

When Cheating Goes Wrong: Hearing Device Migrated to the Middle Ear Cavity

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A twenty-four-year-old Bahraini male presented to emergency with bloody discharge from the left ear and mild earache. History revealed insertion of a hearing device in the left external canal, which migrated to the middle ear cavity. The device was removed under general anaesthesia; one mm in diameter foreign body was extracted with a surgical hook through the tympanic membrane perforation. The patient did not suffer any major complication.

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Foreign body entrapment in the external ear canal is a common problem in the ENT specialty; it is usually seen in the pediatric age population^{1,2}. The most common foreign bodies to be lodged in the external ear canal are beads, and at least 50% of patients could remain asymptomatic. Foreign bodies that are entrapped in the ear could lead to a further complication that might disrupt the normal anatomy and physiology of the ear³.

The aim of this presentation is to report a case of a miniature hearing device inserted in the external meatus and migrated to the middle ear cavity.

THE CASE

A twenty-four-year-old Bahraini male presented to emergency with history of insertion of a foreign body in the left ear. The patient was struggling with his examinations and decided to cheat by inserting a hearing device in his external meatus; an amplified phone neckloop was connected to a mobile phone similar to a regular earphone headset. The power is then turned on in the amplified phone neckloop and he would be able to hear voices in his earpiece and talk with his partner. However, the patient inadvertently caused a perforation in the left tympanic membrane and the device was displaced into the middle ear cavity. The foreign body inserted was metallic in nature and could have caused further complications if no intervention was performed, see figure 1.

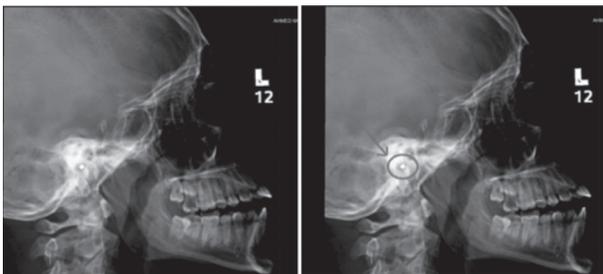


Figure 1: Lateral Skull X-ray Showing the Hearing Aid Device

The patient was not known to have any medical illnesses. The

patient complained of some bloody discharge from the left ear and mild earache.

On examination, the patient was vitally stable and afebrile, otoscopy revealed normal right ear with an intact tympanic membrane; the left ear revealed blood in the external auditory canal with bruises due to trauma and a subtotal perforation of the left tympanic membrane; the device was not visible on otoscopy or under microscope.

Skull X-ray revealed metallic device trapped in the middle ear, see figure 2. The object looked like a button battery, and batteries being alkaline are considered an ENT emergency due to possible erosion of the ossicles and further insult to the inner ear.

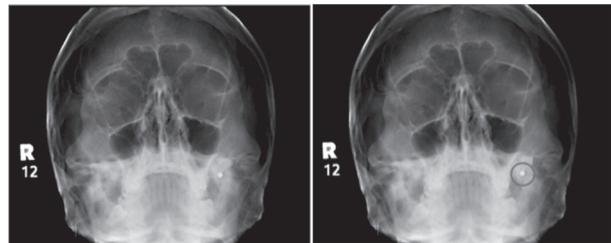


Figure 2: Water's View X-ray Showing the Device

Exploratory tympanotomy and examination under anesthesia of the left ear was performed under general anesthesia. Blood clots, bruised external meatus and large tympanic perforation were seen. A 1mm in diameter foreign body was visualized and extracted with a surgical hook through the perforation, see figures 3 A to C.



Figure 3A

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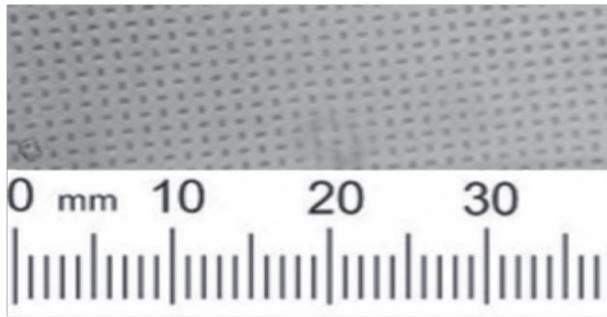


Figure 3B

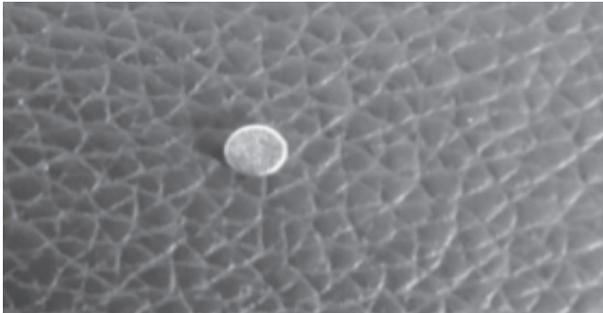


Figure 3C

Figure 3 (A-C): The Hearing Device

The following day, the patient was discharged on Dexamethasone 0.5 Mg + Framycetin 5 Mg + Gramicidin 0.05 Mg ear drops. The patient was lost for follow-up.

DISCUSSION

Foreign body in the ear is a common presentation in the Emergency and ENT departments. It is mostly seen in children but could be encountered in adults¹. Foreign bodies could be classified as either animate or inanimate; the inanimate is further classified into organic and non-organic².

The most frequently seen foreign bodies are beads, cotton tips, seeds and garlic, paper, insects, button batteries and Bluetooth devices. Thirty percent of aural foreign bodies are beads, Bluetooth cheating devices making up only 3%³.

The presentation varies among different ages. However, it is important to note that over 50% of patients are asymptomatic, other presentation could include otalgia, otorrhea and tinnitus⁴.

Children insert objects out of curiosity during play or other activities. In adults, foreign bodies in the ear could be due to the use of cotton buds that dislodge and impact in the external ear meatus⁵. Other causes could include the use of Bluetooth cheating devices which was similar to our patient³. Most cases could be removed through otoscope; others might require further investigations such as skull X-rays or CT scan and removal under anesthesia⁶.

Most foreign bodies could be removed with instrumentation under direct vision without the need for sedation. Certain cases, however, would require the patient to be anesthetized such as cases of deeply impacted foreign bodies and uncooperative patients^{7,8}.

Complications may vary depending on the type and location of the foreign body, which includes bruising or laceration of the external ear meatus, tympanic membrane perforation, bleeding and otitis externa/media. Foreign bodies in the middle ear cavity could cause erosion of the ossicles and the mastoid bone, damage to the facial nerve and permanent hearing loss⁶.

CONCLUSION

A metallic foreign body in the middle ear requires urgent management. An experienced physician with proper instrumentation is mandatory in such cases. Early intervention would most likely avoid otological complications.

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REFERENCES

1. Baker MD. Foreign Bodies of the Ears and Nose in Childhood. *Pediatr Emerg Care* 1987; 3(2):67-70.
2. Carney AS, Patel N, Clarke R. Foreign Bodies in the Ear and the Aerodigestive Tract in Children. In: Scott-Brown's *Otorhinolaryngology, Head and Neck Surgery*, 7th ed. London, UK: Edward Arnold; 2008:1184-93.
3. Al-Juboori AN. Aural Foreign Bodies: Descriptive Study of 224 Patients in Al-Fallujah General Hospital, Iraq. *Int J Otolaryngol* 2013; 2013:401289.
4. Oreh AC, Folorunsho D, Ibekwe TS. Actualities of Management of Aural, Nasal, and Throat Foreign Bodies. *Ann Med Health Sci Res* 2015; 5(2):108-14.
5. Shrestha I, Shrestha BL, Amatya RC. Analysis of Ear, Nose and Throat Foreign Bodies in Dhulikhel Hospital. *Kathmandu Univ Med J (KUMJ)* 2012; 10(38):4-8.
6. Eleftheriadou A, Chalastras T, Kyrmizakis D, et al. Metallic Foreign Body in Middle Ear: An Unusual Cause of Hearing Loss. *Head Face Med* 2007; 3:23.
7. Endican S, Garap JP, Dubey SP. Ear, Nose and Throat Foreign Bodies in Melanesian Children: An Analysis of 1037 Cases. *Int J Pediatr Otorhinolaryngol* 2006; 70(9):1539-45.
8. Dwivedi RC, Bhatia N, Rhys-Evans PH. Low-Cost Dual-Action Aural Foreign-Body Extractor. *Laryngoscope* 2009; 119(2):351-4.