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Presentation and Management of Foreign Bodies in External Auditory Meatus

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ABSTRACT

Introduction: Unsuccessful attempts for removal of ear foreign bodies can have serious consequences like trauma to tympanic membrane or damage to middle or even inner ear. The purpose of our study was to design a safe approach towards foreign bodies in external auditory meatus, both in children and adults. **Objectives:** To determine types and frequency of symptoms in patients with foreign body external ear, report management plans adapted for all cases and enlist types of foreign bodies, removed from patients' external ears. **Study design:** Descriptive (case series). **Setting:** Department of ENT, Shaikh Zayed Hospital Lahore. **Methods:** All the cases (44) that presented during six 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:** 65.9% patients were below ten years of age with a relative male preponderance (56.8%).Most common presenting symptom was 'patients own statement or an eye evidence' (59.1%).Small beads were the most common foreign bodies (27.2%), followed by insects and cotton buds.50% of the cases (mostly having round and non-graspable foreign bodies) had to be managed under general anaesthesia. With this approach, only three patients (6.81%) suffered minor abrasions of external canal with none having serious complications. **Conclusions:** All those patients, who are uncooperative or have history of previous removal attempts and those in which attempts under direct visualization are unsuccessful should be further managed under general anaesthesia to prevent serious complications.

Key Words: Foreign body, External auditory meatus, General anaesthesia.

INTRODUCTION

It is very common for children to insert foreign bodies in their ears. Sometimes the history is not straight forward and the foreign body may have been lying in the external ear for months or even years.[1] Patients may have unusual symptoms and signs with a foreign body as a primary cause.[2,3] Cases of fatal meningitis and Parapharyngeal abscess secondary to foreign bodies in ear have been reported in literatrure.[4,5]. Insects may creep into the ears[6] or an object might get stuck in ear while trying to clean it.[7] Similarly a mentally retarded patient may insert anything in his/her ears.[8]

A management protocol was adapted in our study, based upon recommendations of different previous studies[9, 10.] It clearly separated patients who needed general anaesthesia with or without otomicroscope, from those who did not need it for removal of foreign body from their external ears.

MATERIAL AND METHODS

Duration of Study

Six months, that is from 1-08-2015 to 1-02-2016.

Sample size

All the patients having foreign bodies in their

external ears that presented during the study period. A total of forty four (44) such patients presented during the six months' time.

Sampling technique

Convenience (non probability) sampling.

Sample Selection

- **Inclusion criteria:** Patients of all ages and both genders that were found to have foreign bodies in their external ears, after proper examination.
- **Exclusion criteria:** Patients with symptoms similar to those having ear foreign body but not actually found to have it after examination. These included (a) wax in ear (b) otitis externa (c) acute otitis media (d) otitis media with effusion (e) active chronic suppurative otitis media

Study Design

Descriptive (case series).

Data Analysis

All the collected data was entered into SPSS software version 20.

RESULTS

Out of forty four, twenty nine patients were below ten years of age that is 65.9%. Average age of presentation was 15.18±16.38 years (Mean±S.D). Twenty five patients were male (56.8%) and nineteen (43.2%) were female.

Most common presenting symptom was 'patients own statement or an evidence by some eyewitness (Table 1).

Average duration of foreign body in patients was 3.03±3.045 days (Mean±S.D).

Initial attempt for the removal of foreign body was undertaken in the out patient department or ward for thirty three patients. It was successful in twenty two of these thirty three cases with out any complication. Remaining unsuccessful eleven cases plus nine cases (11+9) with already traumatized ears were subjected to removal under GA. Two more patients had their foreign bodies removed under GA. These two were struggling children who did not even allow initial examination of their ears. Otomicroscope was used in twenty one out of these twenty two cases.

Table 1: Symptoms of patients with foreign body ear (n-44)

Symptoms	No. of patients	Percent
Own statement	26	59.1
Otalgia	6	13.6
Decreased Hearing	1	2.3
Incidental Finding	2	4.5
Own statement / Otalgia	7	15.9
Otalgia / Otorrhea	2	4.5

Beads were the most common foreign bodies removed, and all of them presented in children less than 10 years of age.

Different instruments were used to remove different foreign bodies. Sometimes combination of different instruments had to be used (Table 2). Forceps was the most common instrument used. 72 % of the foreign bodies removed under general anaesthesia were non graspable and relatively rounded in shape.

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.[42,43] 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 most common symptom with which patients presented was 'own statement regarding the presence of foreign body in ear.' This included statement of an adult as an eye witness, in case of a child or a mentally retarded patient. 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

Table 2: Type of foreign body & method of removal.

Type of Foreign Body	Method of Removal					Total
	Forceps	Hook	Probing	Suction	Combination	
Cotton Bud	4	0	0	1	0	5
Wooden Stick	2	0	0	0	0	2
Seed	0	1	3	0	0	4
Food Particles	1	0	0	0	0	1
Eraser tips	0	1	3	0	0	4
Pieces of Papers	3	0	0	0	0	3
Plastic Beads	0	0	0	6	1	6
Metallic Beads	0	0	6	0	0	6
Toy Parts	1	0	0	0	0	1
Disc Battery	1	0	0	0	2	3
Insect	4	0	0	1	1	6
Any Other	1	1	0	0	0	2
Total	19	4	9	3	9	44

percentage is almost equal to the one in our study. The second most common symptom in the study by Thompson et al.[10] was incidental finding (10%) and the next was otalgia (9%). Fasunla et al.[43], in their study also noted symptoms similar to our study. In a case report by Nasim Shahid[1] 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.

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. Nine out of forty four patients (20%) in our study had their ears already traumatized. Seven of them gave history of attempts of removal of foreign body from their ears at home or at some other centre.

An important observation was made in our study, when the other ear in all the patients was also checked as a part of routine examination. Two patients were found to have foreign bodies in their second ear as well, though the complaint on initial presentation was only of one ear. This signifies the importance of routinely checking other ears or even noses of all the children with foreign bodies in one ear if possible, as neglected foreign bodies can lead to serious consequences.

Ahmed et al.[40] found bilateral ear foreign bodies in 3.4% of their patients

The duration of foreign bodies in ear before they presented to us was mostly within 24 -48 hours. The maximum duration of time for any patient in our study was 14 days. Thompson et al.[10], in their study have also mentioned that majority of their 162 patients presented within 24-48 hours of suspected incident, though range in their study varies from a few hours to several months. In another ten years retrospective study by Fasunla et al.[43], the duration of symptoms ranged from 30 minutes to ten days. 84% of their patients presented within 24 hours.

In light of conclusions given by two large retrospective studies by Schulze et al.[9] and Thompson et al.[10], we had defined a safe management plan in our synopsis, before data collection was started. Thirty three patients underwent initial attempt of removal of foreign body, which was made under direct visualization at outdoor department or in the ward. These thirty

three patients did not have any history of attempts being made on their ears before they presented to us. None of them therefore had any evidence of trauma to their ears. They were all cooperative patients on their presentation, allowing proper examination of their ears. The initial attempt was successful in twenty two of these thirty three patients.

Twenty two of our patients (50%) got their foreign bodies successfully removed under general anaesthesia. These included 11 cases of failed initial attempts in the ward or outdoor department. The other eleven were nine patients with pre existing trauma plus two struggling children who never allowed even examination of their ears. It is to be noted that all the cases with previous history of attempts at home or at any other centre leading to trauma to their ears were straight away booked for removal under general anaesthesia. In the study by Schulze et al.[9], even removal by otolaryngologist under operating microscope in office settings with out anaesthesia in was not 100% successful; when there were previous attempts carried out to remove the foreign body from ear. Thompson et al.[10] in their study had similar observations. In the study by Ryan et al.[44], in which nine year records of two Australian hospitals were reviewed and it was found that 33% of children and only 3% of adults required general anaesthesia.

Ryan et al.[44] in their review of two Australian hospital records observed that most of the complications that occurred during removal of foreign bodies from ear were trivial. Almost all these complications were either canal abrasions or otitis externa. This is similar to our results.Only three of our patients had complications during the removal of foreign bodies from their ears (6.81 %). All of these were 'canal abrasions' with none having iatrogenic tympanic membrane perforation

Ahmed et al.[40] in their study on 260 cases concluded that general anaesthesia usage had less complication rate as compared to removal under direct visualization without anaesthesia (25.6%).

Crocodile forceps alone was used in 19 cases of our study. This makes it the most common instrument that was used alone. In addition it was used in combination with suction in four and with probing in one case. This is similar to what Thompson et al.[10] observed in their study, in which forceps were used in 24 patients and alligator forceps in 18 cases.

All the insects which were removed were first killed by instilling 4 % lignocaine in the ear. This is used to suffocate the insect. Other fluids can be used, for example Fasunla et al.[43] used olive oil as it did not cause skin irritation.

The next most common method used alone in our study was 'probing'. Ringed end of Jobson horn probe was used for this purpose.

Most common combination used in our study was 'forceps with suction'. Four out of all the nine cases managed with combination of instruments, were managed by using forceps along with suction. Foreign bodies removed in these four cases were; one insect and one disc battery.

Marin JR et al.[51] and DiMuzio J et al.[52] have used electric syringe in addition to other methods for removal of external ear foreign bodies. In contrast to this and similar to our approach Iseh KR et al.[53] have discouraged the use of syringing for removal of ear foreign bodies in a well equipped setup.

Schulze et al.[9] in the conclusion of their study have proposed indications for direct otomicroscopy under sedation. These include (a) spherical or sharp edged shape foreign bodies, disc batteries and vegetable matter (b) foreign body located adjacent to tympanic membrane (c) Presence in the ear for more than 24 hours (d) Age less than 4 years with difficulty in visualization and/or agitated child (d) history of previous attempts. All these generally agree with the indications which we had proposed in our study.

Sharp foreign bodies and vegetable material can be individually planned depending upon the site of impaction but we agree with proposal by Schulze et al.[9] that disc batteries need to be removed under GA. This is due to the fact that disc batteries can cause alkaline necrosis leading to serious complications[54] and thus they need to be removed cautiously. Mishra A et al.[16], noted in their review of external ear foreign bodies that disc batteries and sharp objects pose additional risk for complications and they recommended otomicroscopy in these cases.

Thompson et al.[10] also observed a significant

difference between in success rates of direct visualization techniques and otomicroscopy for removal of firm and rounded objects.

Ahmed et al.[39] have concluded in their study that, foreign body removal under GA with or without otomicroscope should be the first line of treatment in all the cases shown to have high risk of complications. These included spherical shaped foreign bodies, already traumatized ears and foreign bodies present for prolonged period of time.

CONCLUSION

It is a safe approach to use general anaesthesia in difficult cases of foreign bodies in external auditory meatus. Therefore all those patients, who are uncooperative, or have history of previous removal attempts and those in which attempts under direct visualization are unsuccessful, should be further managed under general anaesthesia to prevent serious complications.

More studies with larger samples sizes are recommended on the basis of our research, in which clear demarcation is made between the cases which should be managed in the emergency department, ward or outdoor department and those which should be directly managed under anaesthesia, without any attempt being made on them before that. Parents should be educated, not to allow children to play with very small objects and if foreign body is suspected in their child's ear, the child should be directly brought to hospital rather than making attempts at home or taking the child to quacks.

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