

Port Harcourt Medical Journal



September - December 2018, Volume 12, Number 3

ISSN:0795-3038

Website: www.uniportjournals.com/medical



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Official Journal of the
College of Health Sciences,
University of Port Harcourt
Port Harcourt, Nigeria

Indexed with African Journals on Line (AJOL)
African Index Medicus (AIM)

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Paediatric presentation of ear cleaning in a West African country

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Abstract

Background: Ear cleaning is very common medico-social habit among children worldwide. This study aimed at determining the prevalence, socio-demographic features, clinical presentation, associated complications and management of paediatric ear cleaning in a tertiary hospital in a West African country.

Methods: This was a prospective cross-sectional hospital-based study which was carried out in Ear, Nose and Throat department of Ekiti State University Teaching Hospital, Ado Ekiti, Nigeria, over a period of 6 months, between July and December 2017. Consent was obtained from the patients/parents/guardian. The instrument of data collection was a pretested interviewer-assisted questionnaire. Data obtained was collated and analysed using SPSS version 16.0.

Results: Prevalence of ear cleaning in paediatric age group was 91.1%. Males were more affected and accounted for 53.4%. The most common reason for ear cleaning was due to personal hygiene. Ear cleaning was done in 57.1% of the children by their mother. Bilateral ear cleaning was noted in 45.3% of patients, 31.6% in the right ear and 23.1% in the left ear. Majority (65.5%) of patients believed that ear cleaning were beneficial. The commonly used object in ear cleaning were cotton bud, finger, sticks and writing material in 35.2%, 18.6%, 13.8% and 13.4%, respectively. Common clinical features among the patients were dirty/earwax, otalgia and itching in 33.6%, 30.8% and 25.9%, respectively. Short time (acute) ear cleaning in 57.9% was more common than long time (chronic) ear cleaning in 42.1%. The frequency of ear cleaning was done on a daily basis in 55.9% of patients, in 21.5% of patients weekly. In 12.6% of patients monthly while 10.1% of patients used to clean their ears occasionally. Major clinical diagnoses of ear cleaning in children were 26.3% personal hygiene, 19.4% allergy and 17.8% earwax. Common complications were external auditory canal injury in 32.4%, impacted foreign body in 21.5% and traumatic perforated tympanic membrane in 6.5%. About 42.9% of our patient obtained information about cleaning of ear from family, 29.6 % from neighbourhood while 27.5% did not obtained information from anywhere. Treatment included conservative/medical treatment in 60.7%, foreign body removal in 21.5% and impacted earwax removal in 17.8%.

Conclusions: Ear cleaning is a common otological habit among children. Personal hygiene was the most common reason for ear cleaning and with cotton bud been being the most common object used. The habit is associated with avoidable complications. Health education and treatment of underlying causes is paramount to reduce this habit.

Keywords: Ear cleaning, Ekiti, otology, paediatric

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Received: 10.03.2018, **Accepted:** 17.06.2018

Access this article online

Quick Response Code:



Website:

www.phmj.org

DOI:

10.4103/phmj.phmj_6_18

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How to cite this article: Adegbiyi WA, Olajide TG, Nwawolo CC. Paediatric presentation of ear cleaning in a West African country. Port Harcourt Med J 2018;12:136-41.

INTRODUCTION

Ear cleaning in children occurs when an object is introduced into the external auditory canal with the intention of removing deposits. This habit is very common in paediatric care worldwide.¹⁻³ Among the common reasons given for children, ear cleaning was cleaning of meconium, earwax, itching, foreign-body, irritation, ear blockage, hearing impairment, ear pain and ear discharge. Others people see it as part of their normal/routine habit on a daily basis.⁴ Insertions of a different object in the ear are common not only in adults but also common in the pediatric population either by nursing mother, caregivers or children themselves. A large number of patients report daily to their family doctors and otorhinolaryngologists with the otological complaint and urge to scratch their external ear canal with the different available object. The practice of self-ear cleaning has been condemned worldwide. This is after associated complications which includes ear trauma, impacted earwax, infection, and impacted foreign body.⁵ Insertion of objects inside the ear is unnecessary and potentially dangerous to the victims or the user.⁴ The subsequent accidental ear injury in the patients was usually self-induced.^{6,3} Further associated complications of self-ear cleaning are traumatic laceration of the ear canal, tympanic membrane perforation, impacted ear wax, otomycosis, otitis externa and impaction of foreign body.⁷⁻¹¹ Presentation of these complications includes bleeding, otalgia, hearing loss, tinnitus and vertigo depending on the extent of the injury.¹²⁻¹⁴

There were inadequate literature on the practice and effect of paediatric ear cleaning in developing countries. This study aimed at determining the prevalence, socio-demographic features, clinical presentation, associated complications and management of paediatric ear cleaning in a tertiary hospital in a West African country.

MATERIALS AND METHODS

This was a prospective cross-sectional hospital-based study which was carried out in the Department of Ear, Nose and Throat at Ekiti State University Teaching Hospital, Ado Ekiti, Nigeria, over a period 6 months between July and December 2017.

Aims and objective of the study were explained to the patients/parents/guardian and confidentiality assured. Informed consent was obtained. All the patients that gave their consent to participate were enrolled in the study. The instrument of data collection was a self-administered pre-tested semi-structured questionnaire. Children who

cannot fill out the questionnaire were assisted by their parents or guardian.

The questionnaires contained information on socio-demographic features (age, sex, religion and occupation), the practice of ear cleaning, duration, the frequency of ear cleaning, type of object used, reasons for self-ear cleaning and associated complications or danger of ear cleaning. Self-cleaning history was got from children (those that were older and able to take instructions) and from parents or guardians of those that are younger. Detailed ear examination including otoscopy was carried out in all patients. Otoscopic findings revealed some diagnosis like ear wax and foreign body. Furthermore, complications such as bruises of the ear canal, bleeding and tympanic membrane perforation were noted. Exclusion criteria include tympanic membrane perforations and ear canal injury apart from causes other than self-ear cleaning. All patients who did not give consent were also excluded from the study. The data obtained was collated and analysed using SPSS version 16.0. The data were expressed by frequency table, percentage, pie charts and bar charts. Ethical clearance was sought for and obtained from the ethical committee of the institution.

RESULTS

A total of 271 patients consented to the study out of which 247 had carried out ear cleaning. Prevalence of ear cleaning in this study was 91.1%. The peaked age group was 1–5 years representing 88 (35.6%). Figure 1 illustrates age group distribution of the patients.

Ear cleaning occurred more in males 132 (53.4%) than females 115 (46.6%) with a male-to-female ratio of 1.1:1. There were 213 (86.2%) Christians and 34 (13.8%) Muslims. Majority 138 (55.9%) of our respondents are urban dwellers while 109 (44.1%) lives in rural area. The educational levels of their parents were no formal education in 65 (26.3%),

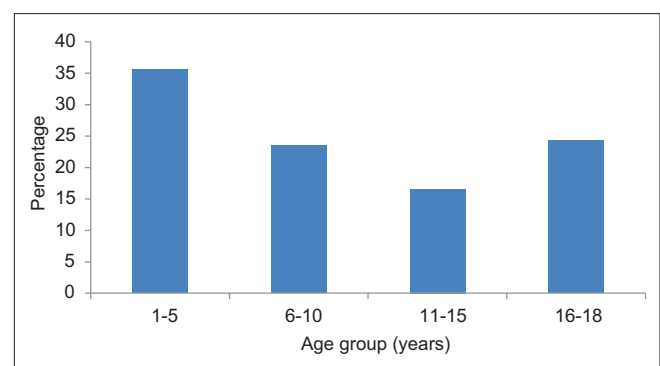


Figure 1: Age distribution

primary in 61 (24.7%), secondary in 68 (27.5%) and post-secondary in 53 (21.5%). Occupations of the parent were 81 (32.8%) artisans, 39 (15.8%) civil servants and 38 (15.4%) driver. Other includes farming in 29 (11.7%) and business in 26 (10.5%). Table 1 illustrates the socio-demographic features of patients.

In this study, common reasons for ear cleaning in children were personal hygiene, ear discharge and itching/irritation in 69 (27.9%), 43 (17.4%) and 42 (17.0%), respectively. Other reasons included hearing impairment in 31 (12.6%) and dirty/earwax in 24 (9.7%). Ear cleaning in children was done by 141 (57.1%) mother, 36 (14.6%) self, 31 (12.6%) friend, 22 (8.9%) siblings and 17 (6.9%) father. Table 2 shows indications for children ear cleaning.

Bilateral ears cleaning were the most common among the patients in 112 (45.3%). The right ear in 78 (31.6%) was more common than left ear in 57 (23.1%). About 162 (65.6%) of the patients believed that self-ear cleaning was beneficial, 27 (10.9%) were not sure whereas 58 (23.5%) claimed that it is not beneficial. Figure 2 shows the lateralisation laterality of ear cleaning among the patients.

Table 1: Socio-demographic features of patients (n=247)

Socio-demographic features	n (%)
Sex	
Male	132 (53.4)
Female	115 (46.6)
Religion	
Christian	213 (86.2)
Muslim	34 (13.8)
Residential	
Urban	138 (55.9)
Rural	109 (44.1)
Parent education level	
Nil	65 (26.3)
Primary	61 (24.7)
Secondary	68 (27.5)
Postsecondary	53 (21.5)
Parents occupation	
Applicant/unemployed	34 (13.8)
Business	26 (10.5)
Driver	38 (15.4)
Civil servant	39 (15.8)
Farming	29 (11.7)
Artisans	81 (32.8)

Table 2: Indications for children ear cleaning

Indications	n (%)
Personal hygiene	69 (27.9)
Ear discharge	43 (17.4)
Itching/irritation	42 (17.0)
Hearing impairment	31 (12.6)
Blockage	15 (6.1)
Water	23 (9.3)
Dirty/earwax	24 (9.7)
Total	247 (100.0)

In this study, the commonly used object in ear cleaning were a cotton bud, finger, sticks and writing material in 87 (35.2%), 46 (18.6%), 34 (13.8%) and 33 (13.4%), respectively. Other used objects were 29 (11.7%) keys, 28 (11.3%) towels and 11 (4.5%) toothpick. Table 3 demonstrates common objects for ear cleaning.

Common clinical features among the patients were dirty/earwax, otalgia and itching in 83 (33.6%), 76 (30.8%) and 64 (25.9%), respectively. Others were 28 (11.3%) ear discharge and 27 (10.9%) bleeding. Table 4 demonstrates clinical features among the patients.

Short time (acute) ear cleaning was more common and accounted for 143 (57.9%) while long time (chronic) ear cleaning accounted for 104 (42.1%). Common short time duration were (9–12) weeks in 78 (31.6%) and (5–8) weeks in 43 (17.4%). The frequency of ear cleaning in these patients was daily in 138 (55.9%), weekly in 53 (21.5%), monthly in 31 (12.6%) and occasional in 25 (10.1%).

Major clinical diagnoses of ear cleaning in children were 65 (26.3%) personal hygiene, 48 (19.4%) allergy and 44 (17.8%) earwax impaction. Others diagnoses were 41 (16.6%) hearing loss and 34 (13.8%) otitis externa. Table 5 shows the diagnosis among the patients.

Common complications were external auditory canal injury in 80 (32.4%), impacted foreign body in 53 (21.5%) and traumatic perforated tympanic membrane in 16 (6.5%). No complication was recorded in 98 (39.7%). Figure 3 shows complications among the patients. Sources of information on ear cleaning was from a family in 106 (42.9%), from neighbourhood in 73 (29.6%) whereas 68 (27.5%) did not obtained information from anywhere. All patients had health education. Treatment given apart from health education and counselling included conservative/medical

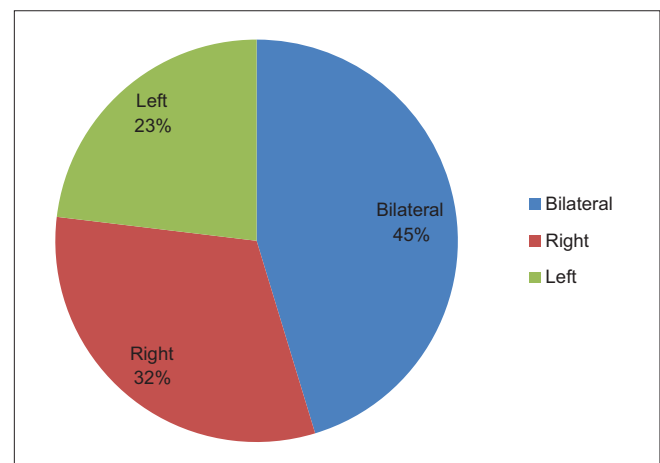


Figure 2: Lateralisation of patient's ear cleaning

Table 3: Common objects for ear cleaning (n=247)

Objects	n (%)
Cotton bud	87 (35.2)
Finger	46 (18.6)
Keys	29 (11.7)
Sticks	34 (13.8)
Toothpick	11 (4.5)
Writing material	33 (13.4)
Towels	28 (11.3)
Paper roll	9 (3.6)
Total	247 (100.0)

Table 4: Clinical features among the patients

Clinical features	n (%)
Hearing loss	46 (18.6)
Otalgia	76 (30.8)
Tinnitus	21 (8.5)
Dirty/earwax	83 (33.6)
Ear discharge	28 (11.3)
Bleeding	27 (10.9)
Itching	64 (25.9)
Total	247 (100.0)

Table 5: Clinical diagnosis among the patients

Diagnosis	n (%)
Allergy	48 (19.4)
Earwax impaction	44 (17.8)
Hearing loss	41 (16.6)
Otitis media	15 (6.1)
Personal hygiene	65 (26.3)
Otitis externa	34 (13.8)
Total	247 (100.0)

Table 6: Management of the patients

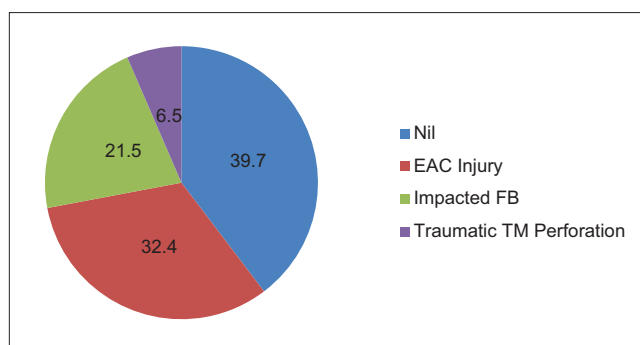
Management	n (%)
Health education/counselling**	All patients: 247 (100)
Conservative/medical treatment	150 (60.7)
Foreign-body removal	53 (21.5)
Earwax removal	44 (17.8)
Total	247 (100.0)

**All patients had health education/counselling

treatment in 150 (60.7%), foreign-body removal in 53 (21.5%) and impacted earwax removal in 44 (17.8%). Table 6 shows management of the patients.

DISCUSSION

The practice of ear cleaning in children is very common with high prevalence in the studied patients. The findings in this study are consistent with value those from other studies.^{1,2} Like in this study the prevalence of self-ear cleaning has been persistently above 90%.^{1,2} Children ear cleaning was the most common among the pre-school age (1–5) years. Based on this these findings, there is a need for wide antenatal and primary health centre training to educate mothers, health workers and the general population about the danger in ear cleaning to reduce the prevalence.

**Figure 3: Complications of ear cleaning.** NB: EAC-External auditory canal, FB-Foreign body, TM-Tympanic membrane

In this study, most of the patients were male and urban dwellers as compared to document in other studies.¹⁵⁻¹⁷ Male gender preponderance was observed which is different from other studies with a female preponderance.^{15,16} This may be due to higher activities of paediatric male gender. Gender parity findings may likely be by chance since the disparity is slight. Furthermore in this study, many patients travelled long distance to reach otorhinolaryngology services in the state capital. This may constitutes structural, accessibility or geographical barriers to access basic health care.¹⁷

The wide practices of ear cleaning in children were self-prescribed. The most common reason for children ear cleaning is personal hygiene to remove collection in the ear and prevent both ear and body odour. Itchy or irritating ear due to allergy, object and infections were soothed by ear cleaning. Personal and home removal of dirty/earwax to prevent hearing impairment and ear blockage were common components of body cleaning in paediatric care. Ear cleaning was also practice to remove water from the ear after bath. It is used for removal of ear discharge due to otitis media or externa. These findings concur with record from other studies.^{2,4,18,19} Ear cleaning in children was commonly done by mother who is always with children. This act is followed by self (children) then siblings by imitation of their mother role and least in the act is father who is always at work fending for family needs.

Bilateral ear cleaning was major finding in this study. This is similar to observation from the previous study.²⁰ Bearing in mind the major indications for self-ear cleaning like personal hygiene, itching, earwax impaction and water in the ear commonly occurred in both ear. Unilateral ear cleaning were less common as this may be due to unilateral otological pathology. Bilateral otological conditions may be reasons why many patients view this practice to be beneficial. Due to the social effect, few patients claim it is not beneficial because it is associated with ear disorders.

This study revealed cotton bud as the most common object used to clean the ear canal in children and infant in particular. In some parent, cotton buds were part of baby care materials bought for the baby care. Other objects used by grown-up children included fingers, writing materials, keys, feathers, stick and towels. This depends on the available object in the patient's environment. This finding is similar to the reports in previous studies.^{21,22}

In this study, the most common clinical features among the patients were earwax at osteocartilaginous junction of external ear which is subsequent to ear cleaning. Earwax impaction prevented sound wave conduction to the tympanic membrane may lead to hearing impairment and tinnitus in the patients. Otagia resulted from bruises sustained and superimposed otitis externa are from ear cleaning. Itchy ear from allergy, earwax, infections and object in the ear commonly induce ear cleaning.

In this research work, patients cleaned their ear canal very often with varied duration and frequency. Majority cleaned their ear for more than a period of 3 months before this study and has become habitual or chronic ear cleaner. Hence, it has become a regular activity in the studied patients just like regular bathing and teeth brushing. On the frequency of ear cleaning, more than half of the patients cleaned their ear every day while very few cleaned their ear weekly, monthly and occasionally. This is concomitant to findings in another study.²

Common diagnosis of children ear cleaning in this study were personal hygiene, allergy, earwax impaction and hearing loss. Unless diagnosis was made and appropriate treatment was instituted, it may be difficult to stop self-ear cleaning practice. Other diagnosis included otitis externa and media. These findings were also recorded in previous studies.^{1,4,7,11,12}

This study revealed no complication in more than third patients. This may be because they are chronic abusers of the ear and are more careful. Common complications of ear cleaning in children in this study were external auditory canal injury, impacted foreign body and traumatic perforated tympanic membrane. Similar reports were documented in previous studies.^{23,24} Some of the studied patients had no previous information on self-ear cleaning while the majority had information from family and neighbourhood. This concurred with findings in other studies.^{25,26} Adequate management of this bad health habit requires health education at all levels. The health workers and otorhinolaryngologist, head-and-neck surgeon to give health talk to patients and continuous medical education

of the members of the community. Individual patients were treated on the diagnoses and associated complications by medical and conservative treatment. Other treatment included earwax and foreign-body removal.

Limitation of this study being a hospital-based study; information may not represent the general population. Furthermore, error of bias can occur, especially when administering the questionnaire.

CONCLUSIONS

The study showed that ear cleaning is a common otological habit in children with a prevalence of 91.1%. Personal hygiene was the most common reason for ear cleaning and with cotton bud being the most common object used. The habit is associated with avoidable complications. Health education and treatment of underlying causes are paramount to reduce this habit.

Acknowledgements

The authors are most grateful to Ekiti state university teaching hospital and all the patients who participated in this study.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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