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RESEARCH ARTICLE

THE REALITY OF OTOLOGIC FOREIGN BODIES

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ABSTRACT

Objectives:
To determine the prevalence of aural foreign bodies, modes of presentations, types, removal process and associated complications in a sub-urban health facility.

Patients and methods:
This was a retrospective study conducted on consecutive patients presenting with suspected foreign body in the ear to the Otolaryngology (ENT) clinic of Imo State University Teaching Hospital (IMSUTH) Orlu over two years. The prevalence, mode of presentation, foreign body types, removal methods and complications were evaluated.

Results:
A total of one hundred and thirteen patients, males 56 (49.6%) and females 57 (50.4%) with ear foreign body were studied. The ages ranged from 1.5 to 65 years, with a mean age of 17.5 years. Children outnumbered adults with majority of the cases in the 1 – 5 years age group. The most frequent symptoms at presentation were ear fullness 32(24.5%) and 31(23.3%) were asymptomatic. Cotton bud ranked the highest foreign body (25.7%) recovered. Majority (50.4%) of the foreign bodies were lodged in the right ear. The foreign bodies were successfully removed in the clinic with out any complications.

Conclusions:
Aural foreign bodies were found more frequently in children. A variety of foreign bodies were recovered and they differed with age group and mirrored the activities of the aged group concerned. Complications can be avoided with timely and skilful intervention.

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INTRODUCTION

Foreign bodies in the ear are not an uncommon clinical presentation. Children are prone particularly to this affliction but adults are not exempted. Most foreign bodies are introduced into the external auditory meatus by the patient. The objects found can be animate or inanimate; organic (pieces of paper, rubber, pencil, seeds, peas, beans etc) or inorganic (beads, buttons, crayons and stones). Several factors may lead children to insert foreign bodies intentionally in to their ears , including curiosity, the wish to explore the orifices of the body, irritation caused by otalgia, attraction to small, round objects, or simply for fun (Bressler and Shelton, 1993). In many cases, patients with foreign bodies in the ear are asymptomatic, and in children the foreign body is often an incidental finding (DiMuzio and Deschler, 2002, Brown *et al*., 2004).

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Despite this, foreign bodies in the ear canal can be a source of significant morbidity either by its mere presence or by attempt at/or mode of removal. This is particularly true in a resource limited facility and environment. The study was designed to analyze the prevalence of aural foreign bodies in different age groups, the clinical presentations, types of foreign body, the techniques of removal and complications in a sub-urban tertiary healthy facility located in South East Nigeria. The out come of the study is expected to provide an insight into the load of foreign bodies in the ear and the desired techniques of removal/retrieval in our environment in the phase of our peculiarities. It would also aid in the formulation of guidelines regarding the appropriate management of foreign bodies in the ear.

PATIENTS AND METHODS

This was a retrospective study done on consecutive patients who presented with suspected foreign body in the ear to the

ENT clinic of Imo State University Teaching Hospital (IMSU) Orlu from January 2012 to December 2013. IMSU is a tertiary health facility located in a sub-urban town with limited facilities for rendering expert medical care. Patients were referred to the clinic either direct from outside the hospital or through the accident and emergency department or the out patient clinics and wards. Data were collected from patients' records in the clinics, emergency department and wards. The parameters accessed included patients' demographics - age, sex; clinical features, side of foreign body lodgement, types of foreign bodies, and complications. The use of investigations where applicable were also noted. The foreign bodies were removed mainly by the use of probe (Jobson Horne), forceps (Tilley's, crocodile or alligator), suction catheter, and by syringing or water irrigation. Direct vision with battery operated headlight was employed. Data were analyzed using SPSS 15 and presented in tabular and descriptive forms. ETHICS Prior to commencement of the study approval was obtained from the institution's Health and Research Ethics Committee (Institutional Review Board).

RESULTS

There were 113 patients with ear foreign bodies. Males were 56 (49.6%) and females 57 (50.4%), with a ratio 1:1.02. The mean age was 17.5 years, with a range of 1.5 to 65 years. The age distribution is shown in Table 1. The majority of the cases were in 1 – 5 years age group 48(42.5%). Children aged 1 – 15 years constituted more than half of the cases 72(63.7%). The rest 41(36.3%) were adults aged 16 – 65 years.

The commonest presentation was ear fullness at 32(24.5%), followed by asymptomatic cases 31(23.3%), as depicted in Table 2. Other means of presentation included ear pain 16(12.0%), ear bleeding 5(3.8%), impaired hearing 23(17.3%), tinnitus 9(6.8%), ear itching 15(11.3%) and ear discharge 2(1.5%). Table 3 listed the types of foreign bodies removed. The most populous object (FB) was cotton bud 29(25.7%). Animate foreign bodies made up 5(4.4%) while the rest were inanimate. Unnamed foreign bodies were 22(19.5%) and foreign bodies were not seen in 9(8.0%) of the ears. The right ear harboured 50.4% of the foreign bodies, left ear 46.1% and 3.5% involved both ears. Removal of the foreign bodies were successfully done in the clinic. There was no use of general anaesthesia or sedation before removal. Except for those that presented with bleeding or ear discharge, there was no complication encountered during the removal of the foreign bodies.

Table 1: Age Group of Patients

Age group	Number of patients	Percentage (%)
1 – 5	48	42.5
6 – 10	16	14.2
11 – 15	8	7.1
16 – 20	3	2.7
21 – 25	5	4.4
26 – 30	5	4.4
31 – 35	3	2.7
36 – 40	5	4.4
41 – 45	6	5.3
46 – 50	4	3.5
51 – 55	5	4.4
56 – 60	2	1.8
61 – 65	3	2.7

Table 2: Clinical Presentations of Patients

Symptom	Number	Percentage (%)
Ear fullness	32	24.5
Asymptomatic	31	23.3
Impaired hearing	23	17.3
Ear pain	16	12.0
Ear itching	15	11.3
Tinnitus	9	6.8
Ear bleeding	5	3.8
Ear discharge	2	1.5

Table 3: Types of Foreign bodies recovered

Foreign body	Number	Percentage (%)
Cotton bud	29	25.7
Unnamed	22	19.5
Bead	15	13.3
Button battery	11	9.7
No Foreign Body seen	9	8.0
Ants and insects	5	4.4
Pellet	4	3.5
Stone	3	2.7
Feather	3	2.7
Pencil stick	2	1.8
Ear ring hook	2	1.8
Metallic hook	1	0.9

DISCUSSION

The study showed a rich presence of foreign bodies in the ear. This mirrored many results published by other authors (Chinski *et al*., 2011, Tiago *et al*., 2006, Chai *et al*., 2012). However, some reports did not find ear foreign bodies as common (Moorthy *et al*., 2012, Sim *et al*., 2005). This may be dependent on the location, age group and the duration of the study. There is no gender predilection observed in our study as was the case with another study either for nose or ear foreign bodies(Moorthy *et al*., 2012) The fact that the study included children and adults alike may explain this finding, as against studies limited to children(Sim *et al*., 2005, Aremu *et al*., 2011) where males predominated. The average age was 17.5 years, which was apparently similar to some other studies (Bressler and Shelton, 1993, Tiago *et al*., 2006). The highest incidence of foreign body in this study occurred in 1- 5 years age group which constituted 42.5% followed by 6 – 10 years age group 14.2% . This corresponds to the age group when children start to explore their surrounding environment with sense organs; eager to touch, smell, and taste objects within their reach. Beyond the 11- 15 age group, cases of foreign body in the ear had a near balanced distribution. In these age groups foreign bodies were introduced in to the ear accidentally, such as during the act of scratching the ear with cotton buds (29 cases) or feather (3 cases). The commonest presentations of our patients were ear fullness 32(24.5%) and asymptomatic 31(23.3%). Asymptomatic presentation of foreign bodies in the ear were frequent with many other studies (DiMuzio and Deschler, 2002, Brown *et al*, 2004,

Chinski *et al*., 2011, Tiago *et al*., 2006). In this regard the physician has to maintain a high index of suspicion especially in children as many studies conducted showed that high suspicious index was crucial in diagnosing paediatric foreign bodies (Endican *et al*., 2006). Ear discharge, though not a prominent symptom in the study should not be glossed over especially when combined with otalgia as it had attracted the presentation, identification and removal of an unusual foreign body in the ear (Nwosu *et al*., 2014). The types of foreign bodies recovered in the study varied widely. This reflected the findings in literature as the range of nasal and aural foreign bodies that present to the emergency department is limited only by imagination (Molhotra *et al*., 1970). The types of foreign bodies vary with age groups. While beads (13.3%), batteries (from toys and calculators) (9.7%), seeds or nuts (6.7%) and pellets (3.5%) were the commonest foreign bodies in children; cotton buds (25.7%), ants and insects (4.4%) and feather (2.7%) were found to be the commonest foreign bodies in the adult ears. This corroborated the findings of (Chai *et al*., 2012) and reflected the activities of the age group affected. The occurrence of insects as ear foreign bodies (4.4%) is not unusual. The incidence was 4.2% in Chai *et al*., and as high as 14% in a study conducted by (Antonelli *et al*., 2001). The removal techniques in the study paid off as virtually no complications were recorded. This positive outcome could be a consequence of interplay of several factors: adequate immobilisation (Bressler and Shelton, 1993), timely intervention and adoption of appropriate technique (Chinski *et al*., 2011). Success in removing ear canal foreign bodies also depended on other factors, such as the size and shape of the foreign body, the ability to visualize the foreign body, repeated attempts at removal of the foreign body, the equipment available for foreign body removal, and the experience of the individual attempting the removal (Schulze *et al*., 2002). Graspable foreign bodies (e.g, foam, rubber, paper, vegetable material) have higher rates of success for removal under direct visualization. In contrast, non graspable foreign bodies (e.g, beads, pebbles, pop corn, kernels) have lower rates of successful removal and are associated with more complications, particularly canal lacerations(Thompson *et al* 2003).

Some studies have shown that smooth and spherical foreign bodies have the worst outcome (DiMuzio *et al*., 2002, Schulze *et al*., 2002). DiMuzio and Deschler found that the complication rates for smooth-surfaced objects were higher than those of irregularly-shaped objects: 70% versus 14% ($p < 0.001$), which is understandable as the objects cannot be easily grasped. It was found that spherical foreign bodies were associated with the least success rate for removal and the highest complication rate, and the complication rate showed the greatest dependence on the presence or absence of multiple attempts (Schulze *et al*., 2002). Any failed attempt at removal of foreign body ignites apprehension in the patient whether adult or child. Therefore the physician has only one or two chances before the patient looses his patience and becomes uncooperative. Further attempts with an uncooperative child will lead to complications, parental and patient distress (DiMuzio and Deschler, 2002). Perhaps it was in recognition of this that Ludman 1996, stated ´ On initial inspection, the foreign body may be seized and removed with forceps before the child is aware of the result'. The first attempt is likely to be the most successful (Bressler and Shelton, 1993) as repeated trials not only cause further swelling and bleeding but also compromise patient's cooperation (Ransome 1992). Life insects seen in adults cause a lot of distress and apprehension and has to be tackled differently. A cotton tampon moistened with ether will stupefy the insect within five minutes or they may also be rendered hors de combat by instilling simple oil or mixed with chloroform or benzol which will seal the openings in the sides of the thorax of the insect through which the insect breaths. Then it can be removed manually or by syringing. Live animate foreign bodies in the ear should be killed before removal. This is best achieved by filling the ear canal with a liquid such as olive oil, methylated spirit or lignocaine (Bear, 1991, Votey and Dudley, 1989). Lignocaine also appears to have a more specific irritant effect that drives insects, specifically cockroaches from the ear canal (O'Toole *et al*, 1984). Antonelli *et al*, further stated that live insects can be killed rapidly by instilling alcohol, 2% lidocaine (xylocaine), or mineral oil into the ear canal. This should be done before removal is attempted but should not be used when the tympanic membrane is perforated (Antonelli *et al*, 2001). Impacted vegetative foreign body in the ear may be shrunk by instilling absolute alcohol or anhydrous glycerine and can be removed with ease. Ear syringing or irrigation with sterile water or normal saline at body temperature was used in a reasonable number of our cases. The flow should be brisk and aimed at the superior aspect of the ear canal (Votey and Dudley, 1989). Perforation of the ear drum or foreign body composed of vegetable matter, which would swell, are contraindications (Bressler and Shelton, 1993). Irrigation should be avoided in patients with button batteries in the ear because the electrical current and/or battery contents can cause liquefaction tissue necrosis (McRae *et al*., 1989).

The right ear harboured most of the foreign bodies (50.4%). The findings were consistent with study conducted by Hon *et al*. which postulated that it was contributed by right handedness (Hon *et al*., 2001). In addition, a study conducted by Peridis *et al*, also demonstrated that handedness affect the site of ear foreign bodies in children (Peridis *et al*., 2009). However the handedness of the patients were not recorded in our study. Regarding the doubts or debates on whether or not foreign body in the ear canal is an acute emergency, it is worth stating that majority of the cases can see the light of the day. But in cases where the foreign body is jotting out (solid/sharp objects like sticks pins, needles etc) and/or live insects, have to be attended to urgently to avoid penetration into middle ear when accidentally touched with subsequent perforation of tympanic membrane, dislocation of the ossicles and even penetration in to the inner with permanent loss of hearing and intracranial complications.

Conclusion

Ear foreign bodies are common in both children and adults. In this study, the types of foreign bodies recovered varied widely along the age groups and related to the activities of the group. Adequate visualization, appropriate equipment, a cooperative patient, adequate immobilization and a skilled specialist were the keys to successful foreign body removal.

REFERENCES

Nwosu JN, Ohaneme AO, Mgbafulu DI. 2014. A germinating seed found in human ear: A case report. *Case Reports in Internal Medicine,* 1(2): 227 – 229.

O'Toole K, Paris PM, Stewart RD. 1984. Removing coakroaches from the auditory canal. *N Engl J Med.,* 312: 1197.

Peridis S, Athanasopoulos I, Salamoura M, Parpounas K. Koudoumnakis E. and Economides J. 2009. Foreign bodies of the ear and nose in children and its correlation with right and left handed children. *Int J pediatr Otolaryngol*, Feb; 73(2): 205 – 208.

Ransome J. 1992. In Scott-Brown's otolaryngology. 5th Ed. Oxford: Butterworths.

Schulze SL, Kerschner J, Beste D. 2002. Pediatric external auditory canal foreign bodies: a review of 698 cases. *Otolaryngol Head Neck Surg.,127*: 73 – 78.

Sim TP, Ng KC, Ngo A. Otorhinolaryngeal foreign bodies in children presenting to the emergency department. Singapore Med J 2005; 64(4): 172 – 178.

Thompson SK, Wein RO, Dutcher PO. 2003. External auditory canal foreign body removal: management practices and outcomes. *Laryngoscope*, 113:1912 – 1915.

Tiago RSL, Salgado DC, Correa JP, Pio MRB, Lambert EE. 2006. Foreign body in ear, nose and oropharynx: experience from a tertiary hospital. Brazilian Journal of Otorhinolaryngology March/April 72(2): 177 – 181.

Votey S, Dudley JP. 1989. Emergency ear, nose and throat procedures. *Emerg Med Clin North Am.,* 117 – 154.

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