

Fungal Otomycosis in Swimmers

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ABSTRACT

Otomycosis is a superficial, sub acute or chronic fungal infection of the external auditory canal with some complications involving the middle ear and inner ear. The present study highlights that Otomycosis is a common ear problem in swimmers. Swimming in polluted or non chlorinated water and self cleaning is a major predisposing factor in swimmers ears' infection. In this study 50 clinical specimens were collected by using sterile cotton swabs and inoculated on Sabouraud's dextrose agar medium. Identification of fungi was done as per standard monographs and by molecular methods. The most common fungal species causing Otomycosis was *Candida* species 22(25%), *Aspergillus niger* 18(20.4%), and *Aspergillus flavus* 4 (4.54%). Higher incidence of Otomycosis is more prevalent in the age group of 11-20 years. Pruritus is the most common fungal symptom of Otomycosis. The present study focuses on the prevalence of fungal agents in swimmers ears in various sex and age groups and its predisposing factors.

Keywords: External auditory canal, *Aspergillus*, Pruritus, Otomycosis,

INTRODUCTION

Otomycosis is a superficial, subacute or chronic fungal infection of the external auditory canal [1]. There are several factors that play an important role in otomycotic infection such as humidity, moisture, bathing, swimming and self hygiene. Swimming and other water activities are important because several people swim and dive. Sometimes people's ears are directly exposed to water without any protection. The external ear canal and tympanic membrane can be infected and pressure can easily be transmitted into the middle and inner ear [2,3]. Most patients suffer from complaints of pruritus, otalgia, otorrhea, tinnitus, and blocking sensation [4,6]. The main etiological agents of otomycosis are *Aspergillus niger* and *Candida* [5, 7]. The main objective of this study is to determine the prevalence of fungal agents in swimmers ears in various sex and age groups and its predisposing factors.

2. MATERIAL AND METHODS

In this study 50 clinical specimens were collected at ENT clinic Ujjain (M.P.) India. The patients included both males and females. All specimens were collected under aseptic condition from external auditory canal by using sterile cotton swabs [8]. All samples were inoculated on Sabouraud's dextrose agar with chloramphenicol and incubated at 28°C for one week. Cultures were examined for growth on alternate days [9]. Fungi were identified by standard monographs [10].

2.1 Nutritional requirement:

All spore suspension samples were inoculated on Sabouraud's dextrose broth, Potato dextrose broth and Czapek dox broth with chloramphenicol and incubated at 35°C for one week. After incubation mycelial growths were examined and observed microscopically for sporulation.

3. RESULTS

A total of 50 specimens were collected from patients. Positive fungal isolates were found in 44 specimens (44%). The most common fungal species causing Otomycosis was *Candida* species 22(25%), *Aspergillus niger* 18(20.4%), and *Aspergillus flavus* 4(4.54%) as shown in Figure-1.

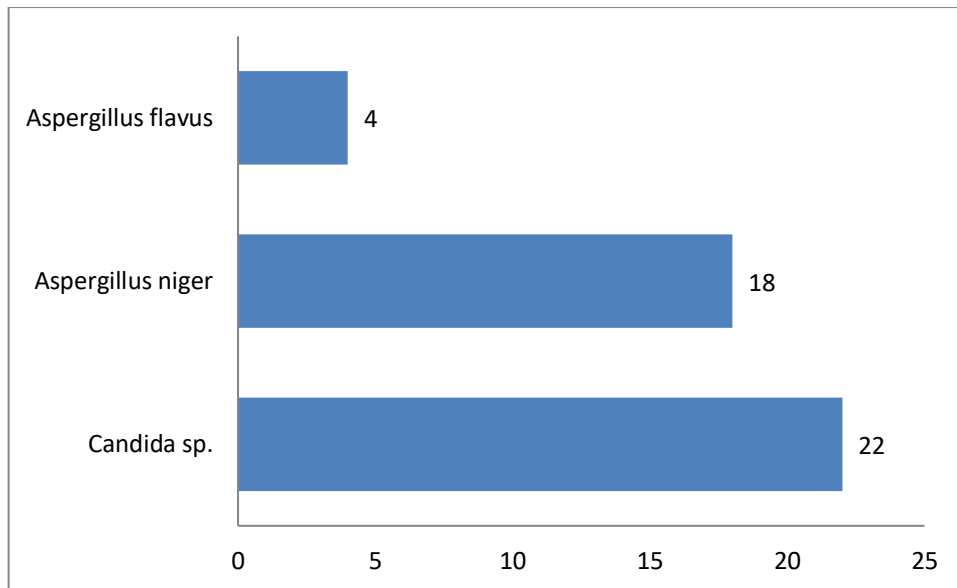


Fig 1: Fungal isolates in Otomycosis patients

Swimmers Otomycosis is more prevalent in the age group of 11-20 years. 26(29.54%) of the patients with otomycosis were males and 18(20.45%) were females as shown in Table 1. In our study unilateral and bilateral appearance was found in males and females. Pruritus was the predominant symptom seen in 21% of male and female patients followed by otalgia 12%,tinnitus 6% and otorrhea 5%. Major predisposing factors are swimming and bathing (29.54%), self cleaning using unsterile ear buds, toothpicks, pins (13.63%), instillation of oil (4.54%) and using ear drops (2.27%) as shown in Table-2/Fig-2.

Table 1: Age and sex wise distribution of Otomycosis patients

Age (in years)	Sex		Total
	Male	Female	
0-10	3	2	5(5.68%)
11-20	12	9	21(23.86%)
21-30	6	4	10(11.36%)
31-40	4	2	6(6.81%)
41-50	1	1	2(2.27%)
Total	26(29.54%)	18(20.45%)	44(50%)

Table 2: Predisposing factors of Otomycosis

Predisposing factors	Frequencies (%)
Swimming/Bathing	26(29.54%)
Self cleaning	13(13.63%)
Oil instillation	4(4.54%)
Ear drops	2(2.27%)

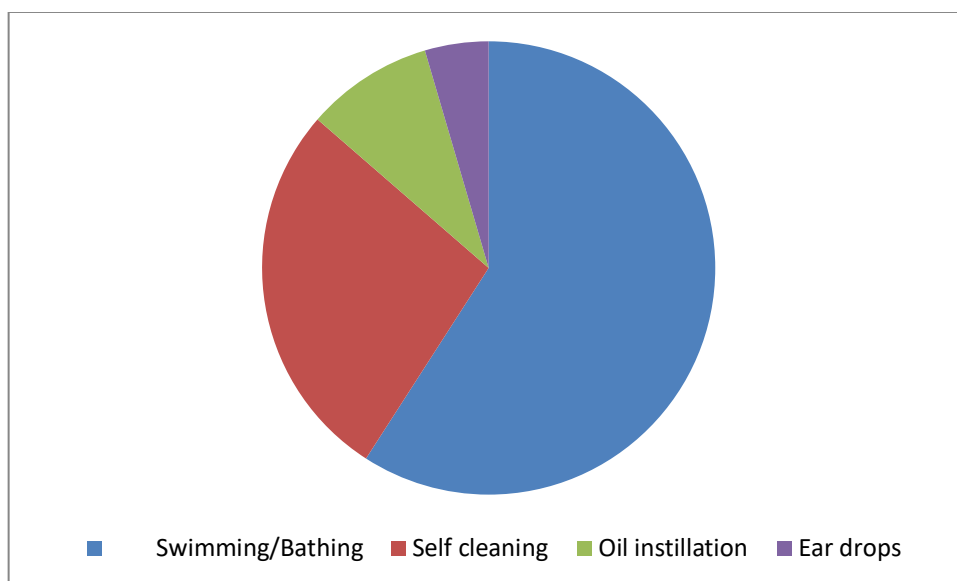


Figure 2: Distribution of patients according to predisposing factors.

4. DISCUSSION

Anaissie *et al.* [1] were the first to describe that fungal infections of the ear are superficial, subacute or chronic fungal infections of the external auditory canal. Swimming and other water activities are performed by several people, but sometimes ears are directly exposed to water without any protection. The external ear canal and tympanic membrane can be infected and cause trauma [2, 11]. The present study reported Otomycosis in 44% of the suspected patients, which is compared to the studies conducted by Ozcanet *al.* [12].

The higher incidence of Otomycosis may be due to high degrees of humidity, moisture, bathing, swimming and self hygiene. The most common etiological agents for Otomycosis in the present study were *Candida* species 25% and *Aspergillus niger* 20.4% [13-16]. In our study males 29.54% were commonly affected by Otomycosis compared to females 20.45% [17].

Higher incidence of Otomycosis was in the age group 11-20 years (23.86%) [18,19]. The most common predisposing factor in Otomycosis patients is swimming/bathing (29.54%), self cleaning (13.64%), and oil instillation (4.54%) [20]. All of these factors

encourages infection and changes in epithelial covering. High humidity gives suitable condition for fungi. In our study, we tried to determine the prevalence of fungal agents in swimmers ears infection.

5. CONCLUSION

Otomycosis are more common in young and middle age particularly during summer and rainy season with several predisposing factors. The present study highlights that otomycosis is a common ear problem in swimmers ears. Swimming in polluted water/ non chlorinated water or lack of hygiene is a major issue in swimmers ears. The main focus of this study is on using ear protection objects during swimming/bathing like ear plugs, caps, use proper cleaning methods and use of proper treatment methods.

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