Research Square

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Otitis externa in a tropical tertiary referral hospital in Burkina Faso: clinical characteristics and treatment outcomes

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Abstract

Background

Otitis externa is a common condition in oto-rhino-laryngology practice, particularly in tropical settings. This study aimed to describe the clinical characteristics and management of otitis externa in a tertiary hospital in Burkina Faso.

Methods

We conducted a retrospective descriptive study over a 10-year period, from January 2008 to December 2017 in the ENT department of a tertiary referral hospital in Burkina Faso. Patients diagnosed with otitis externa and complete medical records were included.

Results

A total of 318 cases of otitis externa were collected, representing 4.89% of all otitis cases and 0.7% of ENT consultations. The mean age was 27 years, ranging from 6 months to 90 years, with a female predominance (male-to-female ratio = 0.86). The 15–30-year age group was most affected (39.6%). Otalgia was the main presenting symptom (70.1%). The mean consultation delay was 18 days. Diffuse otitis externa was the most frequent clinical form (50.0%), followed by external auditory canal furunculosis (27.0%) and otomycosis (19.1%). Bacteriological examinations were performed on 3.7% of cases, predominantly isolating *Pseudomonas aeruginosa* and *Staphylococcus aureus*. Management was predominantly medical, based on topical antibiotics (76.0%). Favorable clinical outcomes were observed in 99.0% of patients.

Conclusion

Otitis externa is a frequent condition in ENT practice. Diagnosis is straightforward based on otoscopy. Management is primarily medical with excellent outcomes. Preventive strategies should focus on reducing predisposing factors and improving safe ear hygiene practices.

1. Introduction

Otitis externa is an inflammatory condition of the external ear, which may be infectious or non-infectious. It results from disruption of the physiological balance of the external auditory canal, secondary to microtrauma, maceration, eczema, or foreign bodies in the canal [1, 5]. The lifetime prevalence of acute otitis externa has been estimated at approximately 10%, with annual incidence rates ranging from 1% to 3% in the general population [6, 18].

Globally, otitis externa is one of the most common reasons for ENT consultations [17]. It represents a significant clinical concern due to severe otalgia, often leading to sleep disturbance, and the potential for complications such as necrotizing otitis externa, which can be life-threatening [5, 27, 29]. Delayed consultation and limited access to microbiological investigations may complicate management in low-resource settings [16].

The objective of this study was to describe the clinical presentation and therapeutic management of otitis externa in our setting in to improve patient care.

2. Methods

A descriptive retrospective study was conducted over a 10-year period, from January 2008 to December 2017 in the ENT department of a tertiary referral hospital in Burkina Faso. All patients diagnosed with otitis externa based on clinical and otoscopic findings and with complete clinical records were included. Diagnosis was based on clinical symptoms associated with otoscopic signs of inflammation of the external auditory canal. Only the first record of each patient was included in the analysis. Patients with incomplete medical records and uncertain diagnoses were excluded from the study. Data were collected using standardized data forms. Variables included sociodemographic characteristics, predisposing factors, paraclinical findings, treatment modalities, and outcomes. Categorical variables were expressed as frequencies and percentages, while quantitative variables were summarized using means and ranges. Data were analyzed descriptively using Microsoft Excel software.

This study protocol was approved by local institutional ethics committee. Patient confidentiality was strictly maintained throughout the study.

3. Results

During the study period, 6,497 cases of otitis were recorded, of which 318 were otitis externa, representing 4.89% of all otitis cases. The total number of consultations was 47,922; thus, otitis externa accounted for 0.7% of ENT consultations.

The mean age of patients was 27 years, ranging from 6 months to 90 years. The 15–30-year age group was most affected (126 cases, 39.6%). Females accounted for 171 cases (54.0%), with a sex ratio of 0.8. Homemakers represented 36.4%, and farmers 13.2% (Table 1).

Table 1
Socio-professional distribution

Socio-professional activity	Number (n)	Percentage (%)
Homemaker	115	36.4
Farmer	42	13.2
Student	41	12.8
Preschool children	37	11.6
Merchant	32	10.0
Civil servant	26	8.3
Not specified	33	10.6

Otalgia was the main presenting symptom in 223 cases (70.1%) (Table 2). The mean consultation delay was 18 days; 266 patients (83.6%) presented within one month after symptom onset. Predisposing factors included allergy (23 cases, 7.2%), diabetes (12 cases, 3.8%), scratching lesions (8 cases, 2.5%), ear piercing (5 cases, 1.6%), and HIV infection (2 cases, 0.6%).

Table 2
Distribution of presenting complaints

Complaint	Number (n)	Percentage (%)
Otalgia	223	70.1
Pruritus	35	11.0
Combination of symptoms	34	10.6
Otorrhea	21	6.6
Hearing loss	5	1.5

Physical examination revealed preserved general condition in 313 patients (98.42%) and fever in 12 (3.8%). Inflammation of the auricle occurred in 8 cases (2.5%). External auditory canal involvement was unilateral in 261 cases (82.0%) and bilateral in 57 cases (18.0%). Among unilateral cases, the left ear was affected in 140 cases (44.0%) and the right ear in 121 cases (38.0%) (Table 3).

Table 3
Otoscopic findings in the external auditory canal

Otoscopic finding	Number (n)	Percentage (%)
Inflammation	164	51.5
Furunculosis	86	27.0
Mycotic plugs	61	19.1
Cerumen plug	13	4.2
Inflammatory narrowing	11	3.4
Otorrhea	6	1.9

Several otoscopic abnormalities could coexist in the same patient.

Otoscopy revealed a normal tympanic membrane in 316 cases. Submandibular lymphadenopathy occurred in 5 cases (1.5%). Bacteriological examination was performed in 12 cases (3.7%), isolating *Pseudomonas aeruginosa* (6 cases, 50.0%), *Staphylococcus aureus* (3 cases, 25.0%*), Enterococcus faecalis* (1 case, 8.3%), *Escherichia coli* associated with *Candida albicans* (1 case, 8.3%), and *Aspergillus* (1 case, 8.3%). Leukocytosis was found in 7 cases (2.2%). CT scans in 4 patients (1.2%) identified necrotizing otitis externa in 3 cases (0.9%) and an external auditory canal mass in 1 case (0.3%). Audiometry detected conductive hearing loss in 2 cases (0.6%).

Diffuse otitis externa was the most common clinical form (159 cases, 50.0%) (Table 4).

Table 4
Clinical forms of otitis externa

Type	Number (n)	Percentage (%)
Diffuse otitis externa	159	50.0
Furunculosis	86	27.0
Otomycosis	61	19.1
Perichondritis	5	1.5
Necrotizing otitis externa	3	0.9
Eczema	2	0.6
Auricular herpes zoster	2	0.6
Total	318	100.0

Treatment was mainly medical. Antibiotics were administered in 258 cases (81.1%), primarily as ear drops (76.0%) (Table 5). Minor surgical procedures including incision and drainage were performed in 4

cases (1.2%).

Table 5
Treatment modalities

Treatment type	Number (n)	Percentage (%)
Antibiotics	258	81.1
Anti-inflammatory	91	28.6
Antifungal	85	26.7
Antihistamines	80	25.1
Analgesics	60	18.8
Cerumenolytics	13	4.1
Incision and drainage	4	1.2
Antivirals	2	0.6

Several patients received combined therapies; therefore, percentages are not mutually exclusive.

The outcome was favorable in 315 cases (99.0%), with complications in 3 cases (0.9%) including one case each of facial paralysis, canal stenosis, and mastoiditis. No deaths were recorded.

4. Discussion

The prevalence of otitis externa in this study was 0.7%, which varies across studies. In Nigeria, Musa et al. reported a prevalence of 1.0% [15], whereas Bathokedeou et al. reported 11.9% in Togo [1]. These differences may be explained by variations in study settings, healthcare access, and referral patterns. Furthermore, hospital-based studies probably underestimate the true burden of otitis externa because many uncomplicated cases are managed in peripheral health facilities. Therefore, our study in the ENT department represents only a small sample of otitis externa cases. The relatively young mean age of our patients is consistent with findings in other sub-Saharan studies [1, 16]. This finding may be explained by the predominantly young demographic structure of the Burkinabe population. Otitis externa affects both children and adults when exposed to predisposing factors.

A slight female predominance was observed (54.0%). In our context, gender does not appear to influence the disease. The predominance of homemakers also reflects the socio-demographic profile of patients attending our institution [1, 17].

Otalgia was the predominant presenting symptom in our series, consistent with previous reports describing pain as the hallmark symptom of otitis externa [17, 20].

Delayed consultation remains common in many low-resource settings, a finding reported in several African studies [1, 15]. In low-resource settings, patients frequently resort to self-medication or traditional remedies before seeking medical care, often presenting only symptoms persist [7, 15]. Allergy and diabetes were among the most frequently identified predisposing factors in our series. Both conditions may alter local defense mechanisms of the external auditory canal and increase susceptibility to infection. Similar risk factors have been reported in previous studies, including with local trauma caused by cotton swab use, scratching of the ear canal, and immunodeficiency states [1, 4, 15]. Bacteriological examination was performed in 3.77% of cases.

Pseudomonas aeruginosa (50.0%) and Staphylococcus aureus (25.0%) remain the predominant bacterial pathogens reported worldwide in acute otitis externa and accounted for 75% of all isolated microorganisms in our series, which is consistent with previous microbiological reports [12, 14, 20]. Ancillary investigations are generally unnecessary except in complicated or recurrent cases. The low rate of bacteriological investigations likely reflects limited access to microbiological facilities and the empirical nature of treatment in low-resource settings [17]. Diffuse otitis externa was the most common clinical form. Similar predominance has been reported in studies from Nigeria [15], Togo [1], and Europe [24], where diffuse otitis externa accounted for 45–70% of all external ear infections. This consistency suggests that the clinical presentation of otitis externa remains relatively stable across geographical regions despite climatic differences. Otomycosis accounted for nearly one-fifth of cases. The proportion observed in our study is higher than that reported in the most temperate countries but comparable to findings from subtropical regions. Warm temperatures and increased humidity facilitate fungal growth within the external auditory canal and may partly explain this difference [2, 3, 29]. Necrotizing otitis externa represented only 0.9% of cases in our series. Although uncommon, this condition remains a potentially life-threatening infection requiring prompt diagnosis and multidisciplinary management, particularly among elderly and immunocompromised patients[27, 29]. Treatment was mainly medical ; antibiotics were the mainstay (81.0%), mainly topical (76.0%). Current clinical practice guidelines recommend topical therapy as the first-line treatment for uncomplicated acute otitis externa because of its excellent efficacy and limited systemic adverse effects [18, 20, 23, 27]. Surgical intervention was reserved for complications (1.2%). Outcomes were favorable in 99.0% of cases [15]. The low rate of complications observed in our study may reflect underdiagnosis or limited screening for comorbidities such as immunodeficiency and diabetes.

The main strength of this study lies in its relatively large sample size collected over a 10-year period in a tertiary referral center in a tropical low-resource setting, where data on otitis externa remain limited. This study has several limitations. Its retrospective design may have resulted in missing or incomplete data. In addition, bacteriological investigations were performed in only a small proportion of patients, limiting the microbiological interpretation. Finally, as this was a hospital-based study, the findings may not fully reflect the true burden of otitis externa in the general population. Although the data were collected several years ago, the findings remain relevant because published information on otitis externa in Burkina Faso is still scarce. Furthermore, healthcare access, diagnostic capacity, and treatment

practices in many resource-limited settings have evolved only gradually over recent years, supporting the continued relevance of the observations.

5. Conclusion

Otitis externa remains a common condition encountered in ENT practice in Burkina Faso. Diffuse otitis externa was the predominant clinical form and treatment outcomes were excellent with predominantly medical management. Prevention measures should focus on avoiding ear canal trauma, promoting safe ear hygiene practices, and encouraging early consultation.

Declarations

Funding

No external funding was received for this study.

Availability of data and materials

Datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

Conflicts of Interest

The authors have not declared any conflicts of interest.

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Figures



Figure 1

Otoscopic view showing diffuse suppurative otitis externa of the right ear in a 38-year-old patient. Written informed consent was obtained from the patient for publication of this image.