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Original Research Paper

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AURAL SYRINGING: A ONE SIZE FITS ALL SOLUTION FOR EAR FOREIGN BODIES?

Dr. Puspen Dasgupta Assistant Professor, Department of ENT & Head Neck Surgery, IQ City Medical College and Hospital, Durgapur 713206

Dr. Kuldeep Acharia Junior Resident Department of ENT & Head Neck Surgery, IQ City Medical College and Hospital, Durgapur 713206

ABSTRACT

Objectives: To ascertain if aural syringing is a one size fits all solution for aural foreign body removal in a rural setting **Methods:** A Record based descriptive study was looked at paediatric and adult patients with Aural FB (foreign bodies) who visited ER (Emergency) and ENT-OPD (Out Patient Department) of a single institution between January 2022 and December 2022.The Diagnosis of Aural foreign bodies was based on personal history and Otoscopic findings. Patient characteristics, foreign body type, removal attempts and complications were evaluated with respect to clinical setting and patient outcome. The Data was obtained from the records. **Results:** 86 patients were brought to the emergency department and ENT-OPD over a 12-month period with foreign bodies of the EAC (External Auditory Canal). Otolaryngologists used otoscope and standard metallic aural syringe as their mainstay of management. Analysis of ER and OPD cases revealed Inorganic aural foreign bodies were 65.11% and 34.88% were Organic foreign bodies. Unilateral Purulent Aural Discharge was in 46.51% (40) patients, pain in 17.44% (15), Ear Bleeding in 8.13% (7), conductive hearing loss and tinnitus was 10.46% (9) and itching in 4.65% (4). Duration of Symptoms was <1 week in 65.11% (56) cases ,1-2 weeks in 22.09% (19) and 2-4 weeks in 12.79% (11) cases. Successful removal of foreign bodies from ear by only applying aural syringing was achieved in 91.86% of cases, and usage of other methods of aural foreign body removal Forceps, Hook and Suction in 5.8% and foreign body removal under GA was 2.32% were recorded **Conclusion** Aural foreign bodies were commonly seen in paediatric population. Patients commonly present to the ER and OPD for removal of EAC foreign bodies. The common inorganic aural foreign bodies were cotton tip, stone and eraser whereas fly, lice and bee were the organic FB. The most common symptoms and complications of aural FBs, were unilateral purulent discharge followed by pain, ear Bleeding, Tympanic membrane perforation, external meatus laceration, chronic otitis media and facial Nerve paralysis. The most common procedures used were Syringing followed by Forceps, hook and suction. It is observed that aural syringing performed by the trained hands of an otolaryngologist is a very effective method and can almost be described as a one size fits all solution for managing foreign bodies in EAC with some notable exceptions.

KEYWORDS : Aural. Foreign bodies. Vegetative. Unilateral Discharge. Syringing

INTRODUCTION

Patients frequently present to the emergency department for removal of foreign bodies from the ear. Early descriptions of foreign body removal from Roman times include "An insect must first be killed with vinegar and then removed with a probe; the patient should be encouraged to sneeze or better still he should be bound to a table with the affected ear downwards and the table struck with a hammer so that the foreign body may be shaken out of the ear".[1] Little scientific evidence regarding the best method of foreign body removal exists. The external auditory canal (EAC) is the most common location to encounter a foreign body, particularly in children, accounting for 44% of cases.[2]

Many physicians who work in acute care settings, especially those who see paediatric patients, will encounter foreign bodies in the external auditory canal. The range of aural foreign bodies that present to the emergency department is limited only by the imagination.[3] A useful classification is animal, vegetable or mineral,[4] as removal techniques will vary according to the composition of the foreign body. Animals (for example, fly, lice and bee) are the most common foreign bodies in the adult ear and often require immediate attention as they cause pain and agitation in the patient.[5] They should generally be killed before attempted removal, which then becomes less urgent. Vegetable matter (for example, paper, beans, peas) tend not only to cause an inflammatory reaction, but also to swell in moist conditions resulting in further impaction and difficulty in removal. The most commonly inserted mineral foreign bodies include beads, rubber erasers, and small toy parts.[6]

While more common in paediatric patients, adults may also present with EAC foreign bodies, ranging from insects to hearing aid pieces. The most commonly removed foreign bodies include cotton tip, stone and eraser. Certain types of foreign bodies, such as button batteries, do require emergent removal. However, for most inorganic objects, removal from the EAC is not emergent, although, in cases of prolonged retention of foreign bodies, significant oedema of the EAC may render removal more challenging and painful.

This article aims to provide physicians with an understanding of the scope of the problem as well as information regarding Syringing being one stop solution for managing a foreign body in the external auditory canal.

METHODOLOGY

a record based descriptive study was carried out at a tertiary care hospital located in a rural setting, looking at aural foreign bodies over a period of 12 months at a single medical institution between January 2022 and December 2022. Information and patient data were obtained from the outpatient ENT clinic records and from the Hospital Records department. the diagnosis of foreign bodies was based on anamnesis and Otoscopic Findings.

The authors collected data that included, sex, age, date of event, date of patients visit to the specialist, nature of foreign body, affected side, main symptoms at presentation, duration of foreign body in the ear, complications associated with the foreign body and the removal technique utilized.

The procedure of removal was chosen based on age and cooperation of patient on one hand and location and type of foreign body on another. Syringing was the primary method of removal attempted due to lack of resources in the emergency. The collected data was saved in Microsoft office excel software. Results were formulated in tables and calculated in percentage.

RESULTS

The total number of patients with aural foreign bodies was 86, their age ranged from 1 to 70 years, mean was 8.52 +\- 10.52 with median of 6 years.

There were 53 males (61.62%) and 33 females (38.37%) and the male to female ratio was 1.60:1.

52 (60.46%) of the patients were aged between 1-7 years old (preschool children) ,22 (25.58%) were between 8-16 years (students of primary and secondary school) and 12 (13.95%) were 16 years old and above.

The highest incidence of aural organic and inorganic foreign bodies was observed in the age group of 1-7 years which was 52 (60.46%) out of a total of 86 (children and adults).

There was a male preponderance in all age groups. The majority of cases 87.20% (75) presented within the first and the second week while 12.79% (11) visited the ENT clinic in third week and or after

Table 1: Characteristics of patient, symptoms, duration and utilized removal procedure in 86 patients

	No	percentage
GENDER DISTRIBUTION		
Male	53	61.62%
Female	33	38.37%
AGE ranged 1-70 years		
1-7 years	52	60.46%
8-16 years	22	25.58%
>16 years	12	13.95%
Affected side		
Right ear	52	60.46%
Left ear	34	39.53%
Type of aural foreign bodies (organic and inorganic)		
Inorganic	56	65.11%
Organic	30	34.88%
Main symptoms at presentation		
Unilateral; purulent aural discharge	40	46.51%
Pain	15	17.44%
Blood discharge	7	8.13%
Tinnitus	9	10.46%
Itching	4	4.65%
Asymptomatic	11	12.79%
Duration of foreign body in the canal		
<1 week	56	65.11%
1-2 weeks	19	22.09%
>2 to 4 weeks	11	12.79%
Procedure Utilized for Removal of foreign bodies		
Syringing	79	91.86%
Forceps	3	3.48%
Hook	1	1.16%
Suction	1	1.16%
Removal under General anaesthesia	2	2.32%

Table 2: Distribution of Inorganic aural foreign bodies by age in years of a total no of cases of 86

Inorganic foreign body	1-7 years	8-16 years	>16 years	No (%)
Cotton tip	16	4	4	27.90%
stone	3	1		4.65%
Eraser	2	1		3.48%
Pencil tip	1	1		2.32%
Ear ring		2	3	5.81%
Toy fragment	2			2.32%
bead	5	2		8.13%
chalk	3			3.48%
Iron fragment				
Metal ball	1			1.16%
pin		1	1	2.32%
sand	1	2		3.48%
Total	34	14	8	65.11%

Table 3: Distribution of organic aural foreign bodies by age in years of a total no of cases of 86

organic foreign body (Animate, inanimate and vegetative)	1-7 years	8-16 years	>16 years	No (%)
Fly	5	2	1	9.30%
Lice	3			3.48%
Bee	2	3	2	8.13%
Seed (Grain)	2			2.32%
Ant	1			1.16%
Wood	1	1	1	3.48%
Unidentified insect	1	1		2.32%
Rice	2			2.32%
Bean	1			1.16%
Mosquito		1		1.16%
Total	18	8	4	34.88

DISCUSSION:

At a particular age in the child's development as described by Sigmund Freud , the child derives pleasure from the manipulation of body orifices including the ears, nose and throat .[7]Most foreign bodies in the external meatus are asymptomatic especially in adults , which are found incidentally during otoscopic examination .others are associated with otologic symptoms like unilateral purulent ear discharge , which is a common presentation in children and was the most frequent symptom in our study .

The current study revealed that the right ear was more affected than the left ear, foreign bodies in right ear was 70% while in left was 30%

Complete removal of foreign bodies without any complications depends on many factors; nature of the object, co-operation of the patient, the technique chosen for removal, instrument used, anatomical features of EAC, the experience and skills of the physician and the time interval between insertion of foreign bodies and presentation to the ENT specialist.

Despite the fact that proper instrumentation is key to reducing complications in the foreign body removal procedure, restraining and mummification technique is required for those who are uncooperative more so in children. other factors contributing to safe and successful removal of foreign bodies include proper visualization and availability of skilled clinicians [8]

Most studies have demonstrated that children form the bulk of cases of aural foreign bodies. Osman W.et al. study had 27 males and 35 females, he reported that foreign body in the ear was seen in 62 patients, 36 of them up to 5 years, 25 were between 6-10 years and one patient was aged 11-16 years. therefore, an important preventive measure is to educate the general public so as to reduce the incidence of FBs in the ear [9,10]

Fornazieri et al. [11] reported in their study that 21 (46.4%) patients n=45 required general anaesthesia due to difficulty in removing seeds which have an expansibility characteristics in a humid environment hence occupying most of the meatus and leading to more discomfort to the patient[12] which is in contrast to (ologe et al. 2007;lin et al., 2004 ; ijaduaola, 1986 ;kumar et al.,2005) which reported that over 97 % of thepatient were managed in the office setting without general

anaesthesia using either aural syringing or Jobson Horne probe .

Marin and Trainor [13] reported from a study done in the paediatric emergency department (n=244) that 80% of their patients had successful foreign body removal while 12% had some form of complications

Initial evaluation of patients with ear foreign bodies should include assessment of patient cooperation level, ability to visualize the foreign body, type of foreign body, presence of coexisting otitis externa or trauma to the EAC, previous removal attempts and equipment available. the majority of patients can be managed in the emergency department under direct visualization in experienced hands. however, referral to otolaryngologist should be an option for patients who are at risk to complicate and have a failed attempt. in adults the foreign body may be inserted during cleaning the ear with matchstick or the cotton tips [14,15]

Proper management of foreign bodies requires the assistance of specialized physicians. in a study done in Brazil by Mangussi-Gomes reported that "foreign bodies accounted for 827 cases and 5.3% of all patients in the ENT emergency unit. Children were affected more frequently, particularly those below 8 years of age.

In a study by Davies and Benger et al. [16], recommended the List of recommended equipment for aural and nasal foreign body removal:

Access to (with appropriate protocols, equipment, monitoring and safety measures):
- Sedation
- Local anaesthesia
- Vasoconstrictors Visualisation equipment:
- Otoscope
- Nasal specula
- ENT speculum
- Illuminating magnifying glass
- Headlight
- LoopsSpecific instruments:
- Wire loop
- Blunt right angle hook
- Cerumen curettes
- Alligator forceps
- Hartman's forceps
- Curved hook
- Jobson Horne probe
- Nasal dressing forceps

Suction and catheters of various sizes Irrigation equipment Foley and Fogarty catheters

But in a rural setting all these recommended instruments are seldom available and the physician is left with the option of a mere syringe. It is observed that aural syringing performed by the trained hands of an otolaryngologist is a very effective method and can almost be described as a one size fits all solution for managing foreign bodies in EAC with some notable exceptions.

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Conflict of interest Authors have not declared any conflict of interest

Informed Consent Informed consent was waived off by the local Institutional Ethical Committee

Ethical Standard
All procedure performed in the studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The FBs removal in our institution is a routine procedure, the ethical approval to carry out the study is acquired from the local Institutional Ethical Committee.

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