

Otomycosis – A Clinico-pathological Study

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ABSTRACT

Objective To determine the frequency of different fungal isolates involved in otomycosis along with their mode of presentation and outcome of treatment modalities.

Study design Descriptive Study.

Place & Duration of study Departments of E.N.T, Head & Neck Surgery and Department of Pathology, Liaquat University Hospital Hyderabad, from August 2014 to July 2016.

Methodology All patients of either age and gender who attended the E.N.T. outpatient department with the clinical diagnosis of otomycosis were included in the study.

Results A total of 164 patients were managed. There were 93 (56.7%) males and 71 (43.3%) females. Age ranged from 4-73 year with mean age of 35.33 year. Considering each ear as a separate entity, 125 (60.38%) sample ears were right sided and 82 (39.61%) left sided, with a total of 207 sample ears. The most common clinical feature in this study was blockage of the ear which was noted in 136 (65.70%) sample ears. The most common fungal specie isolated was *Aspergillus niger* (n= 56 - 27.05%). Clotrimazole 1% solution proved to be very effective to achieve clinical cure in 191(92.27%) sample ears within a short span of time.

Conclusions Otomycosis a disease of inner portion of external auditory canal was more common in males. The common predisposing factors were ear poking and use of antibiotics / steroid otic drops. *Aspergillus Niger* was the commonest specie isolated. Clotrimazole 1% solution proved to be effective for clinical cure followed by 2% salicylic acid in rectified spirit.

Key words Otomycosis, Fungus, *Aspergillus*, Clotrimazole.

INTRODUCTION:

Otomycosis is the fungal infection of external auditory canal or more precisely of the keratin containing horny layer of skin of inner one third of external auditory canal.¹ This keratin serves as the nutritional material for the fungi.² The fungal growth in ear is

due to the loss of protective lipid / acid balance of the ear.³ Many factors predispose the growth of fungi including hot, dusty and humid climate, entry of infected water in the ear, immune compromised state, un-hygienic habits, poking the ear with some instrument and indiscriminate use of steroids and antibiotic otic drops.⁴

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Treatment protocol for otomycosis comprises a three pronged strategy consisting of essential evacuation of external auditory canal of all the fungal stuff thoroughly, avoidance of the predisposing factors and application of topical anti-fungal drugs.⁵ Elimination and avoidance of predisposing factors ensure long lasting fungus-free topical area. Topical antifungal agents are available in a wide range and they can be specific like clotrimazole, as well as non-specific like acetic acid, alcohol, etc.⁶ This study was conducted to determine the frequency of different

fungal isolates involved in otomycosis along with their mode of presentation and outcome of treatment modalities used.

METHODOLOGY:

This prospective descriptive study was conducted at the Departments of E.N.T, Head & Neck surgery and the Department of Pathology, Liaquat University Hospital Hyderabad, from August 2014 to July 2016. One hundred sixty four patients of either age and gender who attended the E.N.T. outpatient Department with the clinical diagnosis of otomycosis were included in the study. Clinical diagnosis was defined as patients' symptoms and signs indicating the presence of fungus in the ear. Symptoms included feeling of blockage of ear, discharge from ear and itching, pain and tinnitus in the ear. Signs included the presence of wet newspaper or blotting paper like mass present in the inner part of external auditory canal, and fungal hyphae and spores on magnified view at otoscopy.

The specimen for microscopy and culture were collected by sterile Jobson Horne probe with ring and cotton carrier sides, after cleaning the outer portion of external auditory canal by moist antiseptic swab. The slide for microscopy was prepared with 10% potassium hydroxide-methylene blue (2:1).⁷ For the culture of fungus, the material was inoculated on Sabouraud's dextrose agar medium with incubation at 25°C - 37°C for 2-3 weeks. Fungi were identified by standard as per their colonies and zone of inhibition by different drugs.⁸ Three pronged treatment strategy was employed inclusive of thorough cleaning of the external auditory canal, elimination of predisposing factors and application of topical antifungals drugs. Clotrimazole was used as the primary agent for the treatment.^{2,9,10} In patients with poor primary response or residual disease, 2% salicylic acid in rectified spirit was used.¹¹ Data was entered into SPSS version 16 for analysis.

RESULTS:

A total of 164 patients were inducted in the study of which 93 (56.7%) were males and 71 (43.3%)

females. Age ranged from 4-73 year with mean of 35.33 year. Most (n=44) patients belonged to 11-20 year age group. In 82 (50%) patients right ear was involved, in 39 (23.78%) the left ear and 43 (26.21%) patients had fungus in both ears. Considering each ear as a separate entity, 125 (60.38%) sample ears were right and 82 (39.61%) left sided, with a total of 207 sample ears. Among 43 bilateral cases, only 26 (60.46%) had similar fungi in both ears. The most common clinical feature in this study was blockage of the ear which was noted in 136 (65.70%) sample ears. Other features are given in table I.

Ear poking topped among the notable predisposing factors in 143 (87.19%) patients. Other predisposing factor was use of antibiotic / steroid otic drops (n=136 - 82.92%). The commonest fungal isolate belonged to the genus of *Aspergillus* (n=139 - 67.14%). *Aspergillus niger* (n=56 - 27.05%) was the most common isolate. Clotrimazole resulted in clinical cure in 191(92.27%) sample ears within a period of 1-2 weeks. In 9 (4.34%) sample ears poor response was noted. These were treated successfully by 2% salicylic acid in rectified spirit. Seven (3.38%) patients were lost to follow up.

DISCUSSION:

Otomycosis is worldwide in distribution with more propensities for tropical and subtropical regions. The condition is more common in males and same pattern is noted in current series.^{2,4,12,13} The possible reason may be more exposure of males to fungal spores due to outdoor work. In most of the studies otomycosis involves only one and mostly the right ear.^{2,12,14} In this study unilateral otomycosis was seen in 73.78% patients complimenting the already reported observations. This phenomenon is believed to be due to the right handedness of most of the patients with habit of ear poking, but same findings are not found in other studies.^{10,16} Bilateral otomycosis in the current study came out to be 26.21% which is in line with other studies.^{14,17}

Among the various symptoms produced by otomycosis, blockage of ear was the most common

Table I: Symptoms

Symptoms	Male (n)	Female (n)	Frequency (n)	Percentage (%)
Blockage	70	66	136	65.70%
Pain	62	50	112	54.10%
Irritation	60	45	105	50.72%
Discharge	36	25	61	29.46%
Tinnitus	09	10	19	9.17%

symptom in our study. In experience of other researchers impaired hearing was the most common symptom.⁴ The commonest culture isolate genus in the current study was *Aspergillus*. This observation was similar to other reports.^{18,19} As regards the specific specie isolated in our study, the most common was *Aspergillus niger*. Other researchers also grew same specie as most frequent in their studies.^{10,20}

CONCLUSIONS:

In this study males were more frequently involved. Most of the patients were between 11-20 year age group. The commonest predisposing factors was ear poking. The disease was predominantly unilateral involving right ear. *Aspergillus niger* was the commonest isolate. Clotrimazole was found effective in curing the disease.

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Author's Contributions:

Muhammad Shafi: Concept & study design, data collection, organization of manuscript writing & revision.
Ikram Din Ujjan: Data collection, script writing.

Conflict of Interest:

The authors declare that they have no conflict of interest.

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