

Otomycosis: A Micological Study in a Tertiary Care Hospital

Babita¹, Sanjeev Suman², H. L. Mahto³

ABSTRACT

Introduction: To evaluate various mycology of otomycosis and also with reference to male and female status. The most common symptom was pruritus.

Material and methods: Total number of 110 samples were taken from ear of patient coming to OPD during January 2017 to December 2017. The present study was carried out in the Department of Microbiology. The study included patients of all age group. Both the sexes presenting with symptoms of otomycosis such as pruritus, otalgia, hearing impairment, fullness of ear, otorrhea were included in the study.

Result: A total of 110 patients were studied. Chief fungal isolate was *Aspergillus niger* (38.3%) followed by *Aspergillus flavus* (24.6%), *Candida albicans* (12.3%), *Aspergillus fumigatus* (11.2%), *Candida parapsilosis* (7.4%), *Rhizopus* (6.2%). Males (62.9%) were more affected than females (37.1%). Commonest sign and symptom were pruritus. Maximum positive cases (43%) were in age group of 21 to 30 years. Among culture positive were smear positive and were smear negative.

Conclusion: In this study *Aspergillus niger* was the commonest causative organism causing otomycosis with male predominance particularly during summer and rainy season.

Keywords: Otomycosis, A Micological Study

INTRODUCTION

Otomycosis is a fungal infection of the external ear canal and is common condition encountered among patients who presented with signs and symptoms of otitis externa. It is common in tropical countries. Most common fungus that forms biofilm inside the ear canal are mostly *Aspergillus* and *Candida* species.^{1,2}

Various predisposing factors such as humid climate, presence of cerumen instrumentation of the ear, increased use of topical antibiotics/steroids, improper self cleaning and inserts of unnecessary tools into the ear canal can bring to onset of otomycosis.³ The infection is usually unilateral and characterized by pruritus.⁴

If the fungal infection is not treated on right time it can lead to complication such as tympanic membrane perforation, temporal bone infection, hearing loss etc. If debris blocks the ear canal, severe pressure type pain is seen in advance cases.^{5,6,7}

The mycosis results in inflammation, exfoliation, masses of debris containing hyphae, suppuration and pain.⁶ The infection may be either subacute or acute and is characterized by discharge, inflammation, pruritus and severe discomfort.⁷

MATERIAL AND METHODS

Otomycosis is common throughout the world. The present study was carried in the department of Microbiology for a

period of one year. Our study included mycological analysis on ear canal of 110 patients who had been clinically diagnosed with otomycosis attending OPD since January 2017 to December 2017. Affected persons were divided on the basis of age and sex. Patients of all age were included. Symptoms such as pruritus, otalgia, otorrhea, ear blockage, tinnitus and hearing loss were usually seen. Sample collected from the patient with suspicion of otomycosis underwent direct microscopic examination and culture Sabouraud's dextrose Agar (SDA) with antibiotic. Direct microscopic examination was carried out for detection of fungal elements. For this we used KOH mount and also Gram staining of the sample.

Another ear swab from the same ear was inoculated on Sabouraud's Dextrose Ager (SDA) with antibiotic (Chloramphenicol) and incubated at 37°C for 6 weeks. Identification of culture growth was done by direct microscopic examination from culture growth by using lacto phenol Cotton Blue (LPCB) mounts preparation and Gram stain. Further slide culture examination was done for differentiation of morphology.

RESULTS

A total of 110 ear swabs were collected from the OPD. Among 110 samples 65 were collected from male and 45 were collected from female. Samples were collected on the basis of different age groups. The highest incidence of age group was in 21 to 30 years (43.3%) and last incidence was seen in the 0 to 10 age group (4.9%). Then in 31 to 40 age group, 25.9% cases were positive less positive cases were recorded in 50-60 years (6.2%), 41 to 50 years (12.3%) and 11 to 20 years (7.4%).

Out of 110 samples 37 samples were smear positive and culture positive. 44 samples showed smear negative culture positive. 2 samples were smear positive but culture negative. Among 110 patients 81 (73.6%) culture positive and 29 (27.4%) were culture negative.

A total of 110 patients were studied. Positive fungal growth was seen in the 81 cases (73%). The most common presentation was pruritus.

The most common isolates belonged to species *Aspergillus* accounting for 74%, *Aspergillus niger* (38.3%) accounted

¹Assistant Professor, Department of Microbiology, ²Assistant Professor, Department of Radiology, ³Professor & HOD & Principal, Department of Microbiology, Nalanda Medical College Hospital, India

Corresponding author: Dr. Sanjeev Suman, Assistant Professor, Department of Radiology, Nalanda Medical College Hospital, India

How to cite this article: Babita, Suman S, Mahto HL. Otomycosis: a micological study in a tertiary care hospital. International Journal of Contemporary Medical Research 2021;8(12):L5-L7.



Age (in Years)	No. of cases	Percentage
0-10	4	5
11-20	6	8
21-30	35	43
31-40	21	26
41-50	10	12
51-60	5	6
Total	81	100%

Table-1: Cases distribution

S No.	Fungal species	No of cases	Percentage
1	Aspergillus niger	31	38.3
2	Aspergillus flavus	20	24.6
3	Candida albicans	10	12.3
4	Aspergillus fumigates	9	11.2
5	Candida parapsilosis	6	7.4
6	Rhizopus	5	6.2
		81	

Table-2: Fungal species identified

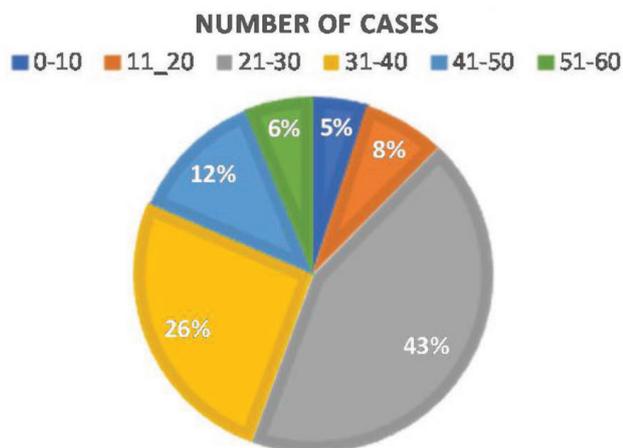


Table-1: Cases distribution according to age

highest in causing the ear infection followed by *Aspergillus flavus*(24.6%), *Candida albicans* (12.3%), *Aspergillus fumigatus* (11.2%), *Candida parapsilosis*(7.4%) and *Rhizopus* 6.2%.

DISCUSSION

73.6% were diagnosed to be suffering from Otomycosis. Among then 37 were smear and culture positive and 44 were smear negative by culture positive. Correlating between smear examination (KOH and Grams stain) and culture for detection of fungus was highly significant. Incidence of Otomycosis was seen more in male (62.9%) than in female (37.1%)^{8,9,10}

Otomycosis is a superficial mycotic infection of outer ear canal and seems to be a very common clinical condition found in the outpatient department of otorhinolaryngology over the world.¹⁰ In my study maximum numbers of cases were seen in the month between April to October.^{11,12} Otomycosis was more prevalent between 21 to 30 years showing 35(43.3%) cases as compared to other age group.^{13,14} Then 21(25.9%)

cases were seen in 31 to 40 age group^{8,10,15} The most frequent symptoms were pruritus (99%) followed by otalgia (90%).^{14,16,17,18} Pruritus was more marked than other forms of ear infection.^{10,14}

Commonest isolated fungal species ware of *Aspergillus* (74%).^{19,20} *Aspergillus* fungal infection can be diagnosed by presence of conidiospores but fungal hyphae stage may be picked up at the time of swabbing because hyphae get imbedded in ear debris and wax. The most common isolated species was *Aspergillus niger* (38.3%) and this was supported by other species.^{10,21,22} as a causative organism causing otomycosis. This was followed by *Aspergillus flavus*(24.6%)^{4,23,24} *Candida albicans* (12.3%) and *Aspergillus fumigates* (11.2%) were also isolated²⁵.

CONCLUSION

As clinical feature is nonspecific, laboratory diagnosis can help to know the etiology of Otomycosis. In Indian, climate may predispose for the development of Otomycosis. More number of cases is diagnosing during the rainy season and summer season. The present study shows *Aspergillus* spp. as commonest causative organism. If the fungal infection is not treated timely it leads to complication such as lymphatic membrane perforation, hearing loss etc. Clinical observation and microbiological testing are helpful to know the exact causative agent.

REFERENCES

- Muglistion T, O'Donoghue G. Otomycosis: A continuing problem. *J Laryngol Otol.* 1985;99:327-333.
- Kaur R, Mittal N, Kappur M, Aggarwal AK, Mathur MD. Otomycosis; a clinicomycology study. *Ear Nose Throat J.* 2000;79:606-960.
- Ruth AL, Sataloff RT. *Aspergillus* Otomycosis in an immuno compromised patient. *Ear Nose Throat J* 2008;87:622-3.
- Lia X, Liang Q, Chi E, and W. Otomycosis in Shanghai: etiology, Clinical features and Mycois, 2012;55:104-109.
- Nipa K, Kamal, Imtiaz A, Prevalence and Clinicomycological studies of Otomycosis: A review. *Journal of Bioscience*, 2019;28:121-1325.
- Mohmoudabadi AZ, Masoomi SA, Mohammadi H. clinical and mycogical studies of otomycosis. *Pak J Med Sci* 2010;26:187-190
- Jagdish Chander, Textbook of medical mycology, New Delhi: Mehta Publication, April 2002.
- Stem C, Lucente FF. Otomycosis *Ear Nose Throat J.* 1988;67:804-10.
- Jackman A case report topical antibiotic induced otomycosis. *Int J Pediatr otorhinolaryngol.* 2005; 69:957-60.
- Kujundzic M, Braut T, Manestar D et al. water related otitis externa. *Coll Antropol.* 2012;36:893-7.
- Kaur RK, Mittal N, Kakkur M, Aggarwal AK Mathur MD. Otomycosis: A clinic mycologic study. *Ear nose Throat J* 2000;79:606-9.
- Jadhav S K. Fungal infection of ear and its sensitivity pattern. *Indian J otolaryngol.* 1990; 42:19-22.
- Zaror L, Fischman O, Suzuki FA, Felipe RG.

- Otomycosis in Sao Paulo. *Rev Inst Med Trop Sao Paulo*. 191:33:169-73.
14. Pontes ZBV, Silva ADF, Lima EO, Guerra MH, Oliveira CNMC, Carvalho MFFP, et al. Otomycosis : a retrospective study. *Braz J Otorhinolaryngol*. 2009;75:367-70.
 15. Desai KJ, Malek SS, Italia IK, Jha S, Pandya V, Tertiary care hospital. *National Journal of Integrated Research Medicine*.2012;3:58-61.
 16. Sood VP, Sinha A, Mohapatra L N Otomycosis: A clinical 1967;81:997-1004.
 17. Mugliston T, O Donoghue G..Otomycosis- a continuing problem. *J laryngol*.1985;99:327-33.
 18. Kaur RK, Mittal N Kakkar M, Aggarwal AK, Mathur MD. Otomycosis: a clinico mycologic study. *Ear Nose Throat J* 2000;79:606-9.
 19. Ho T, Vrahech JT, Yoo D. Coper J. Otomycosis: Clinical features and treatment implications. *Otolaryngol Head neck Surg* 2006;165:787-91.
 20. Navarreta EN, Elizalde NCD. Otitis externas micotica. Dos esquemas terapeuticos. *Rev Med*.2000;38:467-72.
 21. Kumar A, Fungal spectrum in otomycosis patients. *JK science* 2005;7:152-155.
 22. Viswantha B, Sumatha D, Vijayashree MS. Otomycosis in immunocompetent and immune-compromised patients: comparative study and literature *Ear Nose Throat J*-2012;91:114-24.
 23. Vennwald I, Elemm E,Otomycosis: diagnosis and treatment. *Clin Demol* 2010;28:202-11.
 24. Paulopse KO, Al Khalifa S, Shenoy P, Sharma RK. Mycotic infection of the ear (Otomycosis): A prospective study. *J laryngol Otol*.1989; 103:30-5.
 25. Jagdish Chander, Sangeeta Maini, Subha Subrahmanyam, Aru Handa. A clinico mycological study & efficacy of mercurochrome in its treatment. *Mycopathologia*. 1996; 135:9-12.

Source of Support: Nil; **Conflict of Interest:** None

Submitted: 11-10-2021; **Accepted:** 21-11-2021; **Published:** 23-12-2021