

Frequency of Three Complications (Bleeding, Laceration of External Auditory Canal and Perforation of Tympanic Membrane) in Patients with Aural Foreign Bodies

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ABSTRACT

Objectives: To determine the frequency of three major complications of the foreign body in the external auditory canal i.e. the haemorrhage, the laceration and the perforation of the tympanic membrane.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted in the Department of ENT, Bahawal Victoria Hospital, Bahawalpur from 25-12-2012 to 24-09-2013.

Materials and Methods: Total 284 cases that presented during nine months of duration were included in our study. General anaesthesia was used not only when initial attempt under direct visualization was unsuccessful, but also for those having history of previous attempts, and uncooperative patients.

Results: 25% of patients developed haemorrhage, 13.8% were having laceration while none of the patient presented with tympanic membrane perforation. Cotton bud was found to be the commonest foreign body (33.7%) and bleeding was associated with it.

Conclusion: In this study, the cotton bud was found to be the commonest foreign body in external auditory canal. Use of cotton bud although is easy for cleaning of ears but if it is broken inside the external auditory canal, can cause serious complications like bleeding and laceration as found in this study. Public should be educated about this preventable medical emergency.

Key Words: Foreign Body, External Auditory Canal, General Anaesthesia

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INTRODUCTION

Common otorhinolaryngological emergencies are foreign bodies. Eleven percent of the visits to otorhinolaryngologists are due to foreign bodies. Complication rates have been seen to be high as twenty two percent. The majority of the patients have foreign bodies in the ear.¹⁻²

Foreign bodies within external ear present both in children and adults.³ The problem is very common among children, more so in school going children than the toddlers.⁴⁻⁵ These objects can be inorganic including beads, buttons, stones and disc batteries or organic such as cotton buds, broken match sticks, eraser tips, pieces of paper, seeds, other food particles and live insects. Insects are found to be more common in patients older than 10 years of age.⁶ The most common foreign body types were plastic beads and pearls that

were seen in 29.2% cases⁷. Complications of foreign body ear include bleeding (51.83%)², laceration and

rupture of the tympanic membrane (0.99%)². Studies have shown that the complication rate increases with the increase in the number of failed attempts to remove the foreign body. The first attempt is, therefore, critical.⁶

Removal of these foreign bodies from ear is a very commonly performed procedure. This may be a simple outpatient procedure or occasionally this requires sedation or even general anesthesia⁷ and removal under operating microscope, especially when the foreign body is deeply impacted, or the patient is a struggling child not allowing proper positioning and uncomplicated removal.

The aim of the study was to identify the different types of foreign bodies in external auditory canal and the risk of three major complications associated with each of them in our setup. Data collected of duration of impaction of foreign body also helps us in identifying the foreign bodies more dangerous than the others

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requiring prompt treatment and to educate people of risks associated with them.

The rationale of this study is based upon recommendations of different previous studies⁸⁻¹⁰ that were conducted to evaluate the frequencies of different complications in aural foreign bodies.

MATERIALS AND METHODS

This cross sectional study was conducted in Department of ENT, Bahawal Victoria Hospital, Bahawalpur from 25-12-2012 to 24-09-2013. Total 284 patients of all ages and both genders found to have foreign bodies in their external ears were included in this study. Patients having (a) wax in ear (b) Otomycosis/otitis externa (c) with past history of attempts of removal of foreign body (d) not consenting for otoscopy were excluded from the study. An approval was taken from institutional review committee. Informed consent was taken from the patient or the patient's guardian if the child was less than 18 years of age.

A detailed history focusing on the age, sex, presenting complaint (patient's own complaint or attendant's statement in case of a child), and approximate duration in hours for which the foreign body has been in the ear was documented. Afterwards, otoscopic examination of both ears was carried out and patients with foreign bodies in their ear took part in the study. Patients with incidental findings were also included.

An initial attempt of extraction was tried by post graduate trainee with head mirror and reflected light or under aural microscope in case of an adult or child with a deep seated foreign body. When initial attempt failed then sedation or general anaesthesia was given to the patient and extraction was attempted. After removing the foreign body, its type, laceration, ear bleed and perforation of tympanic membrane was noted in the performa.

All the data was analyzed using the Statistical Package for Social Sciences version 13. Descriptive statistics (frequencies, percentages, tables and charts) was used to describe categorical variables (gender, nature of foreign body and complications). Numerical data (age and duration of impaction in the ear) was described using mean and standard deviation. Stratification was done for effect modifiers like age, gender and duration of disease and post-stratification chi square was applied to see their effect on outcome. P-value ≤ 0.05 was considered as significant.

RESULTS

Total duration of this study was nine months and during that time, 284 patients were included in the study that fulfilled the above mentioned criteria. Out of 284 patients, 200 patients were below ten years of age that is 70.3 % (Table 1). Mean age of presentation was 10.5 years ±9.1 (Mean±S.D), table-1. 180 patients were male(63.3%) and 104 (36.7%) were female.(Fig. 1)

The most common presented foreign body in ear was cotton bud, out of 284 patients, 96 were having this i.e 33.7%. The second commonest foreign body was metallic bead presented in 58 patients (20.4%), while 52 patients presented with plastic bead (18.4%). 25 presented with seed i.e. 8.7%. Wooden stick was found in 23 patients i.e. 8.2% while stone was found in 12 patients 4.1%. 70 patients were having insects i.e. 2.6%. Eraser tips were found in 04 patients i.e. 1.5%. Disc battery and any other (piece of tissue paper) found in 03 patients each i.e. 1% each. While button was found in 01 patients i.e. 0.5 %.(table 2)

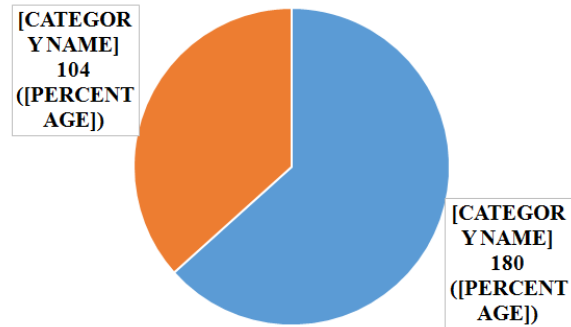


Figure No.1: Gender distribution of patients

Table No.1: %age of patients according to Age distribution (n=284).

| Age (in years) | No. of Patients | %age |
|----------------|-----------------|-------|
| 2-10 | 200 | 70.3 |
| 11-30 | 62 | 22.06 |
| 31-45 | 22 | 7.68 |
| Total | 284 | 100.0 |

Table No.2: Type of foreign body

| Foreign body | Frequency | Percentage |
|---------------|-----------|------------|
| Cotton Bud | 96 | 33.7 |
| Metallic Beed | 58 | 20.4 |
| Plastic Beed | 52 | 18.4 |
| Seed | 25 | 8.7 |
| Wooden Stick | 23 | 8.2 |
| Stone | 12 | 4.1 |
| Insect | 07 | 2.6 |
| Eraser Tips | 04 | 1.5 |
| Disc Battery | 03 | 1.0 |
| Button | 01 | .5 |
| Anyother | 3 | 1.0 |
| Total | 284 | 100.0 |

Table No.3: Complications

| Complication | Frequency | Percentage |
|--------------|-----------|------------|
| Bleeding | 71 | 25.0 |
| Laceration | 39 | 13.8 |
| Perforation | Nil | 0 |
| Nil | 174 | 61.2 |
| Total | 284 | 100.0 |

Complications i.e. bleeding through canal was found in 71 patients i.e. 25% and laceration of external auditory

canal was found in 39 patients i.e. 13.8% while we did not come across any patient with perforation of tympanic membrane. No complication was found in 174 patients i.e. 61.2% (table 3).

DISCUSSION

Removing foreign bodies, especially from children's ears can be sometimes very difficult and challenging due to several factors including the cooperation level of the patient, type of foreign body, available facilities for removal of foreign body and expertise of the treating doctor.^{11,12} Multiple failed attempts on a same ear usually result in trauma to external canal or can even lead to tympanic membrane perforation and lodgement of foreign body further deep into middle ear.³

The insertion of foreign body is more common among children.

In our study one hundred and thirty patients were below the age of ten, which is 70.3 % of the total cases. The mean age is 10.03 years. This age is less as compared to the study conducted by Thompson et al.¹⁰, in which the mean age was 16.8 years. But the range differed in our study (Standard deviation for age is ± 7.99 years, while the range in study by Thompson et al.¹⁰ was from 1 to 90 years). In another study by Fasanla et al.¹², the mean age was calculated as 10.9 years while the range was from 2 to 59 years.

It is important to mention here that, in our study the age of ten has been made as the demarcation between children and adults. This can differ in other studies, for example in a study by Ryan et al.¹³, the age of 18 was used as division between adults and children. Age of 15 was determined to be the demarcation between adults and children in the study by Fasanla et al.¹² In a study by Amjad and Abbas¹⁴, the most common age group of children with foreign bodies in their ears was also 4-8 years of age.

Ahmed et al.⁷, in their study on paediatric ear foreign bodies also found 4-8 years of age group to be the most common age group having foreign bodies in their ears. They used age of 12 as an upper limit to paediatric age group.

In different studies on different otorhinolaryngology foreign bodies and not just ear foreign bodies, the most common age group was also 4-8 years of age.¹⁵⁻¹⁷

In a ten years retrospective study by Fasanla et al.¹², total number of patients included in the study was 419. It is to be noted that if we compare duration of our study with these studies, then our study duration is less, just six months.

As observed in other studies, males were relatively more common in our study (63.3 %). Amjad and Abbas¹⁴ in their study also found males to be more common as having foreign bodies in their ears (81%). The study by Ahmed et al.⁷ also revealed male preponderance (62.69%).

In the study by Thompson et al.¹⁰, the most common presenting symptom was also history of foreign body and out of 162 patients, 126 (78 %) had only a history of a foreign body without any other symptom. This percentage differs with our study. While in our study the most common complaint was otalgia 66.3% and the second most common was complaining themselves of foreign body in the ear 20.9%. The second most common symptom in the study by Thompson et al.¹⁰ was incidental finding (10%) and the next was otalgia (9%). This differs from our study as only nine out of one hundred and ninety six patients (4.6%) in our study had incidentally removed foreign bodies from their ears. In addition, Thompson et al.¹⁰ have not documented that how many of their patients had combination of symptoms as nine of our patients had two or more symptoms at the time of presentation. Fasanla et al.¹², in their study also noted symptoms similar to our study but their results differ from our study. History of a foreign body was present in 90.9 % of their patients, while otalgia was the next most common symptom (71.1 %). Ansley JF¹⁷ and Ngo A¹⁸ also observed that the most common presenting symptom of patients with ear foreign bodies was positive history as patients own statement or an eye witness.

In a case report by Nasim Shahid¹⁹ on a 'growing seed' removed from ear of a mentally sound twenty years old patient; the symptoms were intense itching, occasional pain and heaviness in the ear for the last 45 days before the patient presented to hospital.

None of our patients had unusual symptoms like cough or hiccups as a primary complaint.

Schulze et al.⁹, in their study have not mentioned about the symptoms, but they looked for concomitant pathologies, most common being otitis media. Canal abrasions or bleeding was found 5.3% of their patients. Seventy six out of one hundred and ninety six (38.8%) in our study had their ears already traumatized. Bleeding was present in 49 (25%) and laceration was present in 27 patients (13.8%) and we could not find any patient with tympanic membrane perforation. Figueiredo R et al.² found approximately similar results in their study i.e. bleeding (51.83%)², laceration and rupture of the tympanic membrane (0.99%)².

CONCLUSION

In this study, the broken piece of cotton bud was found to be the commonest foreign body in ear, as it is commonly used for cleaning of ears. But it has caused serious complications like bleeding and laceration of external auditory canal. I suggest that community should be educated through media and literature about the complications to discourage self-instrumentation among the children and adults. It is common saying that if you want to put something into your ear, put your elbows.

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