

Original Article

Aural Foreign Bodies in Children

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ABSTRACT

Objective. Foreign body in the ear is commonly encountered in children by primary care givers, emergency department Physicians, Pediatricians and Otolaryngologists worldwide.

Methods. We reviewed cases of aural foreign bodies in children seen in our centre over a five-year period with the aim of auditing our current practice and suggesting possible improvements suited for developing countries.

Results. Grains and seeds (27.9%), beads (19.7%), cotton wool (13.6%), paper (8.8%) and eraser (8.2%) formed the bulk of the aural foreign bodies. About 96% was removed without general anesthesia by using Jobson Horne's probe or aural dressing forceps (73.8%) under direct vision; or by syringing (22.1%). Some 4% had to be removed in the operating theatre under general anesthesia. The complications observed include bruise or laceration and bleeding from the external auditory canal (16.3%), otitis externa (6.5%) and traumatic perforation of the tympanic membrane (1.7%).

Conclusion. Despite a high proportion of cases managed in the office setting, complication rates were within acceptable levels. There is need to develop practical criteria that will be beneficial to primary health care givers to determine which patients could be managed in the primary care setting with acceptable outcome. [Indian J Pediatr 2007; 74 (8) : 5-8] E-mail : foluologe@yahoo.com

Key words : Aural; Foreign bodies; Children; Audit

Foreign body in the ear is commonly encountered in children by primary care givers, emergency department Physicians, Pediatricians and Otolaryngologists worldwide.¹⁻⁴ This apparently simple problem could lead to significant morbidity and require costly management if it is not appropriately treated from the onset.^{3,5}

In the developed world there are established, and continually evolving, protocols for its management.^{3,5-9} However, in resource poor regions of the world such protocols are in the process, if at all, of being developed.

We reviewed cases of aural foreign bodies in children seen in our centre over a five-year period with the aim of auditing our current practice and suggesting possible improvements suited for developing countries.

MATERIAL AND METHODS

This is a retrospective review (January 2000 to December 2004) of aural foreign bodies in children aged 0-15 yr at

the University of Ilorin Teaching Hospital, a tertiary health institution in the middle belt of Nigeria with some patronage from six constituent states of the Federation.

The patient registers from the Accident and Emergency Unit, Emergency Pediatric Unit, and the Ear, Nose, and Throat Clinic were consulted. All relevant cases were listed. Then the notes of patients were retrieved from the central records library. The information obtained include: age at presentation, gender, type of foreign body, side of presentation, signs and symptoms at presentation, duration before presentation, previous attempts at removal, management practices, outcomes and observed complications. Complications were defined as canal lacerations/abrasions, tympanic membrane perforations, and otitis externa. Patients defaulted after the acute phases, so audiometric assessment of hearing thresholds was not done. Otolaryngologists or their residents in training, irrespective of the time of the day, removed aural foreign bodies.

The data generated was analyzed using simple descriptive analysis. Permission was obtained from relevant hospital authorities for use of the data.

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RESULTS

A total of 312 patients were enrolled for the study, however 18 were excluded because of misplaced records or inadequate data. Therefore, only 294 patients had their data analyzed, and so form the basis for this study. One hundred and twenty four, 124(42.2%) of the patients were aged 0-5 yr old, 104(35.4%) 6-10 yr, and 66(22.4%) were 11-15 yr old. (Fig 1) There were 150 males (male: female = 1:1).

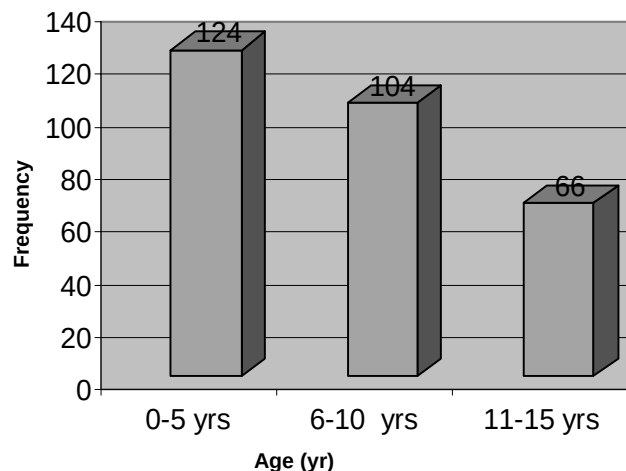


Fig. 1. Age distribution of children with aural foreign bodies

Grains and seeds (27.9%), beads (19.7%), cotton wool (13.6%), paper (8.8%) and eraser (8.2%) formed the bulk of the aural foreign bodies. (Table 1). Foreign body was self inserted by 59.2% of the patients, and in 65% of cases the foreign body was in the right ear. Most of the patients (64.6%) were asymptomatic at presentation. Otalgia (17.3%), otorrhea (9.9%) and bleeding from the external auditory canal (4.8%) were the main presenting symptoms. (Table 2)

In 57.8% of cases parents noticed the foreign body; 17% were self reported by the patients. No information was available on the others. Of all the patients included

TABLE 1. Types of Aural Foreign Bodies

Type	Frequency (%)
Grain / Seed	82 (27.9)
Bead	58 (19.7)
Cotton wool	40 (13.6)
Paper	26 (8.8)
Eraser	24 (8.2)
Soap	18 (6.1)
Toy	15 (5.1)
Stone	13 (4.4)
Flower	7 (2.4)
Wood	4 (1.4)
Metal ball	4 (1.4)
Ear ring	3 (1.0)
Total	294 (100.0)

221(75.2%) were enrolled in the school; and of these 155 (70.1%) were in primary school, 45(20.4%) were in high school, others were in daycare. While only 16.7% of patients presented to us within 5 hours of insertion of foreign body, over 50% did not present until after one week; 11% after one month.(Table 3). Some 65.3% have had attempts at removal of the aural foreign bodies before reaching us; there was no information on 3.4%.

About 96% were removed without general anesthesia by using Jobson Horne's probe or aural dressing forceps (73.8%) under direct vision; or by syringing (22.1%). Some 4% had to be removed in the operating theatre under general anesthesia (Table 4).

The complications observed include bruise or laceration and bleeding from the external auditory canal (16.3%), otitis externa (6.5%) and traumatic perforation of the tympanic membrane (1.7%) (Table 5).

TABLE 2. Signs and Symptoms at Presentation

Presentation	Frequency (%)
Asymptomatic	190 (64.6)
Otalgia	51 (17.3)
Otorrhea	29 (9.9)
Bleeding from ear canal	14 (4.8)
No information	10 (3.4)
Total	294 (100.0)

TABLE 3. Duration Before Presentation

Duration	Frequency (%)
0-5 Hr	49 (16.7)
6-24 Hr	20 (6.8)
1-7 Days	58 (19.7)
8-14 Days	75 (25.5)
15-30 Days	50 (17.0)
> 30 Days	32 (10.9)
Not Sure	10 (3.4)
Total	294 (100.0)

TABLE 4. Modalities of Treatment

Treatment	Frequency (%)
Removal without general anaesthesia	
Instrumentation under direct vision	217 (73.8)
Syringing	65 (22.1)
Removal under general anaesthesia	
Deeply impacted foreign body	5 (1.7)
Trauma from previous attempts	7 (2.4)
Total	294 (100)

TABLE 5. Complications

Complication	Frequency (%)
Bruises, lacerations, and bleeding from the ear canal	48 (16.3)
Otitis externa	19 (6.5)
Perforation of tympanic membrane	5 (1.7)

DISCUSSION

Aural foreign bodies were commonest in younger children particularly those less than 5 yr old,^{2,4,9-12} and mainly items easily available to patients.^{1,2,8,9-11} Grains and seeds form the staple food in most house holds. Beads are common dressing accessories as well as prayer rosary for Muslims and the Catholic faith. Cotton wool, particularly as cotton buds, is commonly used for cleaning and soothing itching ears. In an earlier study it was found to be an important aetiology of traumatic perforation of the tympanic membrane.¹³

Our patients presented later than obtains in more developed areas of the world where up to 90% have been shown to report in hospital within 24-48 hours of insertion of aural foreign bodies.^{2-5, 12} The prevalence of severe complications was low, being comparable to cases managed by Otolaryngologists elsewhere.^{3, 5, 9} Reported tympanic membrane perforation rates vary from 1% to 6%.^{1,3,12}

The mindset of the average healthcare giver in centres where Otolaryngologists are available or within reach in our region is that aural foreign bodies are the responsibility of Otolaryngologists to manage. This mindset is validated by the title of a recent report: "Removal of ear and nasal foreign bodies where there is no Otolaryngologists."¹⁴ We are transiting from the era of general duty physician to one of highly specialized patient care. In this study, the high incidence of previous attempts at removal and the 24-hour availability of the Otolaryngologists may be a reason for direct referral.^{1, 3, 9} Our current practice is beneficial to a small group of patients who reach the specialized centres.

What is desirable is for primary care Physicians, Pediatricians, and emergency department Physicians to be proficient in managing simple cases of aural foreign bodies.^{3, 4, 8, 9} With provision of appropriate simple instruments in all health care facilities this will be feasible.^{1, 14} If a Pediatrician could be so innovative to adapt paper clip to function like a Jobson Horne's probe with some degree of success,¹⁴ he will do a lot with appropriate instruments, coupled with relevant continuous medical education. This will save children and their parents/guardians the problems, costs and inconvenience of seeking the services of a not always available Otolaryngologists.^{8, 9, 14} (This difficulty of access may underlie the late presentation and high incidences of attempts at removal before patients reach us.) And this will also allow the Otolaryngologists to focus on the cutting edge issues of the specialty.¹⁵ However, when indicated, there should be no hesitation to seek the services of the Otolaryngologists in spite of the cost and inconvenience. This added cost would be well offset by the decreased rate of complications.^{6, 8}

Almost 96% of our patients were managed in the office

setting without general anesthesia.^{4, 6, 9} This is much higher than other series reporting as low as 70%.^{2, 3, 5} In some of these centres the cost of removal of aural foreign bodies under general anesthesia is thought to be differentially high, being 2-3 times the cost of office removal.³ In our centre, removal of aural foreign bodies under general anaesthesia is almost 10 times the cost of removal in office setting. Some patients who would otherwise have needed operative management could not afford the cost. The options left were to attempt office procedure or risk losing the patient to quacks and alternative medicine practitioners with more frightening prospects.¹⁵ In such cases we removed the aural foreign bodies with the child seated in an adult's lap in the examination chair with the child's arm and trunk held securely by the adult's right arm and the head immobilized by the left arm.^{5, 9} When the child needs to be in the supine position, a wrapped sheet was used to effectively immobilize the child's upper extremity and trunk. An assistant firmly stabilizes the child's head and another assistant the feet.^{5, 9}

The retrospective nature of the study limits the information available to that recorded in the charts.^{7, 9} Most patients defaulted from follow-up once the foreign body was removed. This implies that audiometric assessments of patients after the acute phase were not done even where indicated. Where facilities and expertise allows, suctioning, cyanoacrylate adhesive on stick and otomicroscopy both in the office and theatre settings could also be used to remove foreign bodies.

In conclusion, despite a high proportion of cases managed in the office setting, complication rates were within acceptable levels. There is need to develop practical criteria that will be beneficial to primary health care givers to determine which patients could be managed in the primary care setting with acceptable outcome.

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