

# paediatric aural foreign bodies: a challenge to care givers

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## Abstract

**Background:** Foreign body in the ear is commonly encountered daily practice in children. The aim of the study is to evaluate clinical profile and challenges to the caregivers. **Methodology:** A prospective study of the all aural foreign at University of Ilorin teaching hospital between February 2008 and January 2009. **Results:** A total 145 patient were investigated during the period, age range 1-70yrs with a mean age of 9.89yrs, modal age of 3.00yrs (SD=12.1±1.01), 56% were aged 1-5yrs, M:F 1.5:1, Grain/seed constitute the commonest foreign body in 62 (42.8%), 53.8% of foreign body was self inserted, 64.1% of the foreign bodies were found in the right ear 37.2% presented within 1-5days, 58.6% have had attempt at removal, about 97.2% of the patient were managed in the office. The outcome showed 100% successful removal. **Conclusion:** The characteristic of foreign body were not much different from the already known data. Late presentation is still a problem with increase attempt at removal thus the need for primary care physician to recognize their limits and need for parents to keep away offending agents.

## INTRODUCTION

Foreign body in the ear is commonly encountered daily in children by primary care physicians, paediatrician and the otolaryngologists world wide.<sup>1-6</sup> Certain conditions have been identified leading to foreign body insertion in the ear such as curiosity or desire to explore orifices, imitation, boredom, funmaking, mental retardation, insanity among others.<sup>1-8</sup> This apparent simple problem could lead to a significant morbidity that may require a costly management if it is not appropriately managed from the onset.<sup>6,9</sup> Ear foreign body insertion in children also depends on the availability of the objects and absence or presence of watchful caregivers.<sup>10</sup>

In the developed world there are established and continually evolving protocols for its management.<sup>6,9,11-13</sup> However in the resource poor regions of the world such protocol may not exist thus leading to caregivers attempt at removal of such foreign bodies. Poor diagnostic ability compounded by a limited knowledge of appropriate management result in the increase of self-treatment, complication and low rate of health care utilization among the care givers.<sup>14</sup> This practice cuts across culture, gender, health and social status, race, occupation or any other socio-medical or demographic factors<sup>15</sup>. Many resort to the practice instead of contacting professional health care workers because of long waiting periods in hospitals,<sup>16</sup> thinking it's a minor ailments<sup>17,18</sup> apparent cost,<sup>19-21</sup> to save money and time<sup>22</sup> lack of

accessibility,<sup>19,23,24</sup> shortage of otorhinolaryngologist,

Removal of such foreign bodies requires knowledge of certain skills and techniques depending on its location whether in the external auditory canal or in the middle ear.

Difficulty at removal especially by untrained or unqualified personnel or with inappropriate instruments usually results in trauma to the EAC or impaction within the middle ear cavity when such foreign bodies are inadvertently pushed farther while trying to remove them<sup>14</sup>. Sometimes they are impacted abinitio from penetrating trauma or missile injuries.<sup>14</sup> This may result in varying degrees of deafness<sup>25</sup> which will affect the social life of the child in future.

The aim of the study is to evaluate clinical profile, management outcome of aural foreign bodies and challenge to the caregivers with view of improving on the management.

## METHODS

It is a year prospective study of the all the aural foreign bodies seen in Ear, Nose and Throat departments (ENT), the accident and emergency (A/E) and emergency paediatric units (EPU) of University of Ilorin teaching hospital after permission was obtained from relevant hospital authorities. It is a tertiary health institution in the middle belt of Nigeria with patronage from eight constituents' states of the federation between February 2008 and January 2009.

This involved administration of a structured questionnaire after an informed consent obtained from the caregiver. The information obtained included the biodata (the age, sex, tribe), type of foreign body, the site where found, the level of surgeon either registrar, senior registrar or consultant who removed the foreign body, attempt at removal, the complication noticed before and after removal of the foreign body, the type of treatment offered and the approach to the foreign body whether per-meatal or post-auricular approach, under restriction or general anaesthesia as well as the outcome whether successful or failed removal.

All this information was entered into computer and analyzed descriptively using SPSS 11.0 statistical software.

**RESULTS**

A total 118 patients were found to satisfy the inclusion criteria for the study during the period which forms the basis for the study age range 1-14yrs with a mean age of 5.1yrs, median age of 4.00yrs modal age of 3.00yrs (SD=2.95±0.27).

About 80 (67.8%) were ≤5yrs, 29 (24.6%) were 6-10yrs, 9 (7.6%) were 11-15yrs (Table 1.0).

**Figure 1**

Table 1.0 Age-frequency distribution

Age range	Frequency (%)
≤5yrs	80 (67.8)
6-10yrs	29 (24.6)
11-14yrs	9 (7.6)
<b>Total</b>	<b>118 (100)</b>

There were 80 males and 38 females with M:F = 2:1.

About 99 (77.1%) were already attending one form of schools.

Grain/seed constitute the commonest foreign body in 62 (52.5%), bead 22 (18.6%) and the least was stick/tooth pick 1 (0.8%) (Table 2.0)

**Figure 2**

Table 2.0 Type of foreign body

Type of foreign body	Frequency (%)
Grain/seed	62(52.5)
Bead	22 (18.6)
Stone	17(14.4)
Eraser end	6 (5.1)
Cottonwool	4 (3.4)
Paper	3 (2.5)
Toy	3 (2.5)
Stick/toothpick	1 (0.8)
<b>Total</b>	<b>118 (100)</b>

About 48 (40.7) presented within 1-5days while less than a quarter (20.3%) presented within 24hrs of injury. (Table 3.0)

Table 3.0 Duration before presentation

Most of foreign body were self inserted in 61 (51.7%), while 33 (28%) were by playmate/siblings and 24 (20.3%) did not give information on how the foreign body gets into the ear.

Location of the foreign bodies were 76(64.1%) in the (R) ear and 42 (35.9%) in the left ear.

The commonest presentation was no symptoms in about 42 (35.6), 25 (21.2%) presenting with otalgia and 25 (21.2%) presenting with bleeding from the ear post attempt, 23 (19.5%) presented with otorrhea 3 (2.5%) presented with vague non otologic symptom.

Attempt at removal was noted in 68 (57.6%) of the patient while 50 (42.4%) have not been attempted.

Most of the foreign bodies were removed using Jobson-

Horne's probe under direct visualization in 109 (92.4%) while 5 (4.2%) had syringing done and only 4 (3.4%) were removed in the theatre under general anaesthesia.

Of all the patients who presented 78 (66.1%) of them did not have any complication on arrival, while 23 (19.5%) had bruises or bleeding during attempt at removal at home or by primary care physician and 13 (11%) had otitis external 3 (2.5%) with perforation of the tympanic membrane while 1 (0.8%) of them already had granulation formation around the foreign body.

Most of the foreign bodies, were approached per-meatal 116(98.3%) while only 2 (1.7%) had both per-meatal and post auricular approach under general anaesthesia.

Outcome showed no mortality but limited morbidity.

## **DISCUSSION**

Ear Foreign bodies are common otorhinolaryngological emergencies in most

Otorhinolaryngological clinics in Nigeria a sub-Saharan nation in West Africa and is a common daily problem all over the world.<sup>2, 7-9, 11, 26</sup>

Aural foreign bodies were commonest in younger children particularly the under 5's, this is similar to finding by other reports<sup>2, 11, 26-32</sup> and mainly items easily available to patients<sup>1, 2, 5, 9, 11, 26</sup>.

Grain/seed form the staple food in most household while bead are common dressing accessories as well as prayer rosary for Muslim faith that constituted the greater percentage of the inhabitants of the study population area and the catholic faith similar to previous retrospective study in this environment<sup>2</sup>, stone and writing materials, such as eraser are commonly available to children as well as peer group influence is an important factor in the act of foreign body insertion into the ear among the paediatric population most especially among those attending school.

About half of the foreign bodies were found to be self inserted and unintentional, while about 20.3% of the patient did not volunteer information for fear of being punished by parents.

Late presentation of our patients is not comparable to the developed world where over 90% of the patient presented within 24hrs of insertion of foreign body.<sup>27, 28, 31, 32</sup>

Commonest presentation was no symptom as majority of the

foreign body may be inert when the ear is dry similar to findings by other reports<sup>2, 23</sup> while others who may be able to characterize their feeling tends to put it as pain which may not be primarily due to the foreign body but to previous attempt by the inexperienced overzealous caregiver may cause bruises or laceration to the external auditory canal<sup>23</sup> or perforation to the tympanic membrane<sup>33</sup>.

The mind set of the average health care givers in centers where otolaryngologist are available or within our reach is that aural foreign bodies are the responsibility of the otolaryngologist to manage and this was validated by the title of a recent report. "Removal of ear and nasal foreign bodies where there is no otolaryngologist<sup>2, 34</sup> may be the reason for direct referral. What is desirable is for primary care physicians, Paediatricians and emergency medical officers to be proficient in the management of aural foreign bodies<sup>2, 27, 33</sup>, with the provision of an appropriate instrument.<sup>2, 27, 33</sup> This will save children and their parents/guardian the problem, cost stress and inconvenience of seeking the service of the sparsely distributed otolaryngologist<sup>2, 13, 33</sup>. The added cost will be reduced due to early presentation and treatment<sup>10, 13</sup>.

About 2.1% of the patient presented with tympanic membrane perforation which lower than other reports of traumatic tympanic membrane perforations.<sup>32, 33</sup>

About 57.6% of the patient that presented during the study period have had attempt at removing the foreign body with no success which is higher than the value recorded by Bressler and Shelton in 1993<sup>1</sup> but lower than value obtained in Ibadan.<sup>35</sup> In developing countries most disease or symptoms are treated by self medication<sup>4</sup> as seen in the attempted removal above and will only consult a specialist if there is persistence or worsening symptoms. This is a major shortfall and a challenge to the caregivers as there is lack of clinical evaluation of the aural foreign body by a trained clinician which could result in wrong diagnosis or misdiagnosis with subsequent complication, delayed and inappropriate or wrong treatment<sup>5</sup>.

Over 96.6% of the patient were managed in the office setting without general anaesthesia using either Jobson-Horne's probe or aural syringing<sup>2, 11, 12, 27, 28</sup>. This is much higher than other series reporting as low as 70%.<sup>5, 6, 10</sup> In some centers cost of removal of aural foreign bodies under general anaesthesia is differently high being 2-3times the cost of office or clinic removal and about twice the cost of aural syringing,<sup>6</sup> while in our centre this almost 10times the cost

of removal<sup>2</sup>. This one of the reason while many care givers resort to the practices of attempted removal or visit to a quack instead of contacting professional health care workers<sup>35</sup> because of hospital beaurucracy,<sup>16</sup> ,cost<sup>19-21</sup> to save money and time which inadvertently is more expensive

The outcome of this study showed that all the foreign bodies were removed successfully either in the office settings or in the theater.

In conclusion while characteristic of foreign body were not much different from the already known data. Our patient tends to present late, based on the values of attempted cases with complication thus the need for public health education on aural foreign bodies and its dangers, primary care physician to recognize their limits, continue medical education for emergency medical officer, primary care physician to be proficient in the removal of foreign body to reduce morbidity and allow otolaryngologists face the cutting edge issue of the specialty.

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