

# Earwax Impaction: Symptoms, Predisposing Factors and Perception among Nigerians

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## ABSTRACT

**Background and Aim:** Earwax impaction is a common ear disorder with presentation worldwide. This study aimed at determining the clinical presentation, patients' perception of earwax, and its predisposing factors among Nigerians. **Materials and Methods:** This prospective study was conducted on consented patients with diagnosis of earwax impaction at the Ear, Nose, and Throat Clinic of the University Teaching Hospital, Ado Ekiti, Ekiti state, south west, Nigeria. The research was carried out over a period of one year (April 2008 and March 2009). All consented patients were told about the aim and scope of the study and their biodata were taken. Detailed history of the presenting complaints and otological complaints were taken and all data entered into structured questionnaires. Full-ear examination and otoscopy were performed and our findings were documented. From all these exercise, data obtained were collated and statistically analyzed. **Results:** A total of 437 patients were diagnosed with earwax impaction and prevalence of 20.1% was found. There was 52.2% male preponderance with male to female ratio of 1:1. Bimodal peak age distribution of patients was found at the extreme ages of life. Most common sources of our patients referrals were 39.6% general medical practitioners with least from 6.2% self-reporting. Common presentations were 277 (63.3%) hearing loss, 268 (61.3%) earache (otalgia), and 234 (53.5%) tiinitus. Unilateral earwax impaction, 75.1% was more common than bilateral earwax impaction. Right ear was more affected than left ear. Recurrent earwax impaction of 66.1% was found in our study. About 382 (87.4%) believed earwax was due to dirt or dust. Most common predisposing factors among our patients were self-ear cleaning. **Conclusion:** Common predisposing factor of this high recurrent earwax impaction were wrong perception and preventable self-ear cleaning with indiscriminate objects including cotton tip swab. This condition could be reduced by health education of the community.

**Keywords:** Bimodal, earwax impaction, health education, hearing loss, self cleaning of ears

## Introduction

Earwax, referred to as cerumen auris, is a protective normal secretion from the external auditory canal outer third cartilaginous skin gland.<sup>[1]</sup> It is a mixture of mainly 60% desquamated, 12–20% saturated and unsaturated long-chain fatty acid and 6–9% cholesterol.<sup>[2–5]</sup> It lubricates the external auditory canal.<sup>[6]</sup> It also traps dust with other small particles and insects, thereby preventing them from reaching and damaging the eardrum. It also provides protection from infecting agents such as bacteria and fungi.<sup>[6]</sup> The antimicrobial activity is due to fatty acid, lysosome, and acidity of the wax.<sup>[7]</sup> It gets dries up and fall out of the external auditory canal with a

trapped particle by conveyor belt process of epithelial migration assisted by jaw movement during chewing and talking.<sup>[8]</sup> Earwax impaction is one of the most common ear pathology treated in the otolaryngological clinic worldwide, in the USA, about 6% of the population suffer from impacted cerumen.<sup>[9]</sup> Earwax is said to be impacted when its accumulation in the external auditory canal is symptomatic or prevent assessment of the canal and eardrum or both. Impacted earwax causes discomfort such as irritation, blockage, hard of hearing, earache, noise in the ear or head, and dizziness.<sup>[2,10,11]</sup> The habit of toileting the ear using objects which pushes in wax such as cotton tipped swab, pin, and hearing aid predisposed to earwax impaction. Ear picking and or its resultant ear infection, abnormalities of external auditory canal, foreign body impaction, excessive earwax production due to anxiety, fear and stress, and aging are among important factors leading to earwax impactions.<sup>[10]</sup>

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These preventable conditions are predominantly due to human activities that can result in complications such as ear injuries and foreign body impaction in the ear. The knowledge of the predisposing factors could tremendously reduce the prevalence of earwax impaction and its associated complications.<sup>[12-14]</sup> There is dearth of literature on the earwax impaction from Nigeria. This study aimed at determining the clinical presentation, predisposing factors, and perception of earwax impaction among Nigerians.

### Materials and Methods

This prospective study was conducted on all our patients diagnosed with earwax impaction at the Ear, Nose, and Throat Clinic of the University Teaching Hospital, Ado Ekiti, Ekiti state, Southwest, Nigeria. The research work was carried out over a period of 1 year (April 2008 and March 2009). All consented patients were told of the aim and scope of the study and their biodata were taken. Detailed history of the presenting and other otological complaints was taken and all information obtained was entered into structured questionnaire. Full-ear examination and otoscopy performed and our findings were documented. Data obtained were collated and statistically analyzed by SPSS version 11 software package and were expressed descriptively by using bar chart, histogram, or pie chart.

### Results

A total of 2,174 patients were seen in our clinic over the study period. A total of 437 patients with earwax impaction and consented participants completed the study. The prevalence of earwax impaction in this study was 20.1%. The following were noted, the age range of 6 months to 96 years and the mean age of 13 years. Male participants constituted 52.2% (228) and female of 209 with a male to female ratio of 1:1 noted. Earwax impaction were predominant at extreme of ages of life, in 0–10 years and 61 years and above age groups and these were 27.2% and 17.6%, respectively [Table 1].

The sources of our studied patients were 39.6% referrals from general medical practitioners, 27.2% family physicians, 18.1% primary health cares, 8.9% from other specialists, and 6.2% self-reporting. Earwax clinical presentations among our patients were predominantly hearing loss, earache, tinnitus, and ear blockage and were as follows: 277 (63.3%), 268 (61.3%), 234 (53.5%), and 212 (48.5%) patients respectively and as illustrated in Figure 1. Recurrent cases of earwax impaction were common and accounted for 66.1%. Unilateral earwax impaction (75.1%) was commoner than bilateral earwax impaction. Right earwax impaction accounted for 43.9% while left earwax impaction accounted for 31.2%. Otoscopic examinations showed complete occlusion (80%) of the external auditory canal by cerumen in 317 (72.5%) patients and partially occluded in 27.5%. Predominant factors predisposing to earwax impaction were obsessive ear cleaning and soapy water rinsing of

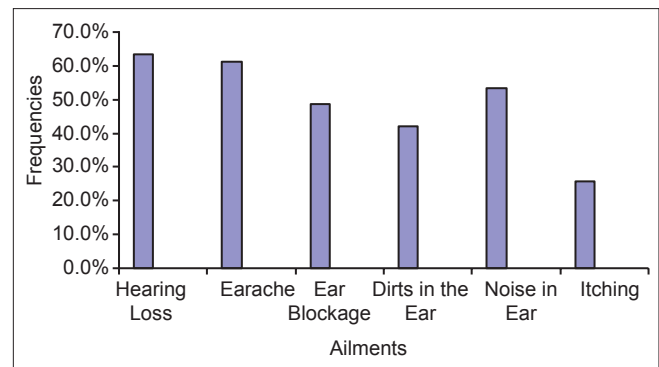
**Table 1: Age distribution of respondents with ear wax impaction**

Age range	No of ear wax impaction (%)
0-10	119 (27.2)
11-20	30 (6.9)
21-30	64 (14.7)
31-40	49 (11.2)
41-50	35 (8.0)
51-60	63 (14.4)
>61	77 (17.6)

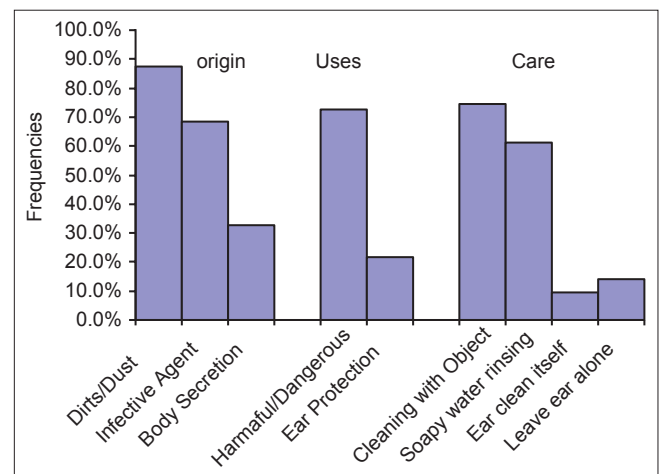
**Table 2: Predisposing factors**

Predisposing factors	Frequency	Percentage
Obsessive cleaning*	382	74.4
Soapy water rinsing*	268	61.3
Congenital anomalies	29	6.6
Foreign body/hearing aid	59	13.5
Infection	196	44.9
Ageing	99	22.7

\*Responses are multiple



**Figure 1: Clinical features**



**Figure 2: Perception of respondents**

the ear canal during bath in 325 (74.4%) and 268 (61.3%) patients, respectively, as shown in Table 2. Figure 2 revealed respondents' perception of earwax as following: 382 (87.4%) believed it is mainly due to dirty and dust in the ear and only 95 (21.7%)

believed earwax has protective function in the ear. Also, minority of the studied patients believed ear is a self-cleaning organ, and they still cleaned their ear.

## Discussion

Earwax impaction is a major health problem worldwide affecting about 6% of the general population and a main cause of primary care consultations and common co-morbidity in otolaryngology clinic.<sup>[2,12,15]</sup> Initial approach includes assessment of predisposing factors and failure of this leads to suboptimal care, recurrence, or inappropriate treatment. This study revealed high prevalence rate of 20.1% in southwestern part of Nigeria. High recurrent cases of 66.1% earwax impaction were also recorded in this study. The prevalence of cerumen impaction varies greatly,<sup>[16]</sup> approximately 10% of the children, 5% of normal healthy adults, up to 57% of older patients in nursing homes, and 36% of patients with mental retardation.<sup>[17]</sup> It is the most common ear disorder among school children.<sup>[18]</sup> Further study in Nigeria showed cerumen impaction to be a leading ear problem encountered among the elderly people<sup>[19,20]</sup> which is consistent with findings in this study of bimodal peak age distribution among the children and the elderly.

These findings may also be related to changes in the skin of the external auditory canal in elderly and notably the size of the ear canal with mother curiosity in ear hygiene cleaning in children. Symptomatic earwax impaction results mainly from pressure effect on the canal wall and blockage of sound wave from reaching the tympanum. Hearing loss in over three-fifth of respondents was found among the participants with at least 80% external auditory canal occlusion. Pressure effect and obsessive cleaning of ear canal lead to injury and inflammation with resultant earache in three-fifth as found in a similar study by Afolabi *et al.* in Ilorin, northcentral, Nigeria.<sup>[19]</sup> Unfortunately many patients feel the need to self and manually remove earwax. This earwax serves an important protective function to the outer part of the ear. Cotton tipped swabs and other object used may push earwax further into the canal and potentially foiling the natural earwax removal phenomenon and causing earwax impaction.<sup>[21,22]</sup>

Furthermore, natural ear self-cleaning process of the cerumen can be disturbed by the presence of object such as hearing aid, ear plugs, and so on. These may also cause mechanical milking (excessive cerumen production due to stimulation of the cerumen gland caused by object in the canal). This study however reveals 74.4% of participants cleaning their ears by cotton tipped swab and other object. This could be explained by 72.5% of the participants, who believed that earwax is harmful and 87.4% believe it is dirt or dust. Study performed on earwax impaction, revealed that 36% of the patients clean their ear by introducing a foreign object into their ear and majority of the patient were not willing to change their habit for a safer method of cleaning. The habit of ear cleaning destroy the naturally occurring process of self-ear cleaning.<sup>[23]</sup>

Further study had identified habitual ear cleaning with cotton bud as a common method used by patient to clean the external auditory canal of both children and adult.

## Conclusion

In conclusion, there was bimodal peak age group distribution of cerumen auris impaction and they are at the extremes of ages of life. In this study, hearing loss and injuries were the main mode of presentation and complications respectively. A large percentage of our patients indulge in self-ear cleaning with various objects because they believe earwax is harmful. The community should be counseled against the habit of insertion of foreign objects into the ear canal. Treatment of earwax impaction by the ceruminolytic agent, irrigation, and routine cleaning by clinician by regular ear care are quite beneficial.

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