Case report:

Ear Foreign Body in Paediatric Patients: Methods of Removal and When to Refer.

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Abstract

Paediatric patient with a foreign body in the ear may be present primarily to primary care physician or being referred to the otorhinolaryngology (ORL) clinic. The foreign bodies vary from organic to inorganic material with different sizes and shapes. Removal of foreign body in the ear canal requires adequate clinical experience as well as proper clinical instruments and cooperative clinical staff. Throughout the years, many clinical instruments and devices have been designed and proven to able to facilitate a smooth procedure with high success rates. However, an agitated child may be uncooperative and the increase in the number of attempts will result in injury of the ear canal or displacement of foreign body to the middle ear. Thus, clinical experience is essential and the doubtful cases are preferably to be performed under general anaesthesia to prevent complications.

Keywords: Paediatric; foreign body; ear.

Bangladesh Journal of Medical Science Vol. 18 No. 02 April'19. Page : 423-426
DOI: https://doi.org/10.3329/bjms.v18i2.40719

Introduction

Foreign bodies of the ear are commonly seen in children predominantly aged between 2 to 8 age group[1]. The earliest presentation is likely to be around the age of 9 months when a child develops a pincer grip, allowing easy manipulation of small objects[2]. The external auditory meatus are the most easily accessible site for the children to actually insert the foreign bodies themselves or for insects to enter. Children may present asymptomatically, or with pain or discharge caused by otitis externa[3].

Case report

A 4 years old girl was referred from primary care physician with a diagnosis of foreign body in the right ear canal. The girl claimed to her parents that she inserted the foreign body into her right ear. She denies any ear symptoms. Otoscopic examination revealed a shiny object in the right ear canal. Tympanic membrane was not visualized. The examination of the left ear and nose were unremarkable.

Examination was done under otomicroscope and preceded with removal of foreign body from the

Figure 1: Foreign bodies (beads) removed from patient's right ear canal.

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right ear. Initially, one shiny bead was removed by crocodile forceps and wax hook. However, the right ear canal still appeared to be filled with something and the tympanic membrane was still not visualized. Subsequently, a total of 8 beads (Fig. 1) were removed from the right ear canal via syringing and suctioning. After the procedures, the ear canal was re-examined and showed mildly inflamed canal with an intact tympanic membrane.

Ethical clearance: This case study was approved by the Ethics Committee of School of Health Sciences, Universiti Sains Malaysia Health Campus, 16150 Kota Bharu, Kelantan, Malaysia.

Discussion

Children have a tendency to insert foreign bodies in the easily reachable and accessible sites of their own bodies, especially the ear, nose and throat. Mostly are due to their curiosity nature. However, the removal of these objects is not an easy task as most of the children are uncooperative due to pain and fear. Sometimes general anaesthesia is required so that the foreign bodies can be safely removed.

There are many methods of removal of ear foreign bodies which include irrigation, suction, instrumentation or a combination of the three. The choice of technique for removal should be related to the exact location, shape, composition of the foreign body[3] and whether the foreign body has fully impacted the canal (Table 1).

Table 1[3]

Type of foreign body	Method of removal
Living insects	First kill with oil
Irregular/graspable objects	Remove with crocodile forceps
Organic/ vegetable	Do not syringe. Suction
Button batteries	Do not syringe Remove with crocodile forceps or other instruments
Round, hard, smooth, non-graspable	Syringe/remove with wax hook

Instruments used in removal of ear canal foreign body include the right-angle hook (Fig. 2), Jobson horne probe, otologic forceps, and cynanoacrylate (superglue) on the wooden end of a cotton-tipped applicator. The right-angle hook is used for spherical objects. The tip of the hook should be advanced beyond the equator of the object in the anteriorsuperior region of the canal, then carefully withdrawn in a posteroinferior direction to avoid ossicular trauma. This technique may cause a minor skin laceration, which can be treated effectively using antibiotic eardrops. It also has a potential risk for tympanic membrane perforation. Otologic forceps: alligator (Fig. 3), crocodile or micro-cup forceps. These instruments are used for easily graspable objects such as paper, cotton, and dry flaky ear wax.

Figure 2: right-angle hook

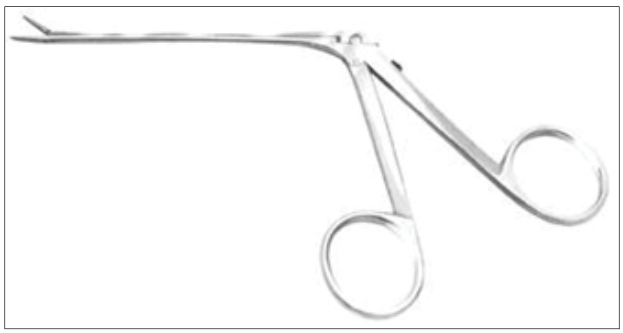

Figure 3: Crocodile or alligator forcep.

Otic suction might be used to form a vacuum seal if the foreign body is small, light, or mobile. Irrigation or syringing is often useful in children as it is better tolerated, and the risk of causing trauma is low. It is often used for foreign bodies that are not tightly wedged or near to the tympanic membrane by using an irrigation syringe to in still body temperature normal saline or water along the wall of the ear canal beyond the object. This technique is not appropriate for food foreign bodies or if perforation of the tympanic membrane is suspected. Once the foreign body has been removed it is advisable to check the ears for underlying pathology as the child may have put in the foreign body due to itch, pain or otorrhoea.[3] Mineral oil (olive oil), methylated spirit, or lignocaine is used to kill a live insect that is present in the ear canal by drowning it. Lignocaine serves a[1]Department of Otorhinolaryngology-Head & Neck Surgery s an irritant that drives insects, for example; cockroaches, from the ear canal. Cyanoacrylate (superglue) on the wooden end of a cotton-tipped applicator[4-5]. In cooperative patients, this technique

is highly effective for foreign bodies that are smooth, round objects that are difficult to grasp.

Otomicroscope (Fig. 4) has a higher success rate for foreign body removal. It provides adequate visualisation which is essential for the successful removal of foreign bodies from the ear. One study has showed that canal lacerations occurred in 48% of patients where removal was attempted without the use of a microscope, compared with only 4% where a microscope was used.[6]

Figure 4: Examination under otomicroscope in the presence of the parent.

A semi-urgent admission for general anaesthetic removal should be arranged if conservative methods fail. Urgent removal can only be justified for battery removal, or where severe oedema and symptoms exist. Rarely, an end -aural incision may be necessary to remove an impacted foreign body.[7] Younger, uncooperative children require special handling, and it should involve medical assistant staff and sometimes parents as well (Fig. 4). A child may be uncooperative, agitated and restless caused by pain and trauma from unsuccessful attempts. Thus, some time shall be spent to gain a child's confidence.

The management of foreign body in ENT setting is a common practice. However, it poses a great challenge for the general practitioner. An inexperienced practitioner with multiple unsuccessful attempts at foreign body removal will distress an anxious child. This may compromise the options open to an otolaryngologist.[3] If there is any doubt whatsoever about the potential success of an attempted extraction, then referral to a specialist is indicated.[3] It has been suggested that referral should be considered if more than one attempt has been made, or more than one instrument has been used in attempted removal.[8] It should also be considered in a very young child or very uncooperative child.

Summary

The method of removal and the choice of instruments use depend on the physician experience as well as types and location of the foreign body. A cooperative child plays a role in the successful outcome. Parents should be explained regarding the procedure and their cooperation is very invaluable. A procedure under general anesthesia is required for an uncooperative child in order to avoid further trauma to children as well as displacement of the foreign body into the middle ear.

Conflict of interest: Authors declared that they have no conflict of interest.

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