

Cerumen impaction: Challenges and management profile in a rural health facility

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ABSTRACT

Background: Cerumen impaction is a worldwide problem. It constitutes a significant proportion of health problems in many settings and its prevalence varies. Very few studies were done in this region with none from our center. The aim of this study is to review the challenges and management profile of cerumen impaction in a rural health facility in Nigeria.

Materials and Methods: This was a 3-year retrospective study of all patients that were managed for cerumen impaction from June 2008 to May 2011, in the Department of Otorhinolaryngology, Federal Medical Centre, Ido-Ekiti, Nigeria. **Results:** A total of 239 patients, aged 3–98 years were managed for cerumen impaction. The male: female ratio was 1.6:1. The age group 1–20 years was mostly affected in 29.3%. Major complaints were hearing impairment in 120 cases. Both ears were mostly affected in 48.5% of the patients. Olive oil was a major ceruminolytic agent used in 95.4%. Ear syringing was carried out in 91.2% of cases. Major complications were bruises of external auditory canal and otalgia in 7.3% of cases each. Forty-two (17.8%) of our patients were asymptomatic, and they did not complained of ear problem. Out of those patients that were symptomatic, 44.3% had visited general medical practitioners and non-otolaryngologist, while 27.6% had self-medication or visited chemist for their ear complaints. Only 3.7% of them had been seen by ear, nose, and throat (ENT) specialist in the past. **Conclusion:** Cerumen impaction is a common otolaryngological problem that presents to ENT surgeon, children, and elderly are more affected. Hearing impairment is the major complaint which may increase the burden of disability on society. Syringing is the most common mode of treatment of our patients. Continuing medical education, proper otological examination by the non-otolaryngologist and public health education to improve the low level of awareness on danger of self-medication is essential.

Key words: Cerumen, challenges, health facility, impaction, rural

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INTRODUCTION

Cerumen auris, also known as ear wax, is a mixture of ceruminous and sebaceous gland secretions mixed with desquamated epithelium in the external auditory canal (EAC). Usually, brownish or yellowish in color but may become black or grayish due to the presence of desquamated keratinized epithelium.¹ Wax is usually expelled from the EAC by migration, a process that is aided by jaw movement while eating and talking.¹ This natural process is believed by experts to be interfered by self-ear-cleaning.² It is, however, well-established that ear wax (cerumen auris) protects,

cleans, and lubricates the skin of the ear canal.³ It is usually asymptomatic but may become impacted in one or both ears causing discomfort, hearing loss, tinnitus, dizziness, chronic cough, and otitis externa.⁴ Impacted ear wax is a common phenomenon, and it is defined as accumulation of cerumen that causes symptoms, prevents a needed assessment of the ear canal/tympanic membrane, audio-vestibular system, or both.^{5,6} The risk factors for cerumen accumulation include ear canal hairs, repeated using of cotton buds to clean ear canal,

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hearing aids and ear plug user, bony growths such as osteoma as well as abnormally shaped ear canal.^{7,8} Major sequelae of impacted cerumen are conductive hearing loss/impairment, which can be deleterious to linguistic, social, and intellectual development.⁹ In the United Kingdom, some 2.3 million people suffer cerumen problems that are serious enough to warrant management.⁹ The Prevalence of wax impaction in the USA was found to be 10% among children, 5% among healthy adult, and up to 57% in older persons in nursing homes,¹⁰ and it is found to be disproportionately more common in children and elderly Nigerians.¹⁰⁻¹² Wax impaction constitutes a significant proportion of health problems in many settings, but their prevalence in many Nigeria communities is unknown.⁸ There is no study on the cerumen auris in our center. The aim of this study was to review the challenges, and our experience in managing impacted cerumen auris among the patients that presented to Otorhinolaryngology Department at Federal Medical Centre, Ido-Ekiti, a Rural Tertiary Health Center in South West, Nigeria.

MATERIALS AND METHODS

The study was a retrospective review of all patients that were managed for cerumen impaction in the Department of Otorhinolaryngology, Federal Medical Centre, Ido-Ekiti, Nigeria, over a period of 3 years (June 2008 to May 2011). The case notes of the patients were retrieved from the medical records department of the hospital. Data retrieved from the case notes included demographic data, presenting complaints, affected ear, and otoscopic findings. Other information collected were previous treatment, method of softening, mode of removal, and incidence of complications following removal of cerumen. Patients with incomplete information were excluded. Ethical approval for this study was obtained from the hospital ethical and research committee. Information obtained was analyzed with Statistical Package for the Social Sciences (SPSS Version 14.0) Statistical software package programs and results were presented in a simple descriptive form as Tables 1 and 2 and Figure 1.

RESULTS

A total of 239 patients had complete data for analysis made up of 149 (62.3%) males and 90 (37.7%) females with a male: female ratio of 1.6:1. Our patient's age ranged from 3 to 98 years. The mean age was 47.99 years ± 25.78 standard deviation, and the median was 52.0 years. The age group 1–20 years were mostly affected in 70 (29.3%) of our patients and the age group 80 years and above was least affected in 19 (7.9%) of cases [Table 1]. Majority 72 (30.1%) of our patients were either unemployed or students, 48 (20.1%) were farmer, 35 (14.6%) were civil servant, 31 (13.0%) were retiree, 27 (11.3%) were trader/business, while 26 (10.9%) are teachers [Figure 1].

Table 1: Age and sex distribution of patients with cerumen impaction

| Age range (years) | Sex of the patients n (%) | | Total |
|-------------------|---------------------------|-----------|-----------|
| | Male | Female | |
| 1-20 | 46 (19.2) | 24 (10.0) | 70 (29.3) |
| 21-40 | 20 (8.4) | 20 (8.4) | 40 (16.7) |
| 41-60 | 33 (13.8) | 19 (7.9) | 52 (21.8) |
| 61-80 | 36 (15.1) | 22 (9.2) | 58 (24.3) |
| >80 | 14 (5.9) | 5 (2.1) | 20 (7.9) |
| Total | 149 (62.3) | 90 (37.7) | 239 (100) |

Table 2: Presenting complaints, affected ear, ceruminolytic agents, treatment modality, previous treatment, and complications in patients with cerumen impaction

| Parameter | Frequency (n) percentage (%) |
|---|------------------------------|
| Presenting complaints of patients with cerumen impaction* | |
| Hearing impairment | 120 (50.3) |
| Ear blockage | 79 (33.1) |
| Tinnitus | 68 (28.5) |
| Otalgia | 54 (22.6) |
| Incidental finding | 42 (17.8) |
| Irritation | 21 (8.8) |
| Previous treatment of patients with cerumen impaction* | |
| Asymptomatic (incidental finding) patients that were asymptomatic | 42 (17.8) |
| Symptomatic patient | 106 (44.3) |
| General practitioner/non-ENT specialist | 66 (27.6) |
| Self-medication/chemist | 16 (6.6) |
| No previous treatment | |
| ENT specialist | 9 (3.7) |
| Total | 239 (100.0) |
| Laterality of the affected ear* | |
| Right ear | 59 (24.7) |
| Left ear | 64 (26.8) |
| Both ears | 116 (48.5) |
| Total | 239 (100.0) |
| Ceruminolytic agents used to soften the cerumen auris* | |
| Olive oil | 228 (95.4) |
| Cerumol ear drop | 9 (3.8) |
| Nil | 2 (0.8) |
| Total | 239 (100.0) |
| Mode of treatment of patients with cerumen impaction* | |
| Syringing | 218 (91.2) |
| Instrumentation | 17 (7.1) |
| Both | 4 (1.7) |
| Total | 239 (100.0) |
| Complications following cerumen removal* | |
| Bruises/laceration of EA | 9 (3.8) |
| Otalgia | 9 (3.8) |
| Failure of cerumen removal | 5 (2.1) |
| Nil | 216 (90.3) |
| Total | 239 (100.0) |

*NB: Some patients have more than one complaints. Percentages represent the proportion of the study population. EA – External auditory; ENT – Ear, nose, and throat

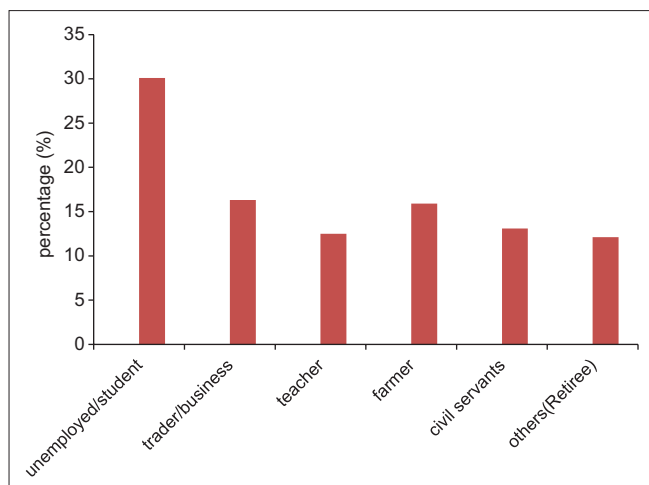


Figure 1: Occupation of patients with cerumen impaction

The major complaints were hearing impairment in 120 patients, ear blockage in 79 patients, and tinnitus in 68 patients [Table 2]. Both ears were mostly affected in 116 (48.5%) of our patients, left ear was affected in 64 (26.8%) patients, while the right ear was affected in 59 (24.7%). Two hundred and twenty-eight (95.4%) of the patient used olive oil to softening their wax, 9 (3.8%) used cerumol ear drop, and 2 (0.8%) did not. Two hundred and eighteen (91.2%) had ear syringing done to removed their wax, instrumentation was used in 17 (7.1%) of the patients, and 4 (1.7%) had both procedures. Complications of wax removal in our patients are bruises of EAC in 9 (3.7%), otalgia in 9 (3.7%), and failure of cerumen removal was in 5 (2.1%) patients. Forty-two (17.8%) of our patient were asymptomatic, and their wax was incidentally detected during otological examination. Out of patients that were symptomatic, 106 (44.3%) had visited general medical practitioner and non-otolaryngologist for their symptoms, 66 (27.6%) had indulged in self-medication or had visited chemist for their ear complaints, and had used various topical ear drops with systemic antibiotics. 16 (6.6%) had not received any form of treatment for their symptoms, while 9 (3.7%) had various form of treatment in the past for cerumen auris from ENT specialist.

DISCUSSION

Cerumen impaction is a worldwide problem. It can affect up to 6% of general population,¹³ and it is a major cause of primary care consultation and common comorbidity in ENT patients.^{9,14} In the United States, cerumen accumulation leads to 12 million patient visits and 8 million cerumen removal procedures annually,¹⁵ and approximately 150,000 cerumen removals weekly.¹⁶ In this study, 239 patients had cerumen impaction made up of 149 (62.3%) males and 90 (37.7%) females with a male to female ratio of 1.6:1. The highest occurrence (29.3%) of cerumen impaction was recorded in the age group 1–20 years of the patients followed

by 24.3% in the age group 61–80 years. This age group comprises mostly the children and elderly. These findings were similar to previous studies that show children and elderly to be more predisposed to cerumen impaction.^{10,11,17} Majority of our patient were unemployed or students. This study showed that hearing impairment is the most common presentation in our patients which is similar to reports from other studies.^{10,17-19} Although cerumen impaction causes reversible conductive hearing loss, this may have a serious effect on an individual, especially when left for a long period of time without detecting or treating it. Usually, such problems may affect language acquisition and impaired learning at schools in children and poor social communication, frustration, stress, social isolation, and depression in adult and elderly. Apart from causing reversible hearing loss, other problems associated with cerumen impaction are pain, tinnitus, itching, and dizziness as it was noted in this study. About 17.8% of our patients were asymptomatic, and they did not have any otologic complaints. They were primarily treated for other pathologies, but routine otological examinations revealed cerumen auris. Eziyi *et al.* reported a prevalence of 46.7% wax impaction in Nigerian school children, in which majority of cases seen were asymptomatic, and they did not seek medical care.¹⁰ Studies were done by Olusanya *et al.* and Adhikari have shown the comparable high prevalence of wax impaction (52.6%, 62.0%), respectively, as common ear diseases among school children in Nigeria and Nepal.^{17,20} There is a need for otological examination of patients seen by physicians so as to detect those that were asymptomatic very early. One hundred and six (44.3%) of our patients had visited General medical practitioner and non-otolaryngologist while 66 (27.6%) had undergone self-medication or attended to at chemist for their ear complaints before getting to our department. Few of them had used various antibiotics (systemic/topical) and analgesics for mere cerumen impaction without proper otological examination. Low level of awareness and the paucity of ear, nose, and throat (ENT) specialist in rural area might have contributed to this practice. Health education should be encouraged to increase awareness among populace on the danger of self-medication. About 9 (3.7%) of patients in this study had received treatment such as cerumen auris removal from ENT specialist in the past. There is tendency for cerumen auris to reoccur in some individual several years after the initial treatment. Since the quantity of wax produced varies greatly from one individual to another. Its composition also varies in different racial groups. Some people may have a completely clean ear canal without ever having them cleaned, yet other have excessive production of the ear wax.

Both ears were more affected in this study; these findings is similar as in other studies.^{10,18,21-23} Majority of our patients (95.4%) applied olive oil as a ceruminolytic agent before they have their ears syringed. In our center, olive

oil is most commonly prescribed for our patients. It is readily available, affordable, and does not cause irritation or allergic reactions. Usually, it is applied 2 times a day for about 5–7 days before syringing is done. Other ceruminolytic agents that can be used include cerumol, debox, bicarbonate, waxsol, xerumenex, soliwax, and exterol (5% urea-hydrogen peroxide in glycerol).²³ Most of them are not available in our local environment. Ear syringing was performed in 91.5% of our patients, with normal saline at body temperature using an ear syringe. Usually, the procedure is done in our center by otolaryngologists or ENT trained Nurses. This is a major form of treatment for cerumen auris removal as reported by other studies.^{12,18,23} Seventeen (7.1%) had manual removal of their wax by curette method (using Jobson - Horne probe or wax hooks). This is usually done under direct vision with proper lighting. A 5 dB improvement in hearing acuity after removal of impacted cerumen has been reported.²³ Although not all our patients had audiological test done after removal of cerumen auris, high level of satisfaction and improvement in hearing were noted in them. Potential complications following cerumen removal include perforation of tympanic membrane, otitis external from EAC laceration, vertigo, and cardiac arrest, failure of wax removal, otalgia.^{16,23} Fewer complications were recorded in this study, and they include EAC bruises and otalgia in 3.7% and failure of cerumen removal in 2.1% of patients. The reason might be due to the fact that the procedures were carried out by ENT specialist and trained nurses.

CONCLUSION

Cerumen impaction is a common otolaryngological problem that presents to ENT Surgeon, children, and elderly are more affected in this study. Syringing is the most common mode of treatment of our patient. Hearing impairment is a major complaint which may increase the burden of disability on society. We recommend continuing medical education and proper otological examination by the general medical practitioner and other non-otolaryngologist for early recognition and referral. Public health education to improve the low level of awareness on danger of self-medication is essential. Training of ENT specialists and nurses should be encouraged to address the paucity of manpower.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Hazarrika P, Nayak DR, Balakrishnan R. Wax/Cerumen in Textbook of Ear, Nose and Throat Head and Neck Surgery, Clinical and Practical. 2nd ed. New Delhi: CBS Publishers and Distributors; 2010. p. 123.
- Olaosun AO. Self-ear-cleaning among educated young adults in Nigeria. *J Family Med Prim Care* 2014;3:17-21.
- Jung TT, Jinn TH. Diseases of the external ear. In: Snow JB Jr, Ballenger JJ, editors. Ballenger's Otorhinolaryngology Head and Neck Surgery. 16th ed. Ontario: Decker; 2003. p. 203-48.
- Raman R. Impacted ear wax – A cause for unexplained cough? *Arch Otolaryngol Head Neck Surg* 1986;112:679.
- The American Academy of Otolaryngology-Head and Neck Surgery Foundation. Clinical practice guidelines issued for managing earwax impaction. *Otolaryngol Head Neck Surg* 2008;139:S1-21.
- Roland PS, Smith TL, Schwartz SR, Rosenfeld RM, Ballachanda B, Earll JM, *et al*. Clinical practice guideline: Cerumen impaction. *Otolaryngol Head Neck Surg* 2008;139 3 Suppl 2:S1-21.
- Ear Wax. Available from: <http://www.webmd.com/a-to-z-guides/ear-wax>. [Last accessed on 2014 Oct 25].
- Meador JA. Cerumen impaction in the elderly. *J Gerontol Nurs* 1995;21:43-5.
- Crandell CC, Roeser RJ. Incidence of excessive/impacted cerumen in individuals with mental retardation: A longitudinal investigation. *Am J Ment Retard* 1993;97:568-74.
- Eziyi JA, Amusa YB, Nwawolo CC, Ezeanolue BC. Wax impaction in Nigerian school children. *East Cent Afr J Surg* 2011;16:40-5.
- Ologe FE, Segun-Busari S, Abdulaheem IS, Afolabi AO. Ear diseases in elderly hospital patients in Nigeria. *J Gerontol A Biol Sci Med Sci* 2005;60:404-6.
- Ogunleye AO, Sogebi RO. Otic foreign bodies in children in Ibadan, Nigeria. *Niger J Surg Res* 2005;7:305-8.
- Jabor MA, Amedee RG. Cerumen impaction. *J La State Med Soc* 1997;149:358-62.
- Guest JF, Greener MJ, Robinson AC, Smith AF. Impacted cerumen: Composition, production, epidemiology and management. *QJM* 2004;97:477-88.
- Mitka M. Cerumen removal guidelines wax practical. *JAMA* 2008;300:1506.
- Grossan M. Cerumen removal – Current challenges. *Ear Nose Throat J* 1998;77:541-8.
- Olusanya BO, Okolo AA, Ijoduola GT. The hearing profile of Nigerian school children. *Int J Pediatr Otorhinolaryngol* 2000;55:173-9.
- Adoga AA, Bakari AA, Kodiya AM, Ahmad BM. Cerumen auris: A survey of its management at the national ear care center, Kaduna, Nigeria. *Internet J Otorhinolaryngol* 2009;12:1-5.
- Browning GG. Ear wax. *BMJ Clin Evid* 2008 25;2008. pii: 0504.
- Adhikari P. Pattern of ear diseases in rural school children: Experiences of free health camps in Nepal. *Int J Pediatr Otorhinolaryngol* 2009;73:1278-80.
- Ogunleye AO, Awobem AA. Trends of ear syringing at Ibadan, Nigeria. *Afr J Med Med Sci* 2004;33:35-7.
- Adedeji TO, Sogebi OA, Bande SA. Ear syringing – Trends from a young ENT practice in Nigeria. *Natl J Med Res* 2013;3:126-9.
- Sharp JF, Wilson JA, Ross L, Barr-Hamilton RM. Ear wax removal: A survey of current practice. *BMJ* 1990;301:1251-3.