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Clinicomycological Study of Otomycosis

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A B S T R A C T

To study the various fungi causing otomycosis with its isolation and identification of species from the clinical laboratory of Vijayanagara Institute of Medical Sciences, Ballari, ear swab samples are collected from the department of ENT which is suspected for fungal cause of otomycosis. KOH mount was done for the presence of fungal elements and also Grams staining of the sample is done to look for uniformly stained Gram positive fungal elements. Another ear swab from the same ear is directly streaked on the SDA slant for fungal culture. The tubes are incubated at 37 degree Celsius for 1month. Intermittently the tubes are checked for fungal growth. A total of 60 samples were collected from January 2018 to June 2018 from suspected cases of otomycosis in Department of ENT. Maximum cases were isolated from age group between 11y-20y with higher incidence among males-42 cases (70%).45 cases are positive for KOH, 48cases were positive for fungal culture. The isolates are as follows: *A. niger* (33.3%), *A. flavus* (31.6%), *A. terreus* (3.3%), others (11.2%) and no growth were (20%) From the above study, 11y-20y constitute the higher incidence of fungal infection in ear with male preponderance and the most common fungi isolated in otomycosis were *A. niger* followed by *A. flavus*. Early detection and treatment of otomycosis helps in preventing the invasion of infection further. Timely instillation of antifungal eardrops will help to subside the infection.

Introduction

Otomycosisis a common condition encountered in a general otolaryngology clinical setting among patients who presented with signs and symptoms of otitis externa. It is a pathologic entity, with candida and *Aspergillus* the most common fungal species[1,2].

It is not clear that the fungi are the true infective agents or mere colonization species as a result of compromised local host immunity secondary to bacterial infection. Various predisposing factors include a humid climate, presence of cerumen, instrumentation of the ear, increased use of topical antibiotics / steroid preparations, immunocompromised host, patients who have undergone open cavity mastoidectomy and those who wear hearing aids with occlusive ear mold[3].The infection is usually unilateral and characterized by inflammatory pruritis, scaling and otalgia[4].

Materials and Methods

From the clinical laboratory of Vijayanagara Institute of Medical Sciences, Ballari, ear swab samples are collected from the department of ENT which are suspected for fungal cause of otomycosis. KOH mount was done for the presence of fungal elements and also Grams staining of the sample is done to look for uniformly stained Gram positive fungal elements. Another Ear swab from the same ear, swab is directly streaked on the SDA slant for fungal culture. The tubes are incubated at 37 degree Celsius for 1month. Intermittently the tubes are checked for fungal growth. Appropriate statistical analysis is done at the end of the results.

Results and Discussion

A total of 60 ear swabs are collected from the Department of ENT. The group consisted of 42 males (70%) and 18 females (30%). Most of the cases were out patients about 52cases (86.6%) and in patients were 8cases (13.3%). The highest incidence of age group is 11y-20y (35%) and least incidence was seen in age group of 31y-40y (1.6%) and 71y-80y (1.6%). Out of 60 samples 45(75%) samples showed KOH positive and 48(80%) samples showed SDA culture positive. The percentage of fungal isolates is as follows: *A.niger*-20 cases (33.3%), *A.flavus*-19 cases (31.6%), *A.terreus*-2 cases (3.3%), *Fusarium* spp-1 case (1.6%), *Penicillium*-1 case (1.6%), Geomyces destructans-1 case (1.6%), Bipolaris-1 case (1.6%), *Mucor*-1 case (1.6%), *Rhizopus*-1 case (1.6%), *Candida*-1 case (1.6%) and NO GROWTH-12 cases (20%).

Otomycosis is a superficial mycotic infection of the outer ear canal frequently encountered by otolaryngologist and can usually be diagnosed by clinical examination. However the correct diagnosis requires a high index of suspicion. The infection may be either sub acute or acute and is characterized by inflammation, pruritis, scaling and severe discomfort. The mycosis results in inflammation, superficial epithelial masses of debris containing hyphae, suppuration and pain[4]. In a study conducted by Rajeshwari Prabhakar Rao *et al.*, shows higher incidence of otomycosis in the age group of 21y-30y (34%) followed by 11y-20y (23.4%) but in our study the higher incidence of age is seen in 11y-20y(35%)[5]as shown in Figure 1.

In our study the males (42cases-70%) are affected more than females(18cases-30%). Similar observations were seen in the study conducted by Zaror *et al.*, 45 cases out of 60 were positive for KOH mount and 48 cases (80%) were positive fungal culture. *Aspergillus niger* (20cases-33.3%), *Aspergillus flavus* (19 cases-31.6%) showed highest fungal isolates. These results were similar to the study done by Favour Osazuwa *et al.*, [5,7]. Other fungal isolates in this study are as follows-*A.terreus*-2cases (3.3%), *Fusarium spp*-1 case (1.6%), *Penicillium*-1 case (1.6%), *Geomyces destructans*-1 case (1.6%), *Bipolaris*-1case (1.6%), *Mucor*-1 case (1.6%), *Rhizopus*-1 case (1.6%), *Candida*-1 case (1.6%) and NO GROWTH-12 cases (20%). These observations were similar to that of the study done by Rajeshwari Prabhakar Rao *et al.*, showing *Candida* (8.5%), *Mucor* (2.1%) and *Penicillium* (2.1%)[5] as shown in Figure 2.

If the fungal infection is not treated timely it leads to complications such as tympanic membrane perforation, hearing loss and invasive temporal bone infection[8].

Treatment involves elimination of predisposing factors. Topical antibiotic solutions must be stopped. Patients' nails must be inspected to rule out onychomycosis. The ear canal must be thoroughly debrided of

all visible debris. It is our practice to avoid syringing and clear the debris by suctioning alone. Fungicidal drops are the most popular form of treatment. Clotrimazole has an antibacterial effect, and this is an added advantage when treating mixed bacterial-fungal infections. Fungicidal creams with ketoconazole or fluconazole may also be applied [9].

Fig.1 Age wise distribution

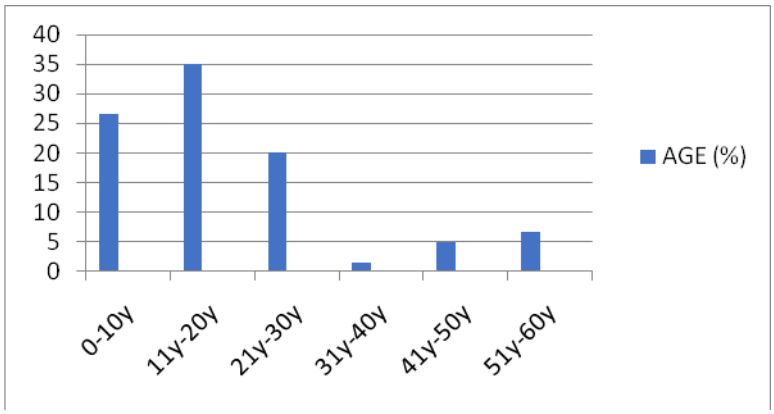
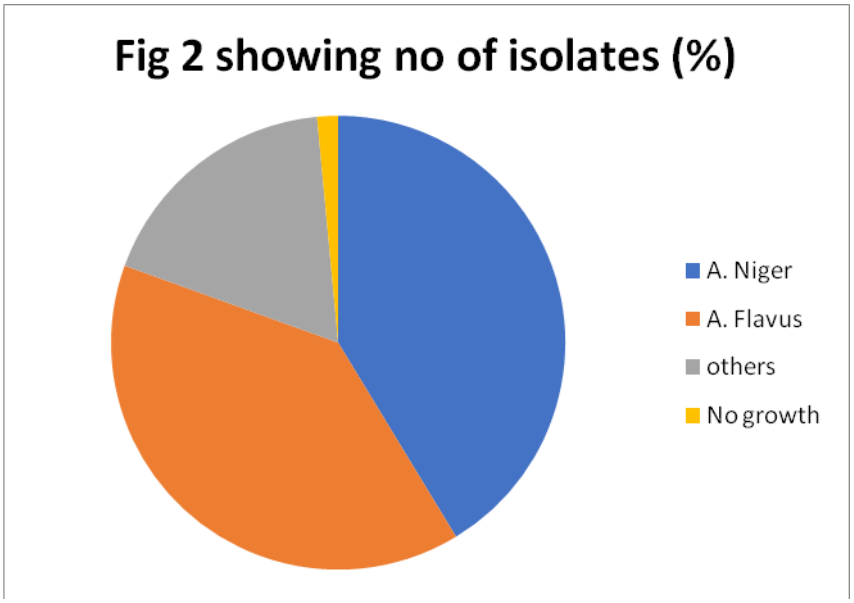


Fig.2



Another technique in which the absorbable gelatin sponge is used for the treatment of recurrent and persistent otomycosis[10]. In our hospital because of inadequate resources, antifungal susceptibility testing is not done. But with the antifungal susceptibility appropriate antifungals are advised which will help accurate treatment of otomycosis. In conclusion, from the above study it is clear that clinical suspicion of otomycosis can prevent unnecessary use of antibiotics. High incidence of Otomycosis is reported in tropical countries. In our study, *Aspergillus* species was the commonest fungi involved in

Otomycosis. As clinical features are non specific, laboratory diagnosis helps to know the exact etiology of Otomycosis to initiate appropriate antifungal therapy. Appropriate antifungals are advised based on antifungal susceptibility pattern and accurate treatment is started for better prognosis. Educating the rural population is another important concern and needs to be addressed.

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