pins, Hairpins, Matchsticks, Pens and Refills to Unsterile buds. [Table 1]

Pain in the ear was the commonest symptom in 132 cases (98.50 %) followed by itching in the ear in 128 cases (95.52 %), the other symptoms observed are depicted in Table 2. [Table 2]

Fungal isolates encountered in our study is shown in Table 3. Aspergillus were the most common fungi isolated in 124 cases of which 80 were Aspergillus Flavus, 39 were Aspergillus Niger and 05 were Aspergillus Fumigatus, followed by Candida albicans in 07 cases. [Table 3]

Table 1: Predisposing factors for fungal otitis externa

Predisposing factors	Number of cases	Percentage
Use of unsterile sticks/ ear buds for cleaning the ear	106	79.10
Use of oils/mixture of oils	102	76.11

Table 2: Clinical presentation of fungal otitis externa

Symptoms	Number of Cases	Percentage
Pain	132	98.50
Itching in ear	128	95.52
Aural fullness/ impaired hearing	87	64.92
Otorrhoea	46	34.32

Table 3: Fungal isolates in fungal otitis externa

Fungal isolates	Number of Cases	Percentage
Aspergillus niger	39	29.10
Aspergillus flavus	80	59.70
Aspergillus fumigatus	05	3.73
Candida albicans	07	5.22
Candida species	01	0.74
Mucor species	01	0.74
Penicillium	01	0.74
Total	134	100

DISCUSSION

Fungal otitis externa is a superficial mycotic infection of the outer ear canal frequently

encountered by otolaryngologist and can usually be diagnosed by clinical examination. However, the correct diagnosis requires a high index of suspicion. The infection may be either sub-acute or acute and is characterized by inflammation, itching, scaling

and severe discomfort. The mycosis results in inflammation, superficial epithelial masses of cotton woolly debris containing hyphae or wet blotting paper appearance, suppuration and pain. In addition, symptoms of hearing loss and aural fullness are as a result of accumulation of fungal debris in the canal. *Aspergillus* and *Candida* species are the most commonly identified fungal pathogens in fungal otitis externa.^[5,6] Infections with *Candida* can be more difficult to detect clinically with otorrhoea because of its lack of a characteristic appearance as compared to its appearance of wet blotting paper without otorrhoea and high degree of suspicion of candidial infection is to be suspected when otorrhoea is not responding to aural antimicrobial.^[7] Fungal otitis externa attributed to *Candida* is often identified by culture data.

In this study, we found that fungal otitis externa is more common in females (61.19), than in males (38.80%). Similar results were observed in several other studies.^[8]

We found that fungal otitis externa was more common in adolescents and young adults between ages 11-40 years. We had 46% of the cases in patients of 11-30 years of age, which was similar to the results obtained by Kaur et al.^[9]

The occurrence of bilateral fungal otitis externa is very low.^[10] In our study it was commonly seen in right ear, which almost correlates with Paulose K et al.^[11]

Use of unsterile sticks and swabs for cleaning the Ear and use of oils and mixture of oils in Ear were the commonest predisposing factors as per our study. These results are in accordance with the study done by Mohanty et al.^[12] and Prasad SC.^[13] Unsterile sticks may cause trauma (usually minor and hence unnoticed) for the skin of external auditory canal and deposition of fungi in the wound leading to fungal infection.^[14]

Fungal study shows mixed presence of fungi^[15] but the most common fungal isolate determined in our study belonged to the Taxon *Aspergillus* followed by *Candida*, *Mucor* and *Penicillium*. Among the *Aspergillus*, *Aspergillus Flavus* was the commonest isolate followed by *Aspergillus Niger* and *Aspergillus Fumigatus*. The moisture, warmth and change in acidic pH of the External Auditory Canal provide ideal growth requirements for the Fungi. *Aspergilli* have an optimum pH range of 5.7 at a temperature of 37 and this is conducive for all species of *Aspergillus*. Our observations regarding fungal isolates are in accordance with earlier studies.^[16]

CONCLUSION

Otomycosis or Fungal otitis externa is fungal infection of the external auditory canal that is frequently encountered in patients attending otolaryngology clinics. In our study, we found the

disease to be more common in females. The major predisposing factors for fungal otitis externa are trauma to the EAC, use of ear drops, unsterile oil. The disease is predominantly unilateral. Itching and Otagia are the commonest symptoms. *Aspergilli* and *Candida* are to be considered as predominant Fungal isolates in Fungal otitis externa as these saprophytic fungi thrive on exfoliated dead epithelial cells along with humid climate in External Auditory Canal. The study also concludes that Patients have to be educated not to use unsterile materials to clean the Ears which will be effective in prevention of Fungal otitis externa. Clinical suspicion should always be put on Mycological confirmation especially with otorrhoea to prevent bothersome complications and morbidity of Patients.

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