Preventable Risks in the Management of Aural Foreign Bodies in Western Nigeria

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Abstract

Background: Inserted foreign bodies in the ears are usually heralded by instantaneous attempts at removal by any caregiver with resultant injuries of variable magnitudes. Our aim is to describe the antecedent problems associated with this act and recommends possible preventive measures.

Methods: This is a 10-year retrospective study of four hundred and nineteen patients with foreign bodies (FB) in the ear seen in the Otorhinolaryngology Department of the University College Hospital, Ibadan from 1997 – 2007.

Results: Of the 419 patients with aural foreign bodies that were reviewed, 105 (25.1%) had prior attempts at removal mainly with sharp instruments by various caregivers before referral Otorhinolaryngologists. This was complicated by canal abrasion 96(91.4%), traumatic tympanic membrane rupture 87(82.9%), foreign body in the middle ear 18(17.1%) and hearing impairment 72(68.6%). However, among 314 patients who had primary removal done by the Otorhinolaryngologists, 22(7.0%) had complications; canal abrasion 22(7.0%), tympanic membrane rupture 9 (2.9%) and hearing impairment 6 (1.9%).

Conclusion: Removal of aural foreign bodies is associated with risks of complications. Skills seemingly appear imperative for its successful removal and safety measures should be adapted for its removal. Failed attempt should prompt immediate referral to the specialists while repeated attempts discouraged.

INTRODUCTION

Any conceivable object that can enter the ear is a potential foreign body (FB) among children and adults[1, 2]. Children being naturally inquisitive, commonly explore all the orifices in their body or those of their playmates, including the ear with resultant lodgments of FB[3]. The mentally deranged adults are guilty of similar offence while the mentally balanced inadvertently could get foreign bodies inserted in their ear canals. It is also recognized that the irritation of the external ear caused by otitis external may induce a child or an adult to place some object into external auditory canal[4]. However, if already inserted, it must be removed but this is not without various degrees of risk as most people out of overzealousness believe they can and actually make overt attempts. The technique and expertise of who is removing the FB is very important[5, 6]. Therefore, the aim of this study is to evaluate the clinical spectrum of foreign bodies in the ear as seen in the Western Nigeria, identify the complications associated with its removal and create awareness/make recommendations on the preventable risks associated with its removal.

MATERIALS AND METHODS

This is a 10-year retrospective study of all patients managed for foreign body in the ear at Otorhinolaryngology Department of University College Hospital, Ibadan from 1997 –2007. Patients' data collected from their case notes included demographic data (age, sex), type of foreign body and the ear involved, history of prior attempted removal before presentation, methods of removal and the associated complications. The results were tabulated and statistically analyzed using statistical package for social sciences version 11 (SPSS 11).

RESULTS

Four hundred and nineteen cases of foreign bodies in the ears were reviewed between April 1997 and March 2007. There were 220(52.5%) male and 199(47.5%) female with a sex ratio of 1.11: 1(M: F). The age ranged from 2 years to

59years with a median and mean age of 4.7years and 10.9years respectively (Table 1). Of the 419 cases, 338 (80.7%) were 15years old or less while the remaining 81 (19.3%) were more than 15years old (Table 1).

Figure 1

Table 1: Age distribution

Age Range	Frequency	Percentage (%)
1 – 15	338	80.7
16 – 30	35	8.3
31 – 45	23	5.5
46 – 60	23	5.5
Total	419	100.0

The duration of symptoms ranged from 30minutes to twelve days. Three hundred and fifty two (84.0%) patients presented to the hospital within 24hours of insertion. The foreign bodies were found in the right ear in 291 (69.5%) cases and 128 (30.5%) in the left ear. The most common ear foreign body in this study was cotton wool which accounted for 21.7% in both children and adults. The details of the varieties of foreign bodies found in the ears from this study are shown in Table 11.

Figure 2

Table 2: Common foreign bodies in the ears

Foreign Bodies	Children (≤ 15years)	Adults (> 15years)	Total	%
Cotton wool	18	73	91	21.7
Beads	74	-	74	17.7
Seeds	67	-	67	16.0
Foam	32	-	32	7.6
Stone	39	-	39	9.3
Crayon	27	-	27	6.4
Broken lead of pencil	19	-	19	4.5
Insect	7	5	12	2.9
Broom stick	16	-	16	3.8
Maggot	1	-	1	0.2
Back stopper of biro	14	2	16	3.8
Part of ear-ring	6	-	6	1.4
Eraser	8	-	8	1.9
Battery	1	-	1	0.2
Piece of feather	7	1	8	1.9
Sweat wrapper	2	-	2	0.5

The clinical presentations of foreign bodies in the ear in this study showed history of insertion of objects (90.9%) constituting the majority followed by Otalgia (71.10%). Purulent ear discharge is seen in (4.1%) of the cases (Table 111).

Figure 3

Table 3: Clinical presentations of foreign bodies in the ears

Clinical presentations	Incidence
History of insertion of foreign bodies	381(90.9%)
Otalgia	298(71.1%)
Purulent ear discharge	17(4.1%)
Impaired hearing	128(30.5%)
Bleeding from the ear	97(23.2%)
Tinnitus	57(13.6%)

In this study, 105(25.1%) had an attempted removal by the non-ENT specialists and untrained hands before referral and 314 (74.9%) patients had primary removal done by Otorhinolaryngologists. The complications reported were shown in Table 1V.

Figure 4

Table 4: Clinical findings in the ear after foreign body removal

Clinical findings	Non-ENT specialists	Otorhinolaryngologists
Canal abrasion	96(91.4%)	22(7%)
T. M rupture	87(82.9%)	9(2.9%)
Middle ear involvement	18(17.1%)	-
Impaired hearing	72(68.6%)	6(1.9%)

Materials used for attempted removal by the untrained included biro cover in 49 (46.7%), pointed metallic object 22 (21.0%), broom stick 25(23.8%) and fluid in 9 (8.5%).

DISCUSSION

Foreign body in the ear is a common clinical presentation and one of the daily challenges being faced by both home caregivers and the clinicians. The natures of foreign bodies removed from the ears were simply in the range of small objects within the reach that can enter into the external ear canals[7]. Foreign bodies in the ears constitute potential dangers and therefore should be removed promptly.

In the western part of Nigeria with high humidification, hygroscopic foreign bodies in the external ear canals can readily absorb sweat and become swollen thereby causing pain in the ear (Otalgia). Alkaline battery in the ear is capable of producing liquefactive necrosis extending into deep tissues[8]. Most times, removal of the foreign bodies from the ear had been attempted by either the anxious caregivers or non-ENT specialists before referral to the Otorhinolaryngologist. These failed attempts are usually associated with preventable injury of varying degrees to the ear[9, 10]. We believe that knowledge and awareness of these risks would prevent or help minimize these complications.

Most of the patients with foreign body in the ear were found to be between 2 and 59 years with mean age of 10.9 years (Table 1). About 81% of the cases occurred in children and the majority, 269(64.2%) were in patients aged 5 years and less. The preponderance of cases of foreign bodies in children is not surprising since these are the inquisitive, restless and explorative age group[3]. Again, the higher male ratio tends to lay further credulence to the relative higher energy dissipation in this sex. Furthermore, there is now an increasing number of working class mothers in our society that leave their children to the care of others including fellow children, who may not give an adequate care and monitoring. This may be a factor. Children's' ‘entropy' (i.e. explorative activities and energy dissipation) tend to decrease with maturity, therefore it is expected that the incidence of foreign bodies in the ear should reduce with increasing age, as seen in our series and other studies[7, 11].

The right ear is more involved in this study and this may be due to the fact that right handedness predominates in the general population[7, 12]. The range of foreign bodies found in the ear is similar to what had been reported[7, 12]. However, bead is the most common foreign body in the ear among the pediatric age group in this study and it accounted for 21.9%. This is at variance with seed which was reported in previous studies[1, 7, 11]. This may be because beads are now frequently been used in this environment to either decorate the hair of female children or used in making local neck lace. Cotton wool, apparently dislodged during ear cleaning, accounted for the highest percentage in the adults. Patients and indeed the entire populace, need to be educated on the need to desist from cleaning the ear with cotton bud as the tip can easily get detached and lost into the ear canal. The external auditory canal does not require cleaning as there is a natural cleaning mechanism which occurs through the process of epithelial migration which is aided by jaw movement[13]. Besides, when the ear itches, the tip of the finger could be used do depress the tragus into the ear canal repeatedly and such will provide the required relieve.

Foreign bodies are better kept away from the reach of children and where it is not possible; adults should keep an eye on them. When foreign bodies have been inserted into the ear, they must be safely removed without inflicting further injury on the ear. If the foreign body is easily seen and the patient is cooperative, it is usually possible to remove the foreign body under good vision without Anaesthesia. However, in an uncooperative individual or children, or instances when it is lodged within the middle ear cavity, it should be removed under general anesthesia and otomicroscopy which will provide magnification and assist in judging rightly the space between the foreign body and the canal wall or tympanic membrane.

In this study, the complications that followed attempted removal of foreign bodies in the ears by the non ENT specialists are shown in Table 1V. This difference observed was statistically significant ($p < 0.005$). Sharp objects used under poor visualization to attempt the removal should be discouraged as these can easily injure the canal wall causing otitis externa or push the foreign body deeper into the canal, even into the middle ear unknowingly. Non hygroscopic objects could be syringed using normal saline at body temperature[14]. Live insects in the ear should first be killed by instillation of suffocating fluid before extraction[4, 7, 15]. In our center, we use olive oil which does not cause skin irritation. The materials that are usually used for removal of foreign bodies in the ear by the Otorhinolaryngologists include Jobson Holm's probe, aural curette, aural foreign body forceps or ear syringing with normal saline at body temperature where appropriate. This is usually done under good light illumination and direct visualization of the foreign body. In some instances, otomicroscopes are used.

In this study, 43 (10.3%) cases had successful removal of foreign body done under sedation and otomicroscopy. This is the best method in an uncooperative individual with impacted ear foreign body. Post-aural tympanotomy may be required for the removal of impacted foreign bodies within the middle ear.

In conclusion, removal of aural foreign bodies is associated with risks of complications especially when performed by the untrained and non-ENT specialists. Expertise and skills seemingly appear imperative for its successful, uncomplicated removal. If there is urgency in the removal of the ear foreign body by any caregiver, it must be by a medical personnel who should adapt safety means of removal. Failed attempt should prompt immediate referral to the Otorhinolaryngologists and repeated attempt should be discouraged. The awareness of the associated risks and complication with a good clinical practice, will reduce hearing disability and other associated morbidities.

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