



Original article

Otomycosis: Epidemio-Clinical and Therapeutic Profile at the Fousseyni DAOU Hospital in Kayes, Mali

Otomycose : Profil Epidémio- Clinique et Thérapeutique à l'hôpital Fousseyni DAOU de Kayes, Mali

N Traoré*¹, J Timbiné¹, A Ly¹, B Traoré², A Fofana³, M Tangara⁴, I Dicko⁴, N Cissé⁴,
A Cissé¹, M Thiam¹, FI Koné^{4,5}, MA Keita^{4,5}

Abstract

Introduction: Otomycosis is a relatively common pathology of the external ear canal, its prevalence is estimated to be 5 to 10% of all otitis externa [1,2, 3]. There are no data on otomycosis at the Kayes Hospital, hence the interest of this study.

Methodology: This was a descriptive study with retrospective data collection that spanned the period from January 1, 2021 to December 31, 2023. All patients with clinically suspected otomycosis on otoscopy, otoendoscopy and/or confirmed on mycological examination and with usable medical records were included.

Results: We recorded 1156 cases of otitis externa, including 384 cases of otomycosis, i.e. a frequency of 33.2%. Females were the most represented at 51.6% (n=198) with a sex ratio of 0.93. The mean age was 37 years with extremes of 7 and 77 years. The reasons for consultation were: otalgia 44.8%

(n=172), pruritus 35.2% (n=135), otorrhea 20% (n=77). The main contributing factors were cleaning the ear with cotton swab, 57.8% (n=221), wearing a turban 26.3% (n=101), and using antibiotic and corticosteroid drops 9.6% (n=37). The otologic examination revealed whitish or blackish deposits, purulent otorrhea and inflammation of the external auditory canal. Mycological examination found yeasts 42.3% (n=122) and molds 57.2% (n=163). Treatment was based on topical antifungals and antibiotics in 69% (n=265) and the combination of antifungal and antihistamine in 31% (n=119).

Conclusion: Otomycoses are benign, chronic infectious pathologies. Their occurrence is multifactorial. Cleaning with the cotton swab and wearing the turban were the main causes.

Keywords: Otomycosis, Fousseyni DAOU Hospital in Kayes.

Abstract

Introduction : L'otomycose est une pathologie du conduit auditif externe, relativement fréquente, sa prévalence serait de 5 à 10% de l'ensemble des otites externes [1,2, 3]. Il n'existe pas de données sur l'otomycose à l'Hôpital de Kayes d'où l'intérêt de cette étude.

Méthodologie : Il s'agissait d'une étude descriptive avec collecte rétrospective des données qui s'est étendu de la période allant du 1er janvier 2021 au 31 décembre 2023. Etaient inclus, tous les patients avec otomycose suspectée cliniquement à l'otoscopie, à l'oto-endoscopie et/ ou confirmée à l'examen mycologique et ayant des dossiers médicaux exploitables.

Résultats : Nous avons recensé 1156 cas d'otite externe dont 384 cas d'otomycose, soit une fréquence de 33, 2%. Le sexe féminin était le plus représenté 51,6% (n=198) avec un sexe ratio de 0,93. L'âge moyen était de 37 ans avec des extrêmes de 7 et 77 ans. Les motifs de consultation étaient : otalgie 44,8% (n=172), prurit 35,2% (n=135), otorrhée 20% (n=77). Les principaux facteurs favorisants étaient le nettoyage de l'oreille avec le coton tige, 57,8 % (n=221), le port du turban 26,3% (n=101), l'utilisation de gouttes antibiotiques et corticoïdes 9,6% (n=37). L'examen otologique retrouvait des dépôts blanchâtres ou noirâtres, otorrhée purulente et une inflammation du conduit auditif externe. L'examen mycologique retrouvait les Levures 42,3% (n=122) et les Moisissures 57,2% (n=163). Le traitement était à base d'antifongique et d'antibiotique par voie locale dans 69% (n=265) et l'association antifongique et antihistaminique dans 31% (n=119).

Conclusion : Les otomycoses sont des pathologies infectieuses bénignes, chroniques. Leurs survenues est multifactorielle. Le nettoyage avec le tige-coton, le port du turban étaient les principales causes.

Mots-clés : Otomycose, Hôpital Fousseyni DAOU de Kayes.

Introduction

Fungal otitis or otomycosis is a relatively common pathology of the external ear canal, its prevalence is estimated to be 5 to 10% of all otitis externa [1,2, 3]. It is most often benign but can be serious when it becomes invasive. In Mali, studies that have focused on otomycosis are rare and prescribing physicians are often faced with a therapeutic choice in the face of the polymorphism of the fungal agents involved in otomycosis. It is a well-defined pathology whose main pathogens are *Aspergillus* and *Candida albicans* [1]. Contributing factors exist, namely: the tropical climate, the area of immunosuppression (diabetes, HIV), the use of broad-spectrum antibiotics and corticosteroids, local trauma and post-surgery [4]. The diagnosis of otomycosis is based above all on otoscopic examination, and its clinical symptomatology is similar to that of bacterial otitis externa. [4]. There are no data on otomycosis at the Kayes Hospital, hence the interest of this study, which aimed to write down the main epidemio-clinical and therapeutic characteristics of otomycosis at the Fousseyni Daou Hospital in Kayes.

Methodology

This was a descriptive study with retrospective data collection that spanned the period from January 1, 2021 to December 31, 2023, i.e. 24 months, carried out in the ENT-CCF department of the Fousseyni DAOU hospital in Kayes.

All patients with clinically suspected otomycosis on otoscopy, otoendoscopy and/or confirmed on mycological examination and with usable medical records were included.

All patients who did not complete the items during this study period were excluded.

Ear swabs were taken using sterile swabs. They were inoculated on Sabouraud-chloramphenicol agar medium and Sabouraud-chloramphenicol-cycloheximide medium with incubation in the oven at 30 °C for 1 to 2 weeks. The identification

of yeast colonies was done by the blastesis test, the chlamydosporulation test or the sugar assimilation test (Api 20 CAux TM gallery - Sanofi Pasteur). Filamentous fungi were identified on the macroscopic and microscopic aspects. The parameters studied were sociodemographic (age, sex, occupation), contributing factors, results of the mycological examination and the treatment received. Data were collected from individual medical records. The input was made from Word 2007.

Ethical consideration: the verbal, individual consent of all patients had been obtained.

Results

We recorded 1156 cases of otitis externa, including 384 cases of otomycosis in consultations during the study period, i.e. a frequency of 33.2%.

- Socio-demographic data:

The mean age of the patients was 37 years with extremes of 7 and 77 years. Children aged 0 to 15 years accounted for 9.1% (n=35), the age group from 31 to 45 years was the most represented with 37.8% (n=145) followed by the age group 46 to 60 years with 27.3% (see Table I). Females accounted for 51.6% (n=198) compared to 48.4% (n=186) for males, i.e. a sex ratio of 0.93. All sectors of activity were represented, housewives were the most frequent 24.5% (n=94), followed by civil servants 19.3% (n=74), shopkeepers 15.7% (n=60), peasants 13.2% (n=51), breeders 11.4% (n=44), pupils 9.7% (n=37), infants and children 6.2% (n=24).

Table I: Distribution of patients by age group

Age range	Workforce (n)	Percentage (%)
0 to 15 years	35	9,1%
16 to 30 years old	85	22,1%
31 to 45 years old	145	37,8%
46 to 60	105	27,3%
+60 years old	14	3,6%
Total	384	100%

In our study, the age group of 31 to 45 years old was the most represented with 37.8%.

- Contributing factors:

In our series, the most common contributing factors were ear cleaning with cotton swabs (57.6%), followed by the wearing of a turban or head covering (26.3%) (see Table II).

The most frequent reasons for consultations were otalgia followed by pruritus (see Table III).

Otalgia was the most frequent reason for consultations with 44.8%.

Physical signs: they were dominated by: whitish or blackish deposits, purulent otorrhea, inflammation of the duct.

The female sex was the most represented.

Mycological examination:

The mycological examination was performed in three hundred and fifteen patients (315) out of 384, i.e. 82%. The culture was positive in 285 patients, or 90.5%, and sterile in 30 patients, or 9.5%. *Aspergillus Niger* and *Candida albicans* were isolated in 39.7% and 32.3% respectively (see Table IV), moulds were present in 57.2% and yeasts in 42.8%.

In our series, *Aspergillus from Niger* and *Candida albicans* were the most represented with 39.7% and 32.3% respectively.

Treatment was based on topical antifungals and antibiotics in 69% (n=265) and the combination of antifungal and antihistamine in 31% (n=119). The evolution was favorable with recovery of all our patients.

Table II: Distribution of patients by contributing factors

Contributing factors	Workforce (n)	Percentage (%)
Cleaning with a cotton swab	221	57,6%
Wearing a turban or head covering	101	26,3%
Narrowness of the duct	25	6,5%
Use of ATBs and corticosteroids	37	09,6%
Total	384	100%

Table III: Distribution of patients by symptoms

Symptoms	Workforce (n)	Percentage (%)
Otalgia	172	44,8%
Itch	135	35,2%
Otorrhea	77	20%
Total	384	100%

Table IV: Distribution of Isolated Fungal Species by Culture

Cash Isolated fungals In culture	Workforce (n)	Percentage (%)
<i>Yeast</i>	122	42,8%
<i>Candida albicans</i>	92	32,3%
<i>Candida tropicalis</i>	22	7,7%
<i>Candida krusei</i>	8	2,8%
<i>Mold</i>	163	57,2%
<i>Aspergillus Niger</i>	113	39,7%
<i>Apergillus Fumigatus</i>	38	13,3%
<i>Aspergillus Flavus</i>	12	4,2%
Total	285	100%

Discussion

Otomycosis is a common condition, The incidence of fungal otitis varies according to geographical areas [5]. It represented 33.2% (n=384) of all otitis externa in our department. Thus, Djafarou in Niger found 58.92%, Aboulmakarim in Morocco 41%, Yavo in Côte d'Ivoire 42.6%, Adoga in Nigeria [2] and Moharram in Egypt [3] reported relatively higher frequencies of 78% and 74.2% of otitis externa respectively.

Otomycosis can occur at any age, but the diagnosis is most often made in adults over 35 years of age, with a maximum incidence between 20 and 40 years of age [1,5]. In our series, the average age of our patients was 37 years, with extremes of 7 years and 77 years. More than half of our patients, 37.8% (n=145), were in the age group of 31 - 45 years. Young adults are very often exposed.

Our study found a predominance of the female sex 51.6% (n=198). However, gender is not a contributing factor for otomycosis, men and women are affected in equal proportions [5]. The female predominance noted in our study was also reported by the work of Aboulmakarim et al [4] in Morocco, Adoubryn [5] in Côte d'Ivoire, Djafarou AB in Niger [6], These can be explained by the use of head coverings among women.

In our study, the factors promoting otomycosis were dominated by cleaning with cotton swabs 57.6% (n=221), followed by the wearing of a turban or head covering. As noted in our series, cleaning the ear with cotton swabs was the leading factor in the development of otomycosis in the work of Yavo [8] in Côte d'Ivoire (59.6%), Abdoumakarim [4] in Morocco (56.4%) and Djafarou in Niger. However, it should be remembered that the occurrence of otomycosis is multifactorial. [1,5].

Wearing a turban for men or a head covering for women, a custom practiced in Mali, is conducive to maintaining moisture and heat in the ear canal and creates an environment conducive to fungal growth. This habit of wearing a turban or head covering

represented 26.3% of the contributing factors in our study.

The same factors such as the heat and humidity of the external ear canal maintained by the wearing of a head covering or turban have been cited in the literature [2, 6], which is a habit in our culture. [5, 6,7]. The tropical climate with a combination of heat and humidity favors the growth of fungi [1]. The risk of contracting otomycosis was 3 times higher in subjects who frequently bathed in natural water tanks and swimming pools as well as in those who regularly cleaned the ear canal. [2]

From a mycological point of view, the isolation of the fungus is the best proof of its responsibility in the infection. The medium of choice used by most biologists for isolation is the Sabouraud-chloramphenicol medium [10]. The advantage of the medium containing the antibiotic (chloramphenicol) lies in the fact that it can limit the development of bacteria, present in the sampling product, which can, by their presence or abundance, hinder or limit the development of fungal flora [10].

Mycological and bacteriological examination was requested in all our patients and performed at 82% (n=315). Moulds accounted for 57.2% (n=163) and yeasts for 32.8% (n=122). For the different fungal species isolated in culture in ear samples, a predominance of *Candida albicans* 32.3% (n=92) and *Aspergillus niger* 39.7% (n=113) was noted. Systematic sampling of mycobacteriological samples is not necessary. A sample is only taken when the clinical context is atypical [5]. The germ most frequently encountered in temperate zones is *Candida albicans*, while *Aspergillus Niger* was isolated mainly in tropical and warm zones. [11]. This observation was made by Djafarou in Niger with 36.12% candida and 63.88% aspergillosis, in Burkina Faso there were 55% candida and 41.25% aspergillosis [6, 9]. On the other hand, Yavo in Côte d'Ivoire isolated yeasts and molds in equal proportions [2].

Studies conducted in hot and humid regions as well as in our context, have noted a predominance of the species *aspergillus niger* as a pathogen in otomycosis

[7]. Various fungal and bacterial associations have been reported in the literature [8,10]. These data confirm the polymicrobial nature of fungal otitis. In our series, we noted a bacterial coinfection of 14%, our result corroborates that of Ouedraogo who found a bacterial coinfection at 16.22%. Otomycosis is often considered to be superinfections [6]. In the treatment of otomycosis, local care is essential and always constitutes the first treatment time. [1]. The treatment of fungal otitis is done according to the results of the mycobacteriological examination and most often involves topical antifungal medications. [5]. We carried out local treatments based on physiological serum and suction. Our treatment was based on topical antifungal and antibiotic in 69% (n=265) and the combination of antifungal and antihistamine in 31% (n=119). The evolution was favorable in all our patients.

The mean duration of treatment was 4 weeks with extremes of 3 weeks to 8 weeks.

Conclusion

Otomycosis is a common infection in the ENT department of the Fousseyni Daou hospital in Kayes, it is a mild and frequent infection with a predominance in young female adults whose diagnosis is based above all on the otologic and mycological examination. Cleaning the ear with cotton swabs appears to be at the forefront of the factors promoting fungal otitis. The germs most frequently isolated in our series were *Aspergillus niger* and *Candida albicans*. The management of otomycosis must always include mycological diagnosis and information for the population to change risk behaviours with a view to reducing the frequency.

*Correspondence :

Traoré Nouhoum

nouhoumtraore102@gmail.com

Available online : August 27, 2024

- 1 : ENT Department of the Fousseyni DAOU Hospital in Kayes, Mali
- 2 : Anaesthesia-intensive care unit of the Nianankoro FOMBA hospital in Ségou, Mali
- 3 : ENT Department of the Nianankoro FOMBA Hospital in Ségou, Mali
- 4 : ENT Department of the Gabriel TOURE Hospital, Bamako, Mali
- 5 : Faculty of Medicine and Odontostomatology of Bamako, Mali

© Journal of african clinical cases and reviews 2024

Conflict of interest : None

References

- [1] Malard O, Bordure P, Toquet J. Otomycose. EMC Oto-Rhino-Laryngologie. Paris: Elsevier; 2005. 20-080-A-10.
- [2] Adoga A, Iduh A. Otomycosis in Jos: Predisposing factors and management. *Afr J Med Sci*. 2014;43(Suppl 1):209-13.
- [3] Yavo W, Kassi RR, Kiki-Barro PC. Prévalence et facteurs favorisants des otomycoses traitées en milieu hospitalier à Abidjan (Côte d'Ivoire). *Med Trop*. 2004;64:39-42.
- [4] Verillaud B. Infection fongique ORL. DESC « Pathologie Infectieuse et Tropicale » Service d'ORL, Hôpital Lariboisière, Université Paris Diderot.
- [5] Aboulmkarim S, Tligui H, Mrini M. Otomycoses: étude clinique et mycologique de 70 cas. *J Mycol Med*. 2010;20(1):48-52.
- [6] Elmrini M. Introduction générale les otites fongiques. Hôpital d'enfants de Rabat; 2008.
- [7] Djafarou AB, Djangnikpo ML, Salaou C. Profil Épidémiologique et Mycologique de l'Otomycose

à l'Hôpital Général de Référence de Niamey (Niger). *Health Sci Dis.* 2022;23(8):38-40.

- [8] Keïta A, Fofana M, Diallo AO. Otomycose: Fréquence, Aspects cliniques, thérapeutiques et évolutifs à l'hôpital Donka de Conakry. *Health Sci Dis.* 2018;19(3):62-63.
- [9] Adoubryn KD, N'Gattia VK, Kouadio-Yapo GC. Épidémiologie des otomycoses en centre hospitalier et universitaire de Yopougon (Abidjan, Côte d'Ivoire). *J Mycol Med.* 2014;24(2):9-15.
- [10] Iken M, Naouri H, Boumhil L, Lemkhente Z. Otomycoses: étude clinique et mycologique de 75 cas diagnostiqués à l'hôpital militaire Mohamed V de Rabat. *J Mycol Med.* 2015;25(3):242-3.
- [11] Ouedraogo RW-L. Otomycoses dans le service d'ORL du CHU Yalgado Ouedraogo de Ouagadougou: aspect épidémiologique, diagnostique et thérapeutique. *Cames Santé.* 2015;3(1):30-33.
- [12] Savalle M. Otomycose à *Aspergillus*: étude rétrospective expérimentation in vitro et proposition d'un protocole thérapeutique [thèse]. Dumas; 2015.
- [13] Société Française d'Oto-Rhino-Laryngologie (SFORL). Recommandations pour la pratique clinique. Oct 2001.

To cite this article

N Traoré, J Timbiné, A Ly, B Traoré, A Fofana, M Tangara et al. Otomycosis: Epidemio-Clinical and Therapeutic Profile at the Fousseyni DAOU Hospital in Kayes, Mali. *Jaccr Infectiology 2024; 6(3): 74-80*
<https://doi.org/10.70065/24JINF63.005L042708>