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Research Article

OTOMYCOSIS: A MYOTIC INFECTION OF OUTER EAR¹Dr Adnan Iqbal, ²Dr Muhammad Shoaib Khan, ³Dr Muhammad Arshad Ilyas¹DHQ / Allied Hospital Faisalabad, ²Allied Hospital Faisalabad, ³Lahore General Hospital.

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Abstract:

Objective: *Otomycosis is a mycotic infection of the ear because of fungi. The objective of this research work is to determine the types of fungi which are the cause of otomycosis, its prompting factors & sex distribution in the abnormality of otomycosis.*

Methodology: *Total 15 patients were the part of this research work. There were total 73.3% (n: 11) female patients in the research work & 26.70% (n: 4) patients were men. The presence of the aspergillus, fruiting body, conidia, yeasts & aseptate mycelium were confirming the prevalence of otomycosis. The examination of swabs carried out for the identification of the causative factor.*

Results: *Microscopy & examination of culture confirmed the occurrence of otomycosis in fifteen patients in which eleven were females and four were males. The pathogens of fungi which were very frequent were A. Niger in eight patients, followed by A. flavus in two patients, A. fumigatus, penicillium spp, candida albicans, c. parapsilosis & rhizopus spp were each available in 1 patient.*

Conclusion: *The findings of this research work showed that this disease was less common in males as compared to females A. Niger was the main reason for the incidence of this disease in this research work according to the findings. Severe itching & pain are the outcome of this disease otomycosis.*

KeyWords: *Complication, Otomycosis, Incidence, Culture, Examination, Occurrence, Abnormality, Fungi, Methodology.*

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INTRODUCTION:

Otomycosis is a complication which can be acute, chronic as well as subacute. This is infection of pinna, outer meatus of auditory system & canal of ear due to fungus [1]. There is possibility of the occurrence of this complication in the middle part of the ear because of damage in the tympanic membrane [2]. These types of infections are the result of some kinds of the Saprophytic Fungi like yeasts & moulds particularly *Aspergillus Niger* [3, 4]. Some other factors of the cause and spread of this disease are *flavus*, *Scopulariopsis*, *Penicillium*, *Rhizopus*, *A. umigatus*, *Allescheria boydii*, *Absidia* & *Candida Spp* [4-6]. Additionally, otomycosis is an ancillary septicity deals to prompting features like the corticosteroids treatment of bacterial otitis externa as well as swimming [2].

The apparent symptoms of this problem include severe pain, a severe itching, scaling & erythematous. There is a prominence of the formation of the wax. Both types of environments temperate & tropical are favorable for the occurrence of otomycosis [3]. The occurrence of this complication is very high in the areas with hot weather, full of humidity & dusty environment. In this research work, we investigated the various types of fungi as a reason of disease, prompting factors & distribution of the gender for the complication of otomycosis.

METHODOLOGY:

15 patients who were attending various laboratories in Faisalabad were the part of this research work. There were total 73.3% (n: 11) female patients in the research work & 26.70% (n: 4) patients were men. The range of the age of patients was four to thirty years with an average age of seventeen years. Each patient was available with one or more than one aural symptoms as severe itching, loss of hearing & otalgia. Utilization of 2 wool swabs of sterile cotton carried out to collect the pus and secretion of ear. 1 swab was in use for application of direct microscopy & the other swab was in use for the examination of the culture. The direct examination of all the specimens conducted by smear's staining with methods of methylene green & blue.

The availability of the aspergillus, fruiting body, conidia, yeasts & aseptate mycelium were making sure the incidence of otomycosis. (Figures- 1-4). The reconfirmation of the availability of the elements of the fungi in the stained smears carried out by culture of fungi, fungal colonies. Any type of the medical ingredients, particularly the examination of the samples of liquids as pus as well as secretion should be carry out as soon as possible. There was no requirement of the processing for the swabs & they were in use for the culture examination. The rolling of the swabs carried out and swabs inoculated over the outer plane surface of SDA (sabouraud's dextrose agar) with the availability of chloramphenicol (SC).

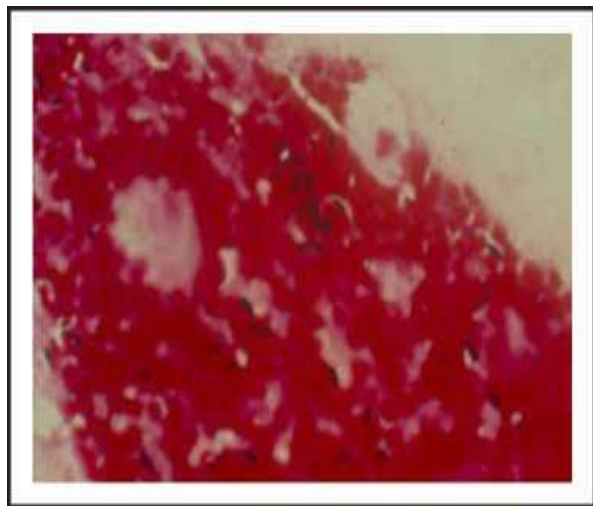


Fig-1: Yeast and budding cells

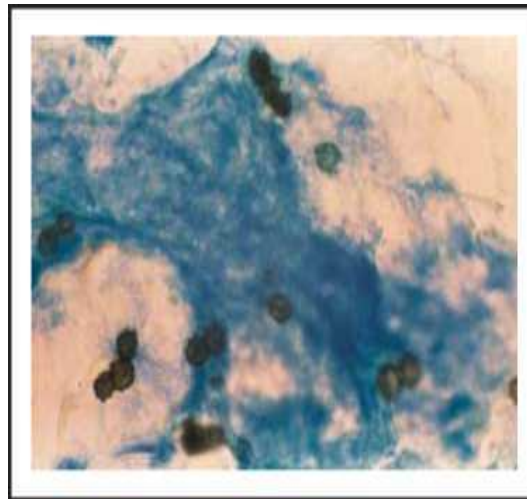
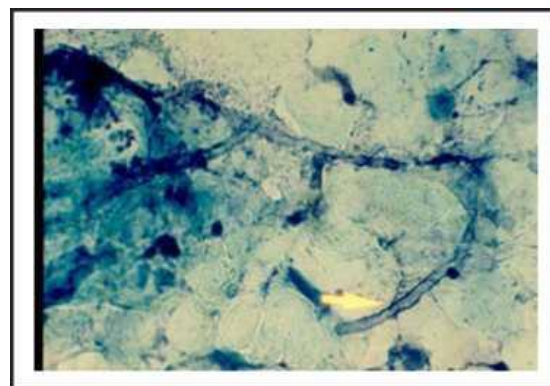


Fig-2: Spiny brown conidia of *A. niger*.

Fig-3: Fruiting bodies of *Aspergillus*.Fig-4: Aseptate hyphae of *Rhizopus*.

The incubation of the cultures at laboratory from twenty five to twenty seven °C for two to 3 weeks in the non-availability of air. The identification of the separations of the fungi carried out on the basis of

RESULTS:

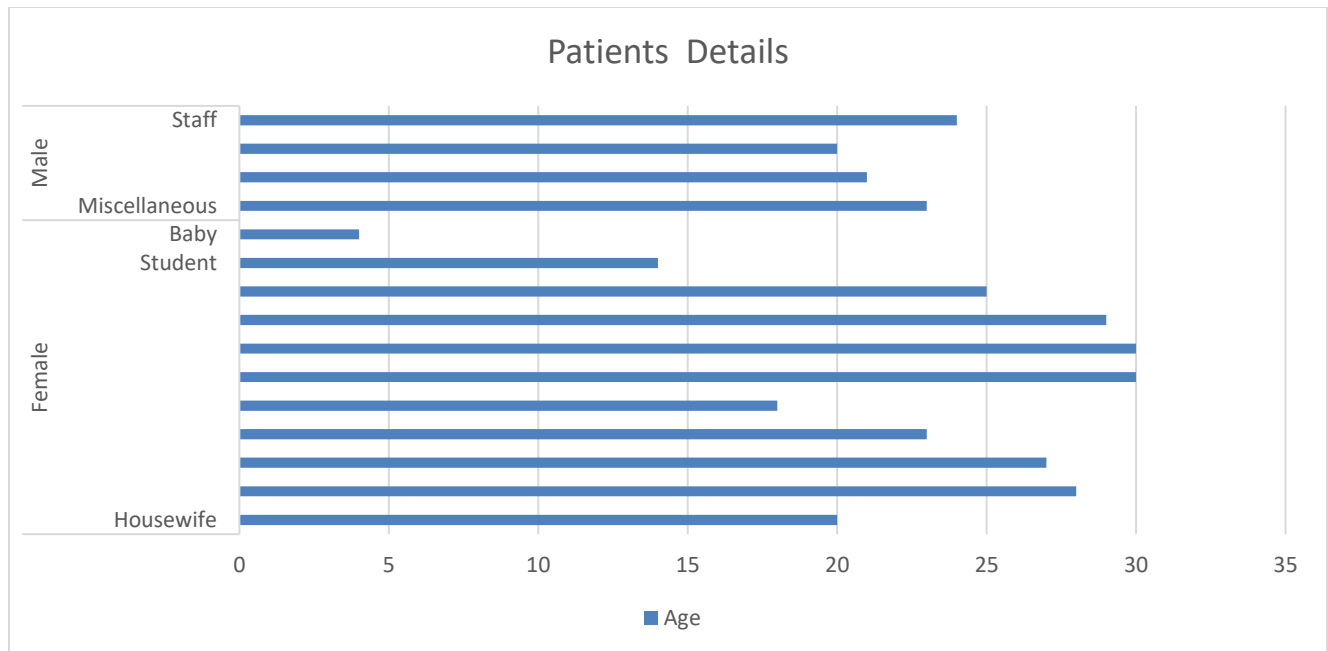
Total fifteen patients suffering from the abnormality of otomycosis were the part of this study. We observed the elements of mycelium, mycelial branches, fruiting peaks & spiny conidia with brown color in 12 patients of this research work. *A. Niger* was the displayed outcome of the direct smears of eight patients & development besides the medium of the culture confirmed this outcome. In the uninterrupted smears of four cases, there was presence of the septate branching mycelium conidia

morphology of colonies & cultures on the slide. Gun tube test was in use for the detection of the colonies of yeast & the formation of chlamydoconidia on agar of corn meal agar & API twenty C Aux system.

& the species which separated from the culture were *A. flavus* in two patients, *A. fumigatus* in one patient & *Penicillium Spp* in one patient. The smears of 2 patients of this disorder displayed cells of yeast, budding cells & pseudohyphae whereas in the medium of culture *C. albicans* & *C. parapsilosis* were growing correspondingly. We also observed the presence of broad aseptate mycelia in the direct smears of the patients. We also observed the yielded *Rhizopus Spp.* in the samples of cultures as elaborated in Table-1.

Table-I: Patients Details

S.	Sex	Occupation	Age	Direct smear	Culture
1	Female	Housewife	20	Mycelium, phialid, conidia	<i>A. niger</i>
2			28	Mycelium and conidia	<i>A. fumigatus</i>
3			27	Yeast	<i>C. parapsilosis</i>
4			23	Spiny brown conidia	<i>A. niger</i>
5			18	Mycelium and conidia	<i>A. flavus</i>
6			30	Spiny brown conidia	<i>A. niger</i>
7			30	Spiny brown conidia, mycelium	<i>A. niger</i>
8			29	Mycelium, phialid, conidia	<i>A. niger</i>
9			25	Spiny brown conidia, mycelium	<i>A. niger</i>
10				Student	14
11		Baby	4	Yeast and pseudohypahe	<i>C. albicans</i>
12	Male	Miscellaneous	23	Spiny conidia	<i>A. niger</i>
13			21	Aseptate hyphae	<i>Rhizopus</i>
14			20	Mycelium	<i>A. niger</i>
15		Staff	24	Septate mycelium	<i>A. flavus</i>



DISCUSSION:

The occurrence of otomycosis is very common in female particularly in housewives in comparison with males and the results of this research work were consistent with the outcome of other reported works in the same literature [5, 7]. Out of total fifteen patients, eleven patients were females & four patients were male. Otomycosis is most prevalent disease in the age of adulthood & very less in the small age children [3, 7]. In this research work, we discovered that the complication of otomycosis was very frequent in the young male which is consistent with the results of other research works [2, 3, 5]. Total 9 female patient were housewives. One patient was a student and one was a baby. Our male patients were available with different professions. The agents of mould which because infections are available in the environment as *A. Niger*, *penicillium*, *rhizopus*, *A. flavus*, *A. fumigatus*, *Mucor*, etc. The most frequent cause of the otomycosis was *A. Niger*. On 2 different studies conducted in two different areas of Iran found that otomycosis was the main cause of the complication of otomycosis among the patients [7, 8]. Ozcan [2] & Hurst [9] concluded in their studies that *A. Niger* is the very common reason for the onset of otomycosis in the countries of Turkey & Australia, correspondingly. But Kaur [3] in his research work reported the *a. fumigatus* as the most common reason. Second most common reason was *A. Niger*.

Other various aspergillus species which have an association with the disease with otomycosis are *A. falvus* [5]. Pavelenko reported the *penicillium* in his research work [10]. Other species of the fungi which

have an association with the otomycosis are the *C. albicans* & *C. parapsilosis* [5]. In this recent research work, the most common isolate was *A. Niger* and *A. Flavus* was second in number in this regard. Otomycosis is not the primary infection of the auditory system and different prompting features are responsible for fungi invasion. Secondary infection of bacteria was the most frequent prompting factor in the previous background of patients of this research followed by the last treatment with antibiotics for duration of 1-4 months and in the last the other causative factor was swimming.

These factors can vary according to the regions and the atmosphere of those particular regions. Most of our patients got admission in the season of summer & spring when there is humidity & hotness in the environment in our regions. In 3 patients, deafness as an abnormality of hearing was available. All the patients of this research got referrals to physicians.

CONCLUSION:

This research work showed that the occurrence of this disease was much high in females as compared to the males. The most common reason of the onset of this disease was *A. Niger* in our regions.

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