

Cerumen auris in Abubakar Tafawa Balewa University teaching hospital Bauchi, North-eastern Nigeria

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Abstract

Background: Cerumen Auris (Ear Wax) is a naturally occurring normally extruded product of the External Auditory Canal (EAC). Despite lots of work on cerumen auris in other parts of Nigeria and the world at large, there was no documented prevalence study in North-eastern Nigeria. **Objective:** The study aimed to determine the prevalence of cerumen auris, evaluate the methods of its removal and to evaluate the possible complications of methods of cerumen removal in Abubakar Tafawa Balewa University Teaching Hospital Bauchi Northeastern Nigeria. **Design:** A 1-year retrospective study of all patients seen with cerumen auris at the study center. **Materials and Methods:** Patients case files were retrieved, and data on demography, clinical presentation, examination, intervention, as well as complications, were extracted. The data was analyzed using SPSS version 16. **Results:** A total of 442 patients' case notes was reviewed, consisting 218 males and 224 females, age ranges from 1-month to 93 years, mean age was 18.76 ± 1.78 , most frequent affected age group was 0–9 years accounting for 43.7%. The calculated hospital prevalence was 4.6%. Ninety-five percent of the patients had their cerumen auris removed via ear syringing. Twenty-one (4.8%) of the patients had canal abrasion, 2.3% had bleeding in the EAC, 1.4% of the patients had vertigo. **Conclusion:** Cerumen auris, when untreated, can lead to hearing loss and loss of concentration hence its removal using a safe and effective method is paramount. Ear syringing is found to be safe and effective method of cerumen auris removal.


Key words: Atbuth, cerumen auris, North-eastern Nigeria

INTRODUCTION

Cerumen Auris (Ear Wax) is a naturally occurring normally extruded product of the External Auditory Canal (EAC). It is composed of secretions, sloughed epithelial cells, and hairs. It is usually asymptomatic but when impacted in one or both ears, may cause discomfort, hearing loss, tinnitus, and dizziness to mention a few.^[1] Cerumen

prevents canal maceration, has antibacterial properties and has a normally acidic pH, altogether contributing to an inhospitable environment for pathogens to thrive.^[2] Wax has a protective function as it lubricates the ear canal and entraps any foreign material that happens to enter the ear canal. Normally, only a small amount of wax is secreted, which dries up and is later expelled from the meatus by jaw movements.^[3] Untreated impacted wax can lead to 'hearing loss, social withdrawal, loss of concentration poor work function, and even mild paranoid behaviors.^[4] Despite excessive and impacted cerumen being common in the population, most literature reviews suggest that its physiology, clinical significance and management remain poorly understood.^[5]

Several studies assessing the epidemiology of impacted cerumen show that the condition is common.^[4] Between

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1.2 million and 3.5 million people in the UK suffer from cerumen auris.^[4] Cerumen impaction is present in approximately 10% of children, 5% of normal healthy adults, up to 57% of older patients in nursing homes, and 36% of patients with mental retardation.^[6] Wax impaction was found to be a common ear disease among school children in Nigeria, Nepal, and Kathmandu valley with a comparable high prevalence of 52.6%, 62%, and 60.6%, respectively.^[7,8] In Ibadan, Southwestern Nigeria, cerumen auris accounted for 99% of ear syringing over 18 months period.^[9] In kaduna, northwestern Nigeria, it was found that the incidence of cerumen auris decreases with increasing age.^[10]

Patients with impacted cerumen require effective treatment.^[4] When cerumen accumulates, its treatment is removal. The method of removal is either by irrigation (with or without the use of ceruminolytics) or manually with curettes or wax hooks.^[11] Preparations for clearing earwax have been used for centuries, and procedures for removing earwax go back to ancient Egyptian times. Manual syringing has been historically the most common method of removing earwax, but can lead to perforation of the eardrum and other complications, such as bleeding and otitis externa.^[12] OtoClear® Safe Irrigation System is also safe and effective in the removal of ear wax.^[13] Moreover, management of impacted cerumen in, for example, diabetics and immunocompromised subjects, can pose problems for secondary care physicians especially when accompanied with complications like canal lacerations whereby pathogens can move into the blood and cause havoc. Occasionally, surgery is an appropriate treatment.^[4] However, bulb syringes when available, especially in the developed countries can be used for the self-clearance of earwax which, in the short-term, appear effective.^[14]

MATERIALS AND METHODS

Ethical clearance was obtained from the study center's Research Ethics Committee (Reference No: Rec/01/05/2013). The study is a 1-year retrospective study conducted at the ENT unit of the study center from January 1, 2012 to December 31, 2012. Case notes of all patients who presented with cerumen auris (ear wax) to the ENT unit of the hospital during the period under review were reviewed. Data extracted include demographics, mode of presentation, site of the cerumen auris, examination finding, and mode of management as well as complications arising from the management. The generated data were analyzed with Statistical Package for Social Sciences (SPSS) Version 16 (Chicago, Illinois, United States), results presented in tables below.

RESULTS

A total of 9629 patients was seen at the ENT clinic of the hospital from January 1, 2012 to December 31, 2012, out of which 442 patients presented with cerumen auris.

Table 1 shows the age distribution of the patients reviewed during the study. Cerumen auris was found to be more (43.7%) among those under 9 years of age.

From Table 2, there is no significant difference among males and females. However, 50.7% females had cerumen auris compared to the males with 49.3%.

Depicted from Table 3, all the patients seen with cerumen auris at the ENT clinic of the hospital during the period under review were symptomatic. One hundred and forty-seven (33.26%) patients presented with hearing loss, 28 (6.3%) involving the right ear, while 38 (8.6%) and 81 (18.30%) involved left ear and both ears respectively. Two hundred and fifty-five (57.69%), 231 (52.26%) and 262 (59.28%) presented with ear fullness, ear itchiness and otalgia, respectively. The laterality of ear fullness,

Table 1: Age distribution of patients

Age	Frequency	Percentage
0-9	193	43.70
10-19	86	19.50
20-29	59	13.30
30-39	40	9.00
40-49	28	6.30
50-59	19	4.30
60-69	9	2.00
70-79	3	0.70
80-89	4	0.90
90-99	1	0.20
Total	442	100.0

Table 2: Gender distribution of the patients

Gender	Frequency	Percentage
Male	218	49.30
Female	224	50.70
Total	442	100.00

Table 3: Symptoms of the patients and laterality of the symptoms

Symptom	Right ear (%)	Left ear (%)	Bilateral (%)	Total (%)
Hearing loss	28 (6.30)	38 (8.60)	81 (18.30)	147 (33.26)
Ear fullness	62 (14.00)	58 (13.10)	135 (30.50)	255 (57.69)
Ear itchiness	65 (14.70)	59 (13.30)	107 (24.20)	231 (52.26)
Otalgia	70 (15.80)	79 (17.40)	113 (25.60)	262 (59.28)
Total	225 (50.80)	234 (52.40)	436 (98.60)	

ear itchiness, and otalgia is as depicted in Table 3 above. Majority of the patients presented with >1 symptom to the hospital.

Table 4 shows all the patients reviewed had otoscopy on both ears and all of them had cerumen. Three hundred and one (68.1%) were found to have soft ear wax, 123 (27.8%) had wax impacted in their EAC while 18 (4.1%) of the patients had hard wax in their EACs.

From Table 5, 415 (93.89%) of our patients instilled candibiotic ear drops into the affected ear (s) for a minimum of 24 h and maximum of 16 days before ear syringing, 11 patients (2.49%) instilled olive oil for a minimum of 24 h and maximum of 7 days before they had ear syringing. Sixteen (3.62%) of our patients did not instill any cerumenolytic agent before wax removal.

Table 6 shows 374 (84.60%) of our patients had their wax removed by ear syringing in the first attempt, whereas 54 (12.62%) of the patients had failure of the procedure. Forty-six (10.4%) had it removed during their second visit while 8 (1.8%) have had >2 attempts at removal. Fourteen (3.2%) had no ear syringing as a mode of ear wax removal. Twenty-two (5%) had successful manual removal with either Jobson – Horne probe or the use of gentle suction.

From Table 7, 420 (95%) of the patients had their ears syringed with a manual ear syringe, 19 (4.3%) was with Jobson-Horne aural probe while 3 (0.7%) of the patients, ear wax was removed by suctioning with a suction tube. Table 8 shows the highest of the complications 21 (4.8%) was found to be canal laceration as a result of cerumen auris removal, 2.3% bled from their EACs while 1.4% each developed vertigo as well as tympanic membrane perforation. The least complication was tinnitus seen in 4 (0.9%). Eighty-nine percent of the patients did not develop any complication.

DISCUSSION

Ear wax (Cerumen auris) being a naturally occurring normally extruded product of the EAC,^[1] its accumulation and the subsequent impaction leads to several aural symptoms from pains and discomfort to hearing loss.^[2] It is one of the most common causes of consultation in otorhinolaryngological clinics; its removal is the most common otorhinolaryngological procedure performed in otorhinolaryngological clinics.^[10]

Removal of impacted wax has been practiced since ancient Egyptian times. “Clyster Oriclavrus” used in the treatment of purulent ear discharge, removal of foreign body was coined

Table 4: Otoscopic findings

Nature of wax	Frequency	Percentage
Soft wax	301	68.10
Hard wax	18	4.10
Impacted wax	123	27.80
Total	442	100.0

Table 5: Use of ceruminolytic agent

Agent	Frequency	Percentage
Candibiotic	415	93.89
Olive oil	11	2.49
None	16	3.62
Total	442	100

Table 6: Ear syringing

	Frequency	Percentage
Once	374	84.60
Twice	46	10.40
More than twice	8	1.80
Not done	14	3.20
Total	442	100.0

Table 7: Instrument used in removing ear wax

	Frequency	Percentage
Jobson-Horne probe	19	4.30
Suction	3	0.70
Ear syringe	420	95.0
Total	442	100.00

Table 8: Complications

Complication	Frequency	Percentage
Vertigo	6	1.40
Tinnitus	4	0.90
Bleeding	10	2.30
Canal abrasion	21	4.80
TMP	6	1.40
None	395	89.40
Total	442	100.00

TMP: Tympanic membrane perforation

by Celsius as ear syringing.^[15] In 1821, a French otologist by name Itard, re-invented the ear syringe and was the first to devise irrigation of the ear for removal of hard wax.^[17]

This study was carried out to find the prevalence of wax impaction in North-eastern Nigeria region with the study center as a reference point.

The prevalence rate in this study was found to be 4.6%; this appears to be lower than that of other studies, where Eziyi *et al.* found 46.7% at Ife South-western Nigeria.^[18] Olusanya^[7] had 52.6% in their series while Adhikari in

Nepal^[19] and Kathmandu valley^[20] found 62% and 60.6%, respectively. This variation may be due to the fact that all their studies were conducted in schoolchildren while ours was on the general population attending the hospital. This can be supported by the findings of Hatcher *et al.*,^[21] Minja and Machemba,^[22] Elango *et al.*,^[23] and Mann *et al.*^[24] with the prevalence rate varying between 8.6% and 28.2% in children of higher age group.

In this study, cerumen auris was more prevalent among patients under 9 years of age (43.7%). This agrees with findings of Adoga *et al.* (44%).^[10] Male to female was not statistically significant in our series as seen Eziyi *et al.* However, Adoga found female preponderance of 1:1.6, and Zeba *et al.*^[1] but Stone^[26] found male preponderance. Our finding was supported by the results of Subha and Raman,^[16] Brkii *et al.*^[25] whose work showed no relationship between wax impaction and sex.

In our series, otalgia was the most common symptom accounting for 59.28% followed by ear fullness 57.69% and hearing loss being the least 33.26%. This does not agree with other findings in other studies in Adoga *et al.*, Sharma *et al.*,^[27] and Jacob *et al.*,^[28] and several other studies in developing countries,^[7,8,21,29-31] who all found hearing loss as the chief complaint.

In this study, the most common ceruminolytic agent used was candibiotic as opposed to olive oil, cerumol in other studies; this may be due to its availability and may be a physician's preference.

The most common method of removal was ear syringing in 95% of our patients. This agrees with Zeba *et al.*^[1] where syringing was carried out in 86.8%, Adoga 92.4%, and Ogunleye in Ibadan South-western Nigeria.

Complication following the removal of impacted wax by syringing is not uncommon. In this study, complication rate of 10% was recorded, which was in agreement with the finding of Adoga and Zeba of 6.7% and 13.26%, respectively. The most common in our series was canal abrasion 4.8% and bleeding 2.3%. 10% of our patients had >1 ear syringed; Zeba recorded 4.4% who having >1 ear syringed. In our series, 4.8% developed complications from trauma to the EAC as opposed to 1.2% in the work of Zeba. None of our patients developed otitis externa. Eighty-nine percent of the patients did not develop any complication from cerumen auris removal.

CONCLUSION

Cerumen auris, when untreated, can lead to hearing loss, loss of concentration, as well as poor work function, hence

its removal using a safe and effective method is paramount. Ear syringing is found to be safe and effective method of removal of cerumen auris after applying a ceruminolytic agent to soften the ear wax.

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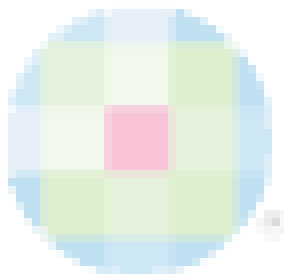
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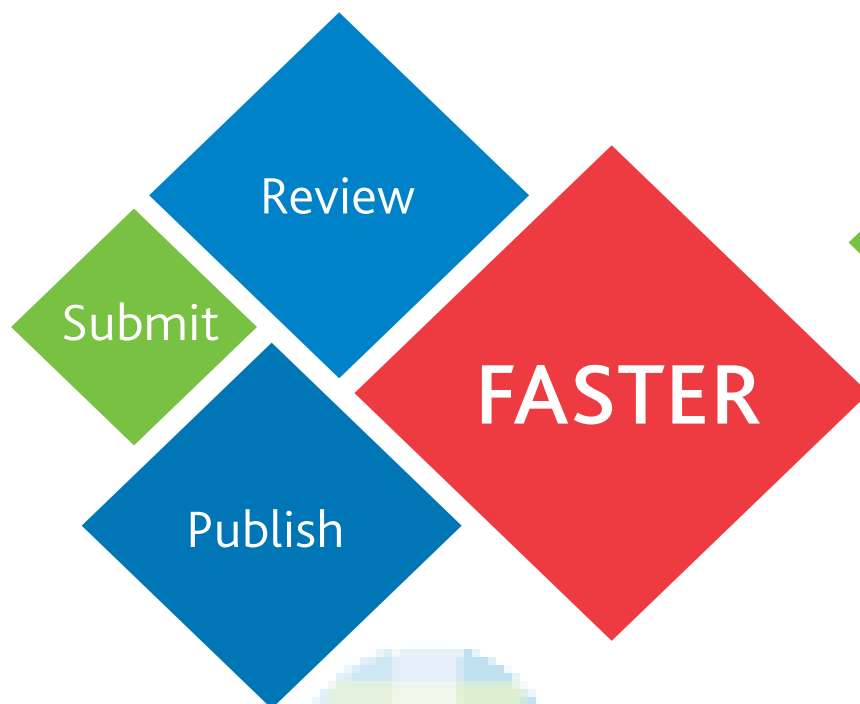
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