



Contents lists available at BioMedSciDirect Publications

International Journal of Biological & Medical Research

Journal homepage: www.biomedscidirect.com



Original article

Clinico-mycological study of otomycosis

^a Ricky R. Sarvan ^{*} ^b Kunjan M. Kikani ^c Sanjay J. Mehta ^d Pratima J. Joshi ^e

Department of Microbiology, C. U. Shah Medical College and Hospital, Surendranagar Pin Code: 363001

ARTICLE INFO

Keywords:

Otomycosis
Aspergillus sp
Candida sp.

ABSTRACT

Introduction: Otomycosis is a sub-acute or chronic superficial fungal infection of the external auditory canal. It is found throughout the world but is more prevalent in warm, humid, dusty environment. The commonly found causative fungi include Aspergillus and Candida species. The aim of this study was to determine the prevalence of fungal agents, gender wise distribution and predisposing factors involved in otomycosis **Material and Methods:** A total of 100 cases of symptomatic patients suspected to be of otomycosis were studied, during the period of May 2011 to December 2011. Ear discharge specimens were collected on two sterile cotton swabs. Direct examination of the specimen was carried out by Gram stain and 10% KOH mount. All specimens were inoculated on Sabouraud Dextrose Agar. Identifications of fungi were done as per standard protocol. **Results:** Out of 100, fungal isolates were found in 86 (86%) specimens. Most common fungal isolate was Aspergillus niger (45%) followed by A. flavus (22%), Candida albicans (21%) and A. fumigatus (12%). Ear ache (55%) has been found as the most common presenting symptom. It is found to be more prevalent in males (65%). Improper self cleaning (64%) has been found as major predisposing factor of otomycosis. **Conclusion:** In present study A. niger (45%) is the major etiological agent causing Otomycosis.

© Copyright 2010 BioMedSciDirect Publications IJBMR -ISSN: 0976:6685. All rights reserved.

1. Introduction

Otomycosis is a superficial, sub-acute or chronic infection of the external auditory canal, usually unilateral, that is characterized by inflammation, pruritis and scaling.¹ It is one of the frequently encountered fungal infection of ear. The fungal agents responsible for this clinical entity are found as saprophytes in the environment. A. niger is usually the predominant agent causing otomycosis although A. flavus, A. fumigatus, A. terreus and C. albicans are also common.² Otomycosis occurs world-wide but is more common in tropical and subtropical zones.³ It is more prevalent in warm and humid climates, particularly in monsoon (rainy) season.² There are many predisposing factors of otomycosis like chronic infection of ear, use of oil, ear drops, steroid and swimming. The infection has also been observed in patients who do not clean their ears after taking bath or swimming.² Fungi causes 10% of all cases of otitis externa.⁴ In recent years, opportunistic fungal infections have

gained greater importance in medicine, because of the large number of immunocompromised patients. However, such fungi may also produce infection in immunocompetent hosts.¹ In immunocompromised patients; treatment of otomycosis should be vigorous to prevent complications such as hearing loss and invasive temporal bone infection.⁵ Some bacteria can cause disease with similar symptoms like fungal agent; therefore, confirming the appropriate etiology is important for proper treatment.⁶ Aims and objectives of this study were to determine the incidence of fungal agents causing otomycosis, to identify the common fungal species, probable predisposing factors and the presenting symptoms involved in otomycosis.

2. Materials & Methods

A total of 100 specimens of symptomatic patients suspected to be of otomycosis were studied, during the period of May 2011 to December 2011 in Microbiology Department of C. U. Shah Medical College and Hospital. Ear discharge specimens were collected aseptically on two sterile cotton swabs and Direct Microscopic examination of the specimens were carried out by Gram stain and 10% KOH mount. All specimens were inoculated on Sabouraud

Department of Microbiology
C. U. Shah Medical College and Hospital
Surendranagar Pin Code: 363001
Phone Number: 9974335405
E-Mail: dricky83@yahoo.com

©Copyright 2010 BioMedSciDirect Publications. All rights reserved.

* Corresponding Author : Dr. Ricky R. Sarvan

Dextrose Agar with chloramphenicol and incubated at room temperature for one week. After incubation, the fungal isolates were identified by colony morphology on Sabouraud Dextrose Agar and by Lacto Phenol Cottonblue (LCB) mount. *Candida* species were identified by germ tube test as well as sugar fermentation and assimilation studies.²

3. Result

Out of 100 Specimens, fungal isolates were found in 86 specimens (86%). The most common fungus species causing otomycosis was *Aspergillus niger* 39 (45%), followed by *A. flavus* 19 (22%), *Candida albicans* 18 (21%) and *A. fumigatus* 10 (12%) as shown in Table I. Otomycosis has been found to be more prevalent in Male (65%). Major predisposing factor associated with disease was the improper self cleaning 55 (64%) followed by minor trauma (23%), use of ear drops (6%) and steroid (7%) as shown in Table II. Ear - ache (55%) was the most common clinical presentation.

Table I Fungal species causing otomycosis

Fungal Isolates	Number (%)
<i>Aspergillus niger</i>	39 (45%)
<i>Aspergillus flavus</i>	19 (22%)
<i>Candida albicans</i>	18 (21%)
<i>Aspergillus fumigatus</i>	10 (12%)
Total	86 (100%)

Table II Probable predisposing factors of otomycosis

Predisposing factor	Number (%)
Self-cleaning	55 (64%)
Minor trauma	20 (23%)
Ear drops	05 (06%)
Steroids	06 (07%)
Total 86	(100%)

4. Discussion

The present study reported otomycosis in 86% of the suspected patients. Table III shows the comparison of present study with other studies. The higher incidence of otomycosis may be due to high degree of humidity, warm and dusty environment.

Table III Comparison of Prevalence of otomycosis

Study	Percentage
Kaur et al ⁷	74%
Chander et al ⁸	73%
Araiza et al ¹⁰	78%
Pontes et al ¹¹	97%
Present study	86%

Table IV Comparison of fungal species causing otomycosis

Table III Comparison of Prevalence of otomycosis

Study	Species	Percentage
Kaur et al ⁷	<i>A. fumigatus</i>	41%
Chander et al ⁸	<i>A. niger</i>	57%
Araiza et al ¹⁰	<i>A. flavus</i>	26%
Pontes et al ¹¹	<i>C. albicans</i>	30%
Present study	<i>A. niger</i>	45%

The commonest etiological agent for otomycosis in the present study was *A. niger* (45%). Table IV shows comparison of commonest etiological agent with different studies.

5. Conclusion

The present study reported otomycosis in 86% of the suspected patients in Surendranagar. *A. niger* (45%) is found to be the commonest etiological agent causing Otomycosis. Improper self cleaning (64%) has been found as probable predisposing factor and ear - ache (55%) was the most common clinical presentation. Keeping in view the high prevalence of otomycosis in India, proper diagnosis of the causative agent is of the prime importance.

Acknowledgments

We are thankful to ENT Department, C. U. Shah Medical College and Hospital, Surendranagar for their support during the study.

6. References

- Jadhav VJ, Pal M, Mishra GS. Etiological significance of *Candida albicans* in otitis externa. *Mycopathologia* 2003;156(4):313-5.
- Chander Jagdish, Textbook of Medical Mycology, 3rd Edition. Chandigarh: Mehta publishers; January 2009. p. 418-9.
- Mgbor N, Gugnani HC. Otomycosis in Nigeria: treatment with mercurochrome. *Mycoses* 2001;44(9-10):395-7.
- Carney AS. Otitis externa and otomycosis. In: Gleeson MJ Jones NS, Clarke R. Scott-Brown's Otolaryngology, Head and Neck Surgery Vol. 3. 7th Edition. London: Hodder Arnold Publishers; 2008. p. 3351-7.
- Rutt AL, Sataloff RT. *Aspergillus* otomycosis in an immunocompromised patient. *Ear Nose Throat J* 2008;87(11):622-3.
- Ahmad YM, Mohammad AA, Rohullah D, Hossein H. The prevalence of otomycosis in Kashan, Iran, during 2001-2003. *Jundishapur Journal of Microbiology* (2009);2(1):18-21.
- Kaur R, Mittal N, Kakkar M. Otomycosis: a clinicomycologic study. *Ear Nose Throat J* 2000;79(8):606-9.
- Chander J, Maini S, Subhramanyan S, Handa A. Otomycosis: a clinicomycological study and efficacy of mercurochrome in its treatment. *Mycopathologia* 1996;135(1):9-12.
- Aneja KR, Sharma C, Joshi R. Fungal infection of the ear: a common problem in the north eastern part of Haryana. *Int J Pediatr Otorhinolaryngol* 2010;74(6):604-7.
- Araiza J, Canseco P, Bonifaz A. Otomycosis: clinical and mycological study of 97 cases. *Rev Laryngol Otol Rhinol* 2006;127:251-4. [11] Pontes ZB, Silva AD, Lima E, Guerra M, Oliveira N, Carvalho, et al. Otomycosis: a retrospective study. *Braz J Otorhinolaryngol* 2009;75(3):367-70.
- Pontes ZB, Silva AD, Lima E, Guerra M, Oliveira N, Carvalho, et al. Otomycosis: a retrospective study. *Braz J Otorhinolaryngol* 2009;75(3):367-70.