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ORIGINAL RESEARCH

Mycological Profile of Clinically Suspected Cases of Otomycosis

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ABSTRACT

Introduction: Otomycosis is a fungal infection of external ear with symptoms like otorrhoea,otalgia, pruritis etc. The infection may be acute, subacute or chronic. It is worldwide in distribution with a higher prevalence in the hot, humid, and dusty areas of the tropics and subtropics .Overview of the literature reveals otomycosis to be a common medical problem in India. Early diagnosis and its treatment is necessary to prevent complication and unnecessary use of antibiotics. Present work was planned to determine fungal agents involved in otomycosis and their Correlation with clinical presentation.

Material and Methods: 100 samples of clinically suspected cases of otomycosis were taken, followed by their detail clinical history and examination at ENT Department. All samples were examined for any fungal infection by means of KOH preparation and fungal culture.

Results: Out of 100 examined patients 42 cases (12 males and 30 females) were positive for fungal otitis externa or otomycosis. The most common fungus causing otomycosis was *A. niger* (61.90%) followed by *C. albicans* (14.28%), *A.fumigatus* (7.14%), *A. flavus* (4.76%), *Mucor* (4.76%), Rhizopus species (4.76%), and non-albicans candida species (2.38%). The site of the lesion in 18 (42.85%) was right ear, in 9(21.42%) left ear, and in 15(35.73%) both ears. The main complaint in patients with otomycosis was pruritus in 85%, followed by irritation and hearing loss in 63% and 52% of patients respectively.

Conclusion: *Aspergillus niger* was common pathogen followed by candida. Annoying symptoms due to this infection points towards its early microbiological confirmation, diagnosis and management.

Keywords: Aspergillus, Candida, Otalgia, Otomycosis, Otorrhoea

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INTRODUCTION

Otomycosis is defined as an infection of the external ear canal with fungal agents mainly characterized by pruritus, otalgia, tinnitus and hearing loss.[1,2] While it is infection of external ear however the disease may occur in the middle ear if the tympanic membrane is perforated.[3-5] The infection may occur as acute, subacute or chronic and with symptoms like itching in the ear, otalgia, otorrhea, ear fullness, hearing impairment and tinnitus.[6-9] It's severe forms may result sometimes into tympanic membrane perforation, middle ear or whole mastoid cavity and temporal bone involvement.

The prevalence of this entity is also related to the geographic distribution, areas with tropical climate shows higher rates of incidence. Various factors have been proposed as predisposing factors for otomycosis like local injury, immunocompromized host, long term use of broad spectrum antibiotics or steroid preparations, co-morbid conditions like diabetes and dermatological diseases.[10,8]

It is worldwide in distribution with a higher prevalence in the hot, humid, and dusty areas of the tropics and subtropics.[6,4,12,13] Overview of the literature reveals otomycosis to be a common medical problem in India.[8,14] Identification of correct pathogenic organism and its predisposing factor makes easier way for clinician to find suitable treatment and prevention of its recurrence. Present study was planned to determine fungal agents involved in otomycosis and their correlation with clinical presentation.

MATERIAL AND METHODS

In the present study, 100 symptomatic patients of suspected otomycosis were sampled. This study was conducted at PMCH and NMCH Patna for six months from October 2014 to March 2015. Two sterile cotton wood swabs were used for sampling from ear, one for direct examination and another for culture. In addition, a questionnaire including age, gender, and the duration of the disease was also completed for each patient. Direct smears were prepared by first swab, stained using methylene blue technique and examined microscopically. The second swab was enrolled on Sabouraud's dextrose agar (Merck, Germany) with chloramphenicol (SC) and Sabouraud's dextrose agar with chloramphenicol and cycloheximide (SCC) and incubated at room temperature for one to two weeks. Isolates were identified based on morphology and microscopy. The results were analysed using latest version of SPSS.

RESULTS

Out of 100 examined patients 42 cases (12 males and 30 females) were positive for fungal otitis externa or otomycosis The distribution of their ages was as follows; 1 patient (2.38%) in the age group of 0-10,2 patients (4.76%) in the age group of 11-20, 11 patients (26.19%) in age group 21-30, 3 patients (7.15%) in the age group of 31-40, 5 patients (11.91%) in the age group 41-50, 18 patients(42.85%) in age group 51-60 and 2 patients (4.76%) in the age group 61-70 [Table-1]. The most common fungus causing otomycosis was *A. niger* (61.90%) followed by *C. albicans* (14.28%), *A.fumigatus* (7.14%), *A. flavus* (4.76%),*Mucor* (4.76%), *Rhizopus* species (4.76%), and *non- albicans candida* species (2.38%). The site of the lesion in 18 (42.85%)was right ear, in 9(21.42%) left ear, and in 15(35.73%)both ears. Table-2 shows frequencies of patients according to the sex and species of fungi.. The main complaint in patients with otomycosis was pruritus in 85%, followed by irritation and hearing loss in 63% and 52% of patients respectively.

DISCUSSION

Otomycosis is one of the most common condition seen in ENT department .It is tough to deal with due to recurrence and complications. Many of the times diagnosis is made clinically with high rate of suspicion on the basis of clinical sign and symptoms. In present study this kind of presumptive diagnosis was confirmed by lab findings in 42% of patients, compared with study by Aneja et al[3] who reported in 78%, Kumar et al[7] and B Barati et al[9] reported in 75.92% and 69% of patients respectively.

In the present study, out of 100 clinically suspected patients, 42(42%) had otomycosis. This prevalence rate of otomycosis in a study by Lohove Petmy *et al* was 6.1%.[15] The commonest etiological agent, which was mark-able for otomycosis in the present study, was *A. niger* (61.90%). This finding is compatible with worldwide-fulfilled studies. In a study carried out by Chander *et al.*[18] *A. niger* was the commonest cause of otomycosis in 57.5% cases. In addition, our study is similar to the study of Martin *et al.*[19] in Spain with the prevalence rate of 73.3%. However, the obtained results by Kaur *et al.*[8] in the tropical regions, the commonest etiologic agents accountable for otomycosis were *A. fumigatus* (41.1%) and *A. niger* (36.9%), while this finding was in contrast to the current study. Other fungi that have been associated with otomycosis in our study are *C. albicans, A. fumigates, A flavus* , *Rhizopus* and *mucor*. Other reports also show *Scopulariopsis*, *Rhizopus* and *Candida* as otomycosis agents.[12,16,17]

Age group	Number of patients	Percentage (%)
0-10	1	2.38
11-20	2	4.76
21-30	11	26.19
31-40	3	7.15
41-50	5	11.01
51-60	18	42.85
61-70	2	4.76

Table-1: Age wise distribution of positive patients

Organism	Female	Male	Total
A .niger	19 (63.33%)	7 (58.33%)	26 (61.90%)
A .fumigatus	2 (6.66%)	1 (8.33%)	3 (7.14%)
A .flavus	2 (6.66%)	0 (0)	2 (4.76%)
Rhizopus	1 (3.33%)	1 (8.33%)	2 (4.76%)
Mucor	1 (3.33%)	1 (8.33%)	2 (4.76%)
C . albicans	4 (13.33%)	2 (16.66%)	6 (14.28%)
Non albicans candida	1 (3.33%)	0 (0)	1 (2.38%)

Table-2: The prevalence of otomycosis among examined patients in terms of fungal species and Patients' gender

CONCLUSION

Otomycosis is seen across the world with a high incidence especially in tropical countries. *Aspergillus species and Candida* are the most commonly isolated fungi . Keeping in view the high prevalence of otomycosis in India, Critical diagnosis of the causative agent and susceptibility testing for proper treatment of otomycosis is the need of the hour.

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