

Original Research

Clinical presentation of otomycosis

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ABSTRACT:

Background: Otomycosis, a fungus that affects the external auditory canal, is a condition that frequently arises in the general otolaryngology division. Otomycosis is more frequently seen in hot, humid regions, and it is predisposed to by a number of human and environmental variables. In this study, the prevalence of otomycosis in a known population will be investigated. **Material and methods:** 100 patients over the age of 10 with clinically diagnosed cases of otomycosis who presented to the ENT department over a 5-year period were included in the study. Along with potential risk variables and clinically observed findings, specific patient demographics including age, gender, and clinical presentations were noted. Samples taken from each person were cultured to assess the microbiological causes. Results are presented in a tabular format after statistical analysis. **Results:** The results obtained in our study revealed that the majority of the subjects were between the ages of 20 and 30 years, making a total of 59% of the study population. Males were observed more commonly than in females accounting for 63% of the total study population. 93 patients reported unilateral ear involvement among which the right ear was involved in 87% of the cases. The most frequently observed risk factor was self-cleaning of ears with objects such as q-tips, wooden sticks, metal pickers, etc. seen in 74% of the study population, followed by the use of antibiotic ear drops observed in 62% and instillation of mustard oil in 55% of the study group. The most common presenting symptom in the study population was reported to be pruritus of the ear in 79% followed by otalgia in 68%, and sensation of blocked ear observed in 53%. Fungi were established to be the causative organism in 97 out of the total 100 samples and the most commonly isolated fungi were *Aspergillus* seen in 91% of the total population. The most common species of *Aspergillus* that was isolated from samples was *Aspergillus Niger* seen in 61%. The second most commonly isolated fungus was *Candida* in 19% of the group. Bacteria were isolated from 59% of the total samples as a concomitant organism, *Staphylococcus aureus* is the most commonly seen in 54% of the samples. **Conclusion:** Otomycosis was shown to be more common in males between the ages of 20 and 30. The most frequently identified organisms are fungi, mainly *Aspergillus* and *Candida*, and bacterial contamination, particularly by *Staphylococcus aureus*, should be anticipated in some of these instances.

Keywords: Otomycosis, Otitis externa, Fungal ear infections, *Candida*, *Aspergillus*, Microbiological causes, Risk factors.

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INTRODUCTION

Concerning ear complain related visits to Ear, Nose, and Throat (ENT) departments, it is estimated that otitis externa makes up about 5 to 20% of the total clinic presentations, and among the total, approximately 10 to 25% can be attributed to fungal infections broadly referred to as fungal otitis externa or otomycosis.^{1,2} Otomycosis is commonly observed in tropical and subtropical regions, although it is prevalent globally.^{3,4} Otomycosis involves the squamous epithelium of the external ear canal and most frequently the causative fungi occupy the medial

aspect of the ear canal, partly owing to the location of the inferior tympanic recess that permits the accumulation of debris and partly due to this aspect of the ear canal being comparatively, darker and warmer, thus promoting fungal growth.⁵

The most commonly implicated organisms in otomycosis are species from the fungi genera of *Aspergillus* and *Candida*.⁶ *Aspergillus* is a ubiquitous mold identified as the causative organism in various infections and diseases. *Aspergillus* can be found in the form of minute conidia that can be easily

propelled into the air with dust and other particles, making this its primary route of transmission. Examination of the ear canal is usually done through otoscopy and bio-microscopy, while confirmation is obtained through mycological exams. *Aspergillus* and *Candida* are opportunistic organisms found as a component of the normal microbiota of various body parts.⁷ Upon visualization, *Aspergillus Niger* spores appear like fine coal dust sprinkled in the ear canal. They may also resemble a blotting paper or a crumpled newspaper. On the other hand, *Candida* infections of the external ear are seen as white, cheesy, sebaceous-like material that may in severe cases, even fill the ear canal. In such cases, a pseudomembrane often lines the ear canal, the removal of which reveals an underlying granular and friable membrane.⁸

Hence, this study was conducted to evaluate the clinical presentation of otomycosis.

Material and methods

100 patients over the age of 10 with clinically diagnosed cases of otomycosis who presented to the ENT department over a 5-year period were included in the study. Along with potential risk variables and clinically observed findings, specific patient demographics including age, gender, and clinical presentations were noted. Samples taken from each person were cultured to assess the microbiological causes. Results are presented in a tabular format after statistical analysis.

Results

The results obtained in our study revealed that the majority of the subjects were between the ages of 20 and 30 years, making a total of 59% of the study population. Males were observed more commonly than in females accounting for 63% of the total study population. 93 patients reported unilateral ear involvement among which the right ear was involved in 87% of the cases. The most frequently observed risk factor was self-cleaning of ears with objects such as q-tips, wooden sticks, metal pickers, etc. seen in 74% of the study population, followed by the use of antibiotic ear drops observed in 62% and instillation of mustard oil in 55% of the study group.

Table 1: gender wise distribution of subjects

Gender	Number of subjects	Percentage
Males	63	63%
Females	37	37%
Total	100	100%

Table 2: ear involvement

Ear involvement	Number of subjects	Percentage
Unilateral	93	93%
Bilateral	7	07%
Total	100	100%

Table 3: side of ear involvement

Side of ear involved	Number of subjects	Percentage
Right side	87	87%
Left side	13	13%
Total	100	100%

The most common presenting symptom in the study population was reported to be pruritus of the ear in 79% followed by otalgia in 68%, and sensation of blocked ear observed in 53%. Fungi were established to be the causative organism in 97 out of the total 100 samples and the most commonly isolated fungi were *Aspergillus* seen in 91% of the total population. The most common species of *Aspergillus* that was isolated from samples was *Aspergillus Niger* seen in 61%. The second most commonly isolated fungus was *Candida* in 19% of the group. Bacteria were isolated from 59% of the total samples as a concomitant organism, *Staphylococcus aureus* is the most commonly seen in 54% of the samples.

Discussion

Otomycosis is a highly prevalent fungal infection of the ear observed in many parts of the world.⁹ Fungi are ubiquitous and are found around the globe, however, in regions such as Ekiti state a higher incidence of fungi can be expected due to environmental concerns such as ongoing construction and improper waste disposal that can not only provide habitat for fungi growth in the form of rotting plant and vegetable material but also means for fungi dispersal in the form of dust particles.¹⁰

Hence, this study was conducted to evaluate the clinical presentation of otomycosis.

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Aremu SK et al¹¹ aimed to explore the prevalence of otomycosis. Out of total 275 samples, fungi were isolated in 270 samples, with a high isolation rate of 98%. *Aspergillus* was observed in 91% of the total isolates.

High fungal isolates have been reported by other studies such as 74.7% by Prasad SC, et al.¹² and even 100% in a study by Gregson, et al.¹³ *Aspergillus* has also been reported as the most common constituent in other studies such as in a study conducted in Saudi Arabia that reported a frequency of *Aspergillus* isolation of 51.5% and 44.8% in a study conducted in Turkey.^{14,15}

Some studies, however, reported other species of *Aspergillus* such as *Fumigatus* and *Flavus* to be the most commonly implicated fungi such as by Kaur R, et al. in 2000.¹⁶ In a few studies, *Candida* was reported to be the most common organism isolated in cases of otomycosis. This can be seen in a study conducted in Ibadan where *Candida* was isolated in 15 out of the total 53 total isolates making 28.3% of the total.¹⁷

Conclusion

Otomycosis was shown to be more common in males between the ages of 20 and 30. The most frequently identified organisms are fungi, mainly *Aspergillus* and *Candida*, and bacterial contamination, particularly by *Staphylococcus aureus*, should be anticipated in some of these instances.

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