

Clinical Profile of Otomycosis in a Sub-saharan African Tertiary Health Center

¹Sanyaolu A Ameye, ²Adekunle Adeyemo, ³Josephine A Eziyi, ⁴Yemisi B Amusa

ABSTRACT

Aims: This study is aimed at determining the presentation, predispositions, types and treatment outcomes of patients diagnosed with otomycosis in our center.

Materials and methods: We reviewed 83 cases of otomycosis who visited the otorhinolaryngology clinic of our center in the period of 5 years. Diagnosis of otomycosis was clinically based on presentation and findings on otoscopic appearance.

Results: Records of 83 cases of otomycosis consisting of 40 males and 43 females were analysed. The mean age was 43.19 ± 20.74 years. Twenty-eight (33.7%) patients were asymptomatic with the otomycosis discovered following otoscopy during a clinic visit. Pruritus, ear ache and hearing loss were the commonest complaints among the symptomatic patients. Unilateral disease was seen in 57 (68.7%) of the patients and bilateral disease in 23 (27.7%) of the patients. The affected side was not stated in 3 (3.6%) of the patients. Examination findings revealed in most cases (78, 94.0%) reveal presence of fungal debris. The use of ototoxic medication was noted as the risk factor for more three-quarter of those with identifiable risk factor. Total fifty-one (61.4%) patients had complete resolution.

Conclusion: We found otomycosis to be predominantly an adult disease and it is an incidental finding many case. The overall outcome is good regardless of the mode of treatment employed.

Clinical significance: The limitation to due to non-available of a particular mode of treatment should not impair obtaining a good outcome when managing otomycosis.

Keywords: Cohort study, Ear, Fungal, Otagia, Otoscopy, Ototoxic medication, Pruritus.

How to cite this article: Ameye SA, Adeyemo A, Eziyi JA, Amusa YB. Clinical Profile of Otomycosis in a Sub-Saharan African Tertiary Health Center. *Int J Otorhinolaryngol Clin* 2018;10(2):52-55.

Source of support: Nil

Conflict of interest: None

^{1,2}Senior Lecturer, ³Associate Professor, ⁴Professor

¹⁻⁴Department of Otorhinolaryngology–Head and Neck Surgery, Obafemi Awolowo University Teaching Hospitals Complex, Ife, Osun, Nigeria

Corresponding Author: Sanyaolu A Ameye, Senior Lecturer, Department of Otorhinolaryngology–Head and Neck Surgery, Obafemi Awolowo University Teaching Hospitals Complex, Ife, Osun, Nigeria, e-mail: sanyaameye@hotmail.com

INTRODUCTION

Otomycosis is a fungal infection of the external ear is a common problem encountered by Otorhinolaryngologist.^{1,2} These infections are known to be encouraged by a dark warm and humid microenvironment hence their high incidence in the tropics.³ Immunosuppressive disorders, e.g., diabetes mellitus (DM), HIV/AIDS and conditions altering the external auditory canal microenvironment, e.g., chronic suppurative otitis media and usage of ototoxic medication are known to predispose to the development of otomycosis.⁴

Presentation of otomycosis varies from trivial complaints of pruritus, hearing loss and sensation of aural fullness to severe invasive forms associated with cranial nerve involvement and skull base invasion.⁵ Primary otomycosis is defined as the presence of otomycosis in the absence of a recognized risk factor in an individual. Secondary otomycosis, on the other hand, is diagnosed in individuals with identified risk factors like otitis externa and chronic suppurative otitis media, previous ear surgeries/trauma or fungal infections in other parts of the body.⁶ Such patients could either be immunocompetent or immunosuppressed. The severest form of otomycosis termed “invasive otomycosis” is usually seen only among immunosuppressed patients or rarely in the setting of prolonged antibiotic usage.^{5,7,8}

This study is aimed at determining the presentation, predispositions, types and treatment outcomes for patients diagnosed with otomycosis in our center.

MATERIALS AND METHODS

A retrospective review of all outpatient visit in the Otorhinolaryngology clinic of tertiary healthcare from May 2011 to May 2016 was performed after obtaining necessary institutional review board approval with protocol number ICLG5481/I/T/61. Records of 107 patients with a diagnosis of otomycosis based on otoscopy were reviewed. However, 24 cases were excluded due to grossly inadequate clinical documentation leaving 83 cases for final analysis.

The case notes of the patients were retrieved and data collected for analysis. Otomycosis is diagnosed clinically with a history of ear itching, the sensation of aural fullness and discharge with the finding of typical otoscopic appearance (Fig. 1). Data collected included

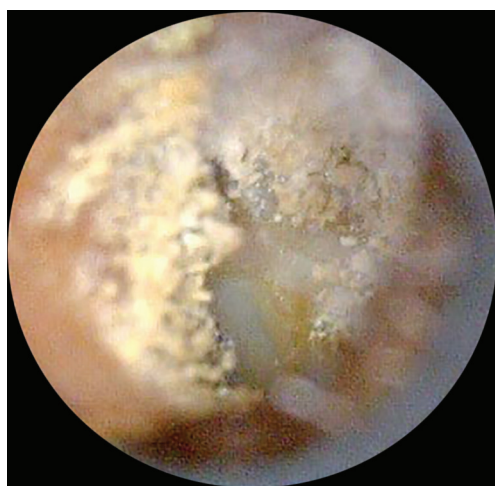


Fig. 1: Fungal debris seen on otoscopic examination

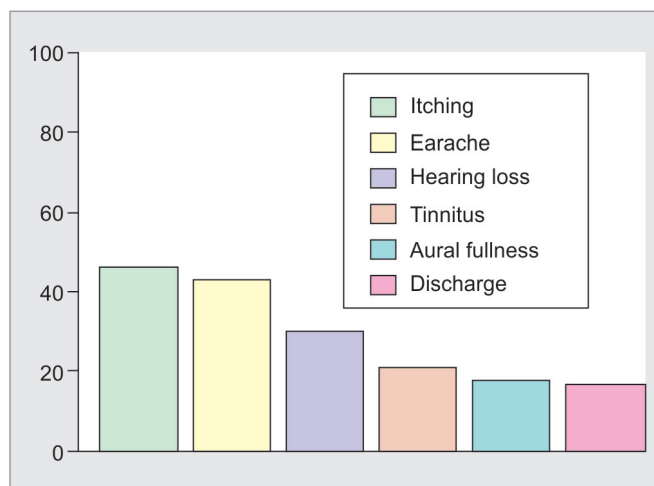


Fig. 2: Pattern of clinical presentation of cases

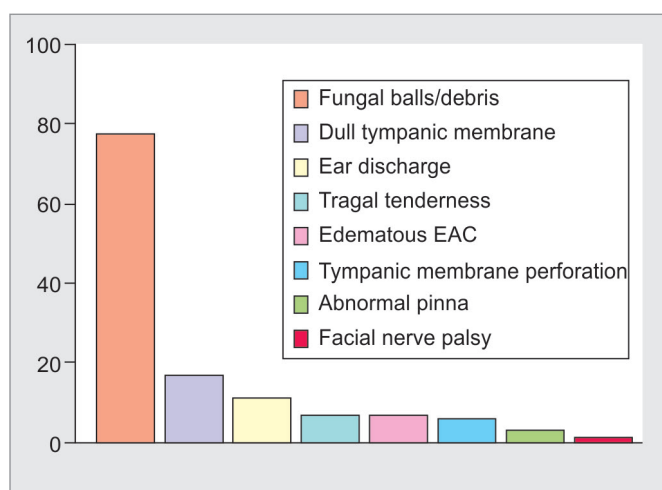


Fig. 3: Findings on clinical examination of the patients

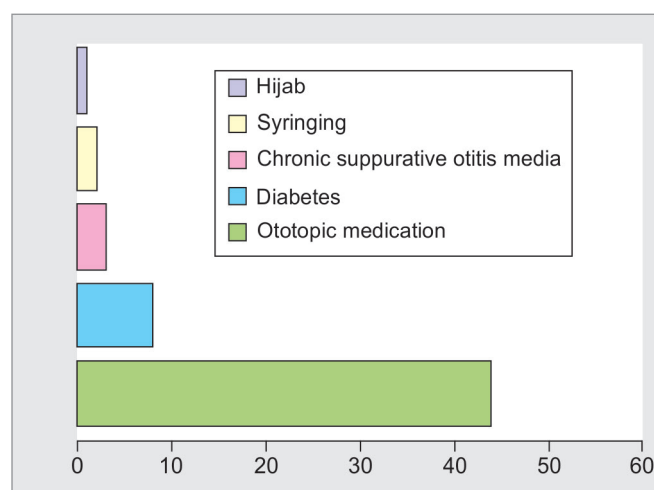


Fig. 4: The identified predisposing factor

sociodemographic details, presenting complaints, identified predisposing factors, treatment modalities, and treatment outcomes. Statistical significance was calculated using Fisher’s exact test with the significant level at $p < 0.05$.

Diagnosis of otomycosis was clinical, i.e., based on the characteristic appearance of fungal materials under otomicroscopy as shown below (Fig. 1).

RESULTS

A total of eighty-three case notes were retrievable out of the 107 identified cases of otomycosis during the period under review out of 4,513 patients seen in the E.N.T. clinic. There were 40 males and 43 females. Mean age was 43.19 (± 20.74) year. Only eight (9.9%) of the patients were 16 years and below in our study.

A total of twenty-eight (33.7%) patients were asymptomatic with their disease discovered following otoscopy during a clinic visit. Pruritus, earache and hearing loss were the most frequent complaints among the symptomatic patients. The breakdown of symptoms patients presented with are shown below (Fig. 2).

The unilateral disease was seen in 57(68.7%) of the patients and bilateral disease in 23(27.7%) of the patients. The affected side was not stated in 3 (3.6%) of the patients.

Examination findings record in most cases (78, 94.0%) reveal the presence of fungal debris/fungal balls (Fig. 3).

Fifty-eight patients had identified risk factors with the use of ototoxic medication noted as the risk factor for more three-quarter of those with identifiable risk factor (Fig. 4).

We found no significant difference in risk factors with regards to sex ($p = 0.198$) and age ($p = 0.219$).

In 46 (55.4 %) cases the combined approach to treatment (mechanical and topical antifungal medications) was used. The detailed breakdown of the treatment modalities adopted in 74 cases where such details were clearly stated (Table 1).

In 51 (61.4%) patients there was complete resolution of the disease of their disease as at the last clinic visit, with 2(2.4%) having a relapse of their Otomycosis. Stable disease was noted in 8 (9.6%) of the patients. Twenty-two patients (26.5%) lost to follow-up. Treatment outcome

Table 1: Breakdown of the treatment modalities employed

Treatment Combinations	Frequency (N = 74)
Suction Toileting + Azole Derivative	31 (41.9%)
Topical Azole Derivative Alone	14 (18.9%)
Syringing Alone	9 (12.2%)
Suction Toileting Alone	7 (9.5%)
Suction Toileting + Gentian Violet	6 (8.1%)
Syringing + Azole Derivative	3 (4.1%)
Syringing + Gentian Violet	2 (2.7%)
Gentian Violet Alone	2 (2.7%)

is not significantly affected by treatment modality ($p = 0.980$).

Mean duration of treatment was 7.1 weeks (range 1 to 35 weeks). In cases where there is a complete resolution, the mean duration of treatment was 8.3 ± 7.9 weeks while in those without a complete resolution the mean duration of treatment was 4.7 ± 4.6 weeks. We, however, found no significant difference in the duration of treatments between the two groups ($p = 0.29$).

DISCUSSION

Our study showed that most of the patients who presented with otomycosis in the period under review were adults. This study also showed that secondary otomycosis due to the usage of ototoxic medication as the most predominant form of otomycosis diagnosed in our practice. Common ototoxic medications used in our environment includes antibiotic drops and combination drugs which commonly contains antibiotics and steroids. These ototoxic medications will potentially eliminate the normal bacteria flora of the external auditory canal and also elevate the pH in the canal; all these factors are favorable to the growth of fungi within the ear canal.⁹ Ototoxic drops are available over-the-counter and are used for a variety of complaints often dispensed without any clear indication. Despite identifying the high usage of ototoxic medical medication, it is important to note that there may interplay of factors that can make the patients immunosuppressed which were not routinely screening for such as diabetes.¹⁰

The pattern of presentation of our patients is similar to what has been reported by some studies which were conducted in a similar setting.^{3,11} However, Ho et al. not only found otalgia to be the most common symptom in their series but that pruritus, which was found in most studies to be most prevalent in most studies, ranked fifth in prevalence.¹² What can be surmised from this is that whatever the setting, otalgia is a more consistent feature of otomycosis. It is, however, instructive that a third of our patients were asymptomatic at presentation and the otomycosis was an incidental finding during an examination for other complaints. A number of these asymptomatic

patients, however, has a history of habitual insertion of foreign bodies like fingernails and keys into their ears. This practice is capable of creating microtrauma to the canal skin and subsequent colonization by fungal agent resulting in otomycosis.

The unilateral disease is commoner in our series agreeing with the trends reported by other authors there is, however, no specific predilection for any side in our series. The predominance of unilateral disease further buttresses our assertion that local alteration of the host microenvironment is the most frequent reason for the development of otomycosis in our environment. Studies in the riverine south-south part of the country suggested swimming as a risk factor.¹³ This was not found to be so in our population. Our center is not located in the riverine part of the country and swimming is not a common practice.

Our study could not establish a definite sex predilection for otomycosis. This is in contrast to what was reported by Fasunla et al.¹⁴ who found a higher incidence in females. He suggested that women are more likely to seek care which may partly explain the higher incidence in their study. The use of head covering like scarves and Hijab are also more commonly practiced by women who may also explain the higher incidence in females reported by some authors.¹⁵⁻¹⁷ We could not establish such an association in our series, in fact, head covering was established as a risk factor in only one patient.

It has been shown that otomycosis can be diagnosed clinically and outcomes have not been influenced by whether a mycological study was performed or not.^{10,12}

The absence of mycological diagnosis in our series notwithstanding we recorded a good response to the empirical antifungal agents. One may thus suggest that mycological studies in otomycosis is not essential and should be reserved for rare cases or academic interest.

We found disparate combinations in the management of patients in our series though this did not affect the outcome. Determining what the optimal treatment for otomycosis may be painful as has been shown by several studies as shown in the review by Munguia and Daniel.¹⁰ What dictate approach may be based on availability and personal preferences of the care provider.^{10,18}

The particular choice of antifungal does not impact on the cure rates however gentian violet is less acceptable due to the staining of clothing and the ear of patients.

None of our patients presented with the severest form of otomycosis, underscoring the rarity of these disease entity.

The majority of patients with relapsed or stable, diseases were those with identified risk factors suggesting that these factors hampered cure. We recommend that practitioners should always seek for modifiable risk factors while managing cases of otomycosis.

CONCLUSION

We found otomycosis to be predominantly an adult disease, and that secondary otomycosis is the predominant type seen in our environment. It is important to note that in a significant number of cases, it is an incidental finding and when symptomatic, otalgia is a more consistent symptom of otomycosis. With prompt and effective management, the outcome of treatment is good.

CLINICAL SIGNIFICANCE

From our study, no significant difference in outcome based on the mode of treatment. This means that whatever mode is chosen or available, the outcome will still be good when managing otomycosis.

ACKNOWLEDGMENT

The authors appreciated the residents in the department who helped in collecting the data for this work.

REFERENCES

1. Mugliston T, O'donoghue G. Otomycosis—a continuing problem. *The Journal of Laryngology & Otology* 1985 Apr;99 (04):327-333
2. Pontes ZB, Silva AD, Lima Ede O, Guerra Mde H, Oliveira NM, Carvalho Mde F, et al. Otomycosis: a retrospective study. *Brazilian Journal of otorhinolaryngology* 2009 May-Jun;75 (3):367-370
3. Gharaghani M, Seifi Z, Zarei Mahmoudabadi A. Otomycosis in iran: a review. *Mycopathologia* 2015 Jun;179(5-6): 415-424
4. Viswanatha B, Sumatha D, Vijayashree MS. Otomycosis in immunocompetent and immunocompromised patients: comparative study and literature review. *Ear, nose, & throat journal* 2012 Mar;91(3):114-21
5. Chen D, Lalwani AK, House JW, Choo D. Aspergillus mastoiditis in acquired immunodeficiency syndrome. *Otology & Neurotology* 1999 Sep;20(5):561-567
6. Prasad SC, Kotigadde S, Shekhar M, Thada ND, Prabhu P, D'Souza T, et al. Primary otomycosis in the Indian subcontinent: predisposing factors, microbiology, and classification. *International journal of microbiology* 2014 Apr;2014:1-9
7. Hsu C-L, Chen C-W, Wang H-K. Iatrogenic invasive otomycosis. *Tzu Chi Medical Journal* 2011 Jun;23(2):66-68
8. Slack CL, Watson DW, Abzug MJ, Shaw C, Chan KH. Fungal mastoiditis in immunocompromised children. *Archives of Otolaryngology-Head & Neck Surgery* 1999 Jan;125(1):73-75
9. Jackman A, Ward R, April M, Bent J. Topical antibiotic induced otomycosis. *International journal of pediatric otorhinolaryngology* 2005 Jun;69(6):857-860
10. Munguia R, Daniel SJ. Otological antifungals and otomycosis: a review. *International journal of pediatric otorhinolaryngology* 2008 Apr;72(4):453-459
11. Lageju N, Shahi S, Goil N. Clinical profile of Otomycosis: a hospital based study at central terrain region of Nepal. *Janaki Medical College Journal of Medical Science* 2016;3(1):20-24
12. Ho T, Vrabec JT, Yoo D, Coker NJ. Otomycosis: clinical features and treatment implications. *Otolaryngology--Head and Neck Surgery* 2006 Nov;135(5):787-791
13. Mgbe R, Umana A, Adekanye A, Offiong M. Otomycosis-A Management Challenge In Calabar, South-South Nigeria. *The Internet Journal of Third World Medicine* 2011;9(2):1-5
14. Fasunla J, Ibekwe T, Onakoya P. Otomycosis in western Nigeria. *Mycoses* 2008 Jan;51(1):67-70
15. Paulose K, Al Khalifa S, Shenoy P, Sharma R. Mycotic infection of the ear (otomycosis): a prospective study. *The Journal of Laryngology & Otology* 1989 Jan;103(01):30-35
16. Ozcan KM, Ozcan M, Karaarslan A, Karaarslan F. Otomycosis in Turkey: predisposing factors, aetiology and therapy. *The Journal of Laryngology & Otology* 2003 Jan;117(1):39-42
17. Kumar A. Fungal spectrum in otomycosis patients. *JK Science* 2005 Jul-Sep;7(3):152-155
18. Arndal E, Glad H, Homoe P. Large discrepancies in otomycosis treatment in private ear, nose, and throat clinics in Denmark. *Danish medical journal* 2016 May;63 (5)