



## A CLINICAL STUDY OF OTOMYCOSIS

## ENT

**Dr. Anchal Gupta\*** Senior Resident, Department of ENT, Head and Neck Surgery, SMGS Hospital, Government Medical College, Jammu, Jammu and Kashmir, India. \*Corresponding Author

**Dr. Padam Singh Jamwal** Professor, Department of ENT, Head and Neck Surgery, SMGS Hospital, Government Medical College, Jammu, Jammu and Kashmir, India

## ABSTRACT

**Background:** Otomycosis is fungal infection of the external auditory canal and its associated complications sometimes involving the middle ear. It occurs because the protective lipid/acid balance of the ear is lost.

**Materials and methods:** The present retrospective observational study was carried out in the Department of ENT & Head and Neck Surgery, S.M.G.S Hospital, Govt. Medical College, Jammu for a period of one year w.e.f. January 2019 to January 2020. The study included 100 patients of all age groups and both the sexes presenting with symptoms like itching, pain, feeling of blocked ear, tinnitus, deafness, and otoscopy revealing masses of hyphae/spores or a curd-like grey/white discharge were included. Age, sex, socioeconomic status, and occupation of the patient were also recorded. The material from the deeper portion of the EAC was taken using sterile aural swabs and sent to microbiology department for processing. One swab was subjected to microscopic examination with 10% KOH and the other swab was inoculated over Sabouraud's dextrose agar media for culture. All patients diagnosed with otomycosis were subjected to a thorough aural toilet by suctioning and removal of the fungal debris.

**Results:** A total of 100 patients were studied. Maximum patients (29%) were in the age group of 31-40 years. 64 (64%) patients were males and 36 (36%) patients were females with male: female ratio of 1.7: 1. The most common presenting symptom was itching in the ears seen in 78 (78%) patients, followed by sensation of ear blockage (64%), ear discharge (59%), hearing impairment (55%), pain (30%) and ringing in ears (28%). Otomycosis was predominantly unilateral both in males and in females. Only 10 (10%) patients presented with bilateral infection. The most common fungal isolates belonged to the species of *Aspergillus* accounting for 87% of all fungal isolates.

**Conclusion:** *Aspergillus* spp. were the most common fungi isolated.

## KEYWORDS

aspergillus, itching, otomycosis

## INTRODUCTION

Otomycosis or fungal otitis externa has typically been described as fungal infection of the external auditory canal with infrequent complications involving the middle ear. Otomycosis is one of the common conditions encountered in a general otolaryngology clinic setting and its prevalence has been quoted to range from 9% [1] to 27.2% [2, 3] among patients who present with signs and symptoms of otitis externa and up to 30% [4-6] in patients with discharging ears. It is worldwide in distribution with a higher prevalence in the hot, humid, and dusty areas of the tropics and subtropics [2, 3, 5, 6]. Most patients suffering from early otomycosis complain of severe itching which often progress to pain, hearing loss, and often leading to tympanic membrane perforations [8-10].

Although *Aspergillus niger* and *Candida albicans* are by far the most common offenders, a wide spectrum of other fungi can cause otomycosis. Predisposing factors include alterations in immunity, use of steroids, dermatological diseases, loss of cerumen, use of broad-spectrum antibiotics and hearing aids. [2, 5-8, 10]

Our study was carried out to evaluate clinical and mycological features of otomycosis.

## MATERIALS AND METHODS

The present retrospective observational study was carried out in the Department of ENT & Head and Neck Surgery, S.M.G.S Hospital, Govt. Medical College, Jammu for a period of one year w.e.f. January 2019 to January 2020. The study included 100 patients of all age groups and both the sexes presenting with symptoms like itching, pain, feeling of blocked ear, tinnitus, deafness, and otoscopy revealing masses of hyphae/spores or a curd-like grey/white discharge were included. Only new cases of otomycosis will be included in the study. The patients who were already on treatment for otomycosis were excluded from the study. Clinical presentations of cases such as itching, pain, feeling of ear blockage, and ear discharge were recorded. Any history of trauma, use of wooden sticks, metal wax pickers or any other objects in an attempt to remove ears wax from ear, use of oils, topical antibiotic ear drops, and/or other aural preparations were noted. Age, sex, socioeconomic status, and occupation of the patient were also recorded. The outer part of the patients' EAC was cleaned using sterile swabs, and material from the deeper portion of the EAC was taken using sterile aural swabs and sent to microbiology department for

processing. One swab was subjected to microscopic examination with 10% KOH and the other swab was inoculated over Sabouraud's dextrose agar media for culture. All patients diagnosed with otomycosis were subjected to a thorough aural toilet by suctioning and removal of the fungal debris. Following this patients were prescribed clotrimazole antifungal preparations, 4-5 drops to be instilled 3 times a day for a minimum of 7 days and a maximum of 14 days. In case of associated coexisting otitis externa, a combined antifungal-antibiotic preparation was prescribed for the same period.

Data was analysed with a statistical software program (SPSS Statistics for Windows version 20, Chicago, IL). All values were calculated with one tail. values below 0.05 were considered significant.

## OBSERVATIONS AND RESULTS:

A total of 100 patients were studied.

## Age and Sex distribution of patients:

Our study included patients of age group ranging from 6-70 years. The youngest was a 6-year-old female patient and the eldest was a 70-year-old male patient. Maximum patients (29%) were in the age group of 31-40 years. [Figure 1]

64 (64%) patients were males and 36 (36%) patients were females with male: female ratio of 1.7: 1. [Figure 2]

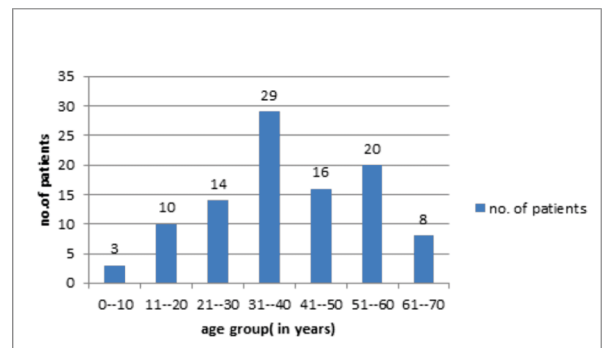


Figure 1: Age-wise distribution of patients.

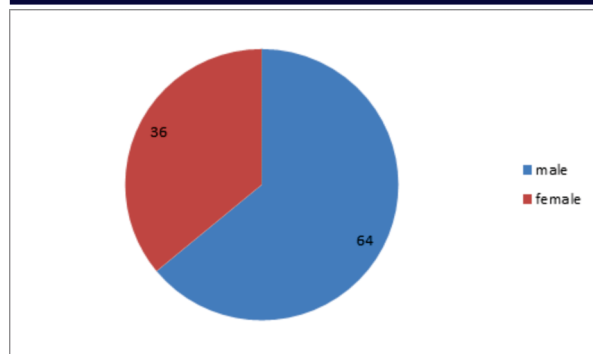


Figure 2: Genderwise distribution of patients

**Clinical presentation of patients.**

The most common presenting symptom was itching in the ears seen in 78(78%) patients, followed by sensation of ear blockage(64%), ear discharge(59%), hearing impairment(55%), pain(30%) and ringing in ears(28%). Clinical examination revealed canal skin erythema and fungus debris in all cases.[Figure 3]

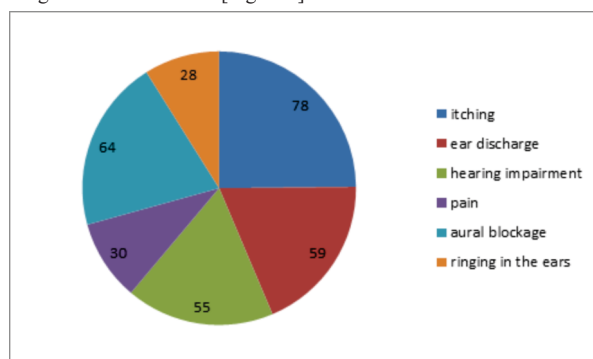


Figure 3: Distribution of patients according to presenting symptoms.

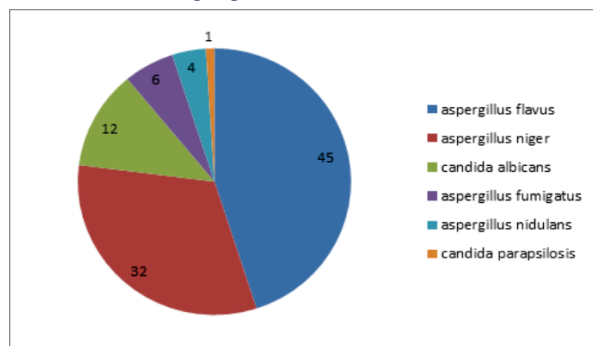
**Side and Laterality.**

Otomycosis was predominantly unilateral both in males and in females. Only 10(10%)patients presented with bilateral infection. In the females, the right ear was most commonly involved (22/ 36% cases, 61%) whereas in males the distribution was almost equal in both ears (right ear 49% and left ear 46%). Overall right ear was involved in 58% of the patients. 95% of the subjects with otomycosis were right handed.

**Name of fungal species isolated**

The most common fungal isolates belonged to the species of Aspergillus accounting for 87% of all fungal isolates. Out of Aspergillus positive samples, *A. flavus* was the most common, followed by *A.niger*, *A.fumigatus* and *A.nidulans* . Species of *Candida* constituted 12% of fungal isolates. Table 1shows the results of all fungal isolates obtained in the study.

Table 1: Name of fungal species isolated.



**DISCUSSION**

Otomycosis is frequent in tropical and subtropical climates because of heat and humidity.

Diagnosis of otomycosis is usually made by clinical findings with pruritus being the most common symptom followed by otalgia.[3,6,8]

In this study, presumed diagnosis of otomycosis was confirmed by laboratory findings Higher incidence of otomycosis was reported in males than females in previous studies [1,4,6,8] similar to the findings of our study.

In this study, the species of Aspergillus were the largest taxon isolated from patients. *A. flavus* was the most common fungal pathogen followed by *A. niger*, *A. fumigatus* and *A. nidulans*. Araiza et al.,[11] also reported *A. flavus* to be the most common pathogen in Mexico City. This was different from studies conducted in hot humid regions where *A. niger* was the most common mycological pathogen.[6,8,9].

Kaur et al[7] reported *A. fumigatus* as the most common cause of otomycosis.

Aspergillus species are common saprophytic organisms in the environment. The human external auditory canal is an ideal environment for this fungus to grow and abundance of proteins, carbohydrates, favorable humidity and temperature explain this finding.[25]

Otomycosis was seen more frequently between the age group 31-40 years old and had a higher incident in males than females, a finding similar to that of Aneja et al.,[12] Fasnula et al.,[3] and Pontes et al.,[13] Moist and humid conditions coupled with suitable temperature facilitate fungal growth, are the factors responsible for the higher incidence of otomycosis.

**CONCLUSION**

Otomycosis is fungal infection of the EAC that is frequently encountered in patients attending otolaryngology clinics. It presents with predominant symptoms of itching, ear discharge, ear ache, blocking sensation, followed by hearing impairment and tinnitus.

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