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Original Article

Otic foreign bodies in children in Ibadan, Nigeria

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Abstract

BACK-GROUND Foreign bodies in the external auditory meatus are a common and sometimes challenging problem. A large variety of foreign bodies may be encountered in the external auditory meatus. Foreign bodies in the external ear canal present frequently particularly in paediatric population. The patients introduce most foreign objects, however insects may enter into the meatus accidentally. This study aims to evaluate the clinical profile and management of ear foreign bodies in children as seen in Ibadan, Nigeria.

METHODS A 5-year prospective study of 101 patients that presented with features of otic foreign bodies in the Ear, Nose and Throat Department of the University College Hospital, Ibadan, Nigeria between January 1998 and December 2002 was done. The diagnosis of otic foreign bodies in each subject was based on history and clinical findings at otoscopy.

RESULTS There were 58(57.4%) males and 43(42.6%) females with M:F of 1.3 :1 and with an average age of 6years. The duration of symptoms ranged from 4hours to 4years with 55(54.5%) presenting within 24hours of insertion. There were 2(2%) cases that presented very late, 6months and 4years respectively after insertion.

The common otic foreign bodies were seeds19(18.8%), beads18(17.8%), stones15(14.9%), and paper pieces 8(7.9%).The objects were found in the left ear in 51(50.5%) cases, right ear 48(47.5%),and in both ears in 2(2%)cases. 91(90.1%) of the cases were successfully treated by forceps extractions47(51.6%), syringing26(28.6%), extraction under general anaesthesia17(18.7%), and suction extractions 1(1.1%).

The complications caused by the otic foreign bodies itself were otitis externa8(7.9%), tympanic membrane perforation5(5%), external auditory canal laceration4(4%) and chronic otitis media 1(1%). No complications were associated with the extraction of the foreign bodies in this study.

CONCLUSION In conclusion younger children are the at risk group to habour otic foreign bodies. Proper instrumentation with adequate immobilization allows removal of many otic foreign bodies in the paediatric populations without complications in the hands of specialized personnel.

KEY WORDS: Foreign Bodies, Ears, children

Introduction

Foreign bodies in the external auditory meatus are a common and sometimes challenging problem. A large variety of foreign bodies may be encountered in the external auditory meatus [1] . The objects may be organic or inorganic. Organic foreign bodies include paper, cotton wool, rubber, seeds, etc while inorganic objects include beads, ball bearings, stones, and crayons [1- 4]. Foreign bodies are inserted into the ear more commonly by children than adults [5-7]. The patients introduce most foreign objects, however insects may enter into the meatus accidentally. They are generally benign and often asymptomatic but infectious complications may occur such as otitis externa particularly from organic foreign bodies as a result of local irritations of the epithelium of the meatal walls [5]. There are other clinical features apart from otitis externa attributable to a foreign body in the external meatus such as deafness, tinnitus and otalgia [1, 5].This study aims to evaluate the clinical profile and management of ear foreign bodies in children as seen in Ibadan, Nigeria

Patients And Methods

This is a prospective study of 101 patients who presented with history and clinical features of otic foreign bodies in the Ear, Nose and Throat Department of the University College Hospital, Ibadan, Nigeria between January 1998 and December 2002. Children patients with features of ear foreign bodies were recruited into the study. Data obtained from each patient during study included demographic data; presence of symptoms; which of the ear-affected by symptoms; duration of symptoms; nature of objects. These were followed by ear, nose and throat examination. Findings at examinations were documented particularly findings at otoscopy.

The diagnosis of otic foreign bodies in each subject was based on history and clinical findings at otoscopy. Treatment modalities for the removal of the foreign bodies were noted. Any associated complications from the foreign bodies or with its treatments were also noted.

Results One hundred and one patients with Otic foreign bodies were studied and managed between 1998 and 2002.There were 58(57.4%) males and 43 (42.6%) females with a sex ratio of 1.3:1 (M:F).The age ranged from 1 year to 16 years with a mean age of 6 years . The duration of symptoms ranged from 4 hours to 4 years and the most common time interval of presentations are as shown in table 1.There were 2 cases (2%) that presented very late, 6 months and 4 years respectively after insertion of the foreign bodies. The foreign bodies were found in the left ear in 51 (50.5%) cases, right ear 48 (47.5%), and in both ears in 2(2%) cases. The most common otic foreign bodies seen in this study were mainly seeds19%, beads18%, stones15% (Table 2). Other objects seen were pieces of paper8%, eraser (5%), ear- ring stud (4%), match-stick (4%), cotton bud (3%), metallic-object(3%), cell battery(1%), chalk(1%), and insect(1%). The seeds were mainly beans, rice grain, corn and orange seeds. We did not record more than one type of foreign body in any of the ear during the study. Ninety-one cases were successfully treated constituting 90.1% of the cases that were studied while the remaining 10(9.9%) cases were lost to treatment during the studied period. The treatment modalities used were forceps extraction in 47(51.6%), syringing 26(28.6%), removal under general anaesthesia 17 (18.7%) and suction extraction 1(1.1%) (Table 3). Most of the solid objects such as seeds, pieces of paper, stones and some of the beads were amenable to forceps extractions. Some of the small objects were amenable to syringing; where they closely fit the meatus this was not employed to prevent impaction of the foreign body. Those that failed first and second attempts at removal using either forceps or syringing were extracted under general anesthesia The complications due to the otic foreign bodies as seen in this study were mainly otitis externa 8(7.9%), tympanic membrane perforation 5(5%)and external ear canal laceration 4(4%) and chronic otitis media 1(1%) with complications rate of 17.9%(Table 4). These complications were diagnosed based on the clinical findings at otoscopy at the time of presentations and following the removal of the foreign bodies and they were attended to and treated accordingly at the time of the study

Table 1- Time to presentation

Interval	frequency
4 -8 Hours	12 (11.9%)
8 –24 Hours	43(42.6%)
48 –72 Hours	12 (11.9%)

Table 2- Most common otic foreign bodies

Types	frequency
Seeds	19 (18.8%)
Beads	18 (17.8%)
Stones	15 (14.9%)
Paper	8 (7.9%)

Table 3- Treatment of the foreign bodies

Method	frequency
Forceps extractions	47 (51.6%)
Ear syringing	26 (28.6%)
General anaesthesia	17 (18.7%)
Suction extraction	1 (1.1%)
Total number	91(90.1%)
Lost to treatment	10(9.9%)

Table 4-Complications due to otic foreign bodies

Complications	frequency
Otitis externa	8 (7.9%)
TM* perforation	5 (5%)
Canal wall laceration	4 (4%)
Chronic otitis media	1 (1%)
Total	18 (17.9%)

*TM-Tympanic-membrane

Discussion

In this study, most of the patients with Otic foreign bodies were found to be between 1 year and 16 years with an average age of 6 years. Furthermore, 65% were found to be between second and sixth years of life. There is a male predominance with otic foreign bodies as seen in this study with 1.3:1 (M:F). A little above half of the patients (55%) presented within 24 hours of insertion of the foreign bodies to the hospital for definitive treatments. There were 2 cases that presented very late, 6 months and 4 years respectively and both were beads. Thus some foreign bodies could be in external ear canal unnoticed for a long period before presenting or discovery.

Foreign bodies in the aero-digestive tract tend to present earlier and more promptly removed compared with ear and nose foreign bodies as these conditions tend to present with acute upper air-way obstructions and dysphagia and they are acute symptoms necessitating prompt treatment [1, 9]. Most of the foreign bodies were found in the left ear 50.5% followed by right ear 47.5% and in both ears in 2% of the cases in this study. However, Hon SK et al found a significantly higher proportion of foreign body in the right ear and nostril compared to the left [9].

The ear foreign object may be seen easily on otoscopy but if it has been in the meatus for some time it may become covered with wax. A major aetiological factor of foreign bodies in the ear is irritation caused by preexisting disease of the ear concerned[1, 6, 7]. Foreign bodies in the external ear can present frequently particularly in paediatric populations[5-8].

In a particular study, twenty-seven different objects were encountered with pebbles, beads, insects and plastic toys, being the most common.[2]. In another study by Balbani AP et al in Brazil of series of 187 cases of ear and nose foreign bodies in which there were 93 cases of ear foreign bodies, bean seeds were found to be the most common ear foreign bodies 23(24.73%) out of these 93 cases [1].

Ninety-one (90.1%) of the cases were successfully treated and rate of successful removal at first attempt after presentation was 81% using either forceps, syringing or suction extraction (Table 3) The appearance and nature of the objects at otoscopy guide us at least in deciding which choice of treatment modalities to employed in removing the foreign bodies. Those objects that are solid, large and irregular, forceps extraction were employed while those that are small objects syringing were employed. Those that failed first and second attempt at removal using either forceps or syringing were extracted under general anesthesia and constituted 18.7% of the cases. Large foreign bodies should be removed using small forceps or a blunt hook but forceps should not be used for smooth rounded objects, as they will tend to push them further down the ear canal [11, 12] . Small objects are mostly easily removed by syringing but this method must not be used where the foreign body closely fits the meatus, as it may become more deeply impacted [12]. In their patients, Ansley JF and Cunningham MJ found 57 (30%) required surgical removal of the aural foreign body under general anesthesia [2]. The use of general anaesthesia is preferred in very young children and in children of any age with aural foreign bodies whose contour, composition or location predispose to traumatic removal in the ambulatory setting.

In this study, there have not been any previous attempt of removal before presenting to our centre in most of them; only 2% had had previous attempts of removal. In a study by Balbani AP et al in Brazil of 187 patients with ear and nose foreign bodies, 86 (45.98%) have had previous attempts to remove them and thirteen cases with complications (canal lacerations, tympanic membrane perforation) were observed in these patients in whom these previous attempts had been made [1]. In another study by Bressler K and Shelton C in America, 53% of their 98 cases had undergone one or more previous attempts at removal prior to the Otolaryngologist attempt usually by an emergency room physician[10]. Expert care is desired for a seemingly minor problem. It is hoped that this awareness would continue so that the risks of complications would be minimized from attempted removal. Otitis externa (8%) constituted the main complication from the otic foreign bodies itself followed by tympanic membrane perforation (5%), external canal lacerations (4%) and chronic otitis media (1%) (Table 4). Suspicion of a foreign body should be maintained in any child presenting with a complicated otitis externa[14].

Prompt evaluation and removal of button batteries foreign bodies are necessary to prevent tissue destruction as they cause extensive liquefactive necrosis of the surrounding tissue by leaking an alkaline electrolyte solution resulting into severe otitis externa[13,14]. There was a case of button batteries foreign body in this study. There were no complications seen from the process of the otic foreign bodies removal in this study except those already caused by the presence of the foreign objects in the ear canal.

Conclusion

In conclusion, younger children are the at risk group to habour otic foreign bodies, a little above half (55%) of these children presented to the hospital within 24hours of insertion of the foreign bodies, the most

common objects encountered were seeds, beads, stones, pieces of paper with right and left ear almost equally involved and affected. Majority (80.2%) of them were amenable to treatments with out associated complications using either forceps or syringing thus expert care is desired for otic foreign bodies though they look seemingly minor problems, in order to avoid complications.

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