Scientific Research Publishing

Voice of the Publisher, 2025, 11(4), 739-746
https://www.scirp.org/journal/vp
ISSN Online: 2380-7598
ISSN Print: 2380-7571

Atypical Ear Foreign Bodies: An Underestimated Danger

Moad El Mekkaoui[1*], Naoufal Miri[1], Yahya Khalid[2], Zakaria El Hafi[1], Zakaria Arkoubi[1], Razika Bencheikh[1], Anas Benbouzid[1], Leila Essakalli[1]

[1]ENT-Head and Neck Surgery Department, Hospital of Specialties, Mohammed V University, Rabat, Morocco
[2]Psychiatry Department, Ar-Razi Hospital, Mohammed V University, Rabat, Morocco
Email: *moad_elmekkaoui@hotmail.fr

How to cite this paper: El Mekkaoui, M., Miri, N., Khalid, Y., El Hafi, Z., Arkoubi, Z., Bencheikh, R., Benbouzid, A., & Essakalli, L. (2025). Atypical Ear Foreign Bodies: An Underestimated Danger. *Voice of the Publisher, 11,* 739-746.
https://doi.org/10.4236/vp.2025.114047

Received: July 6, 2025
Accepted: December 27, 2025
Published: December 30, 2025

Abstract

Background: The introduction of foreign bodies into the external auditory canal is common in children but rare in adults, usually associated with psychiatric illness, intellectual disability, or drug addiction. **Aim:** We present a rare case of a schizophrenic patient who inserted cement into his external auditory canal to alleviate auditory hallucinations, highlighting the complications, therapeutic challenges, and the importance of multidisciplinary management. **Case Presentation:** A 60-year-old male with paranoid schizophrenia inserted fresh cement into his left ear in an attempt to suppress auditory hallucinations. He later developed otalgia, hearing loss, and otorrhea. Otoscopy and CT imaging revealed a stony mass obstructing the canal without middle ear involvement. Under general anesthesia, the foreign body was successfully removed without complications. Postoperatively, he was stabilized on antipsychotic medication with resolution of hallucinations and normalization of hearing. **Conclusion:** Ear foreign bodies in adults should raise suspicion of psychiatric illness. Cement, due to its chemical and physical properties, can cause severe complications. Early surgical removal and coordinated multidisciplinary management involving otolaryngology and psychiatry are essential to prevent recurrence.

Keywords

Ear Foreign Body, Cement, Complications, Schizophrenia, Case Report

1. Introduction

The introduction of foreign bodies into the external auditory canal is frequently encountered in the pediatric population, but remains exceptional in adults, except in the context of psychiatric pathology, intellectual deficiency, or drug addiction.

The materials introduced vary greatly, ranging from inert objects to chemical or organic substances. Although this procedure generally has no consequences, it can lead to complications that can jeopardize hearing function. In this case report, we present an unprecedented situation in the medical literature involving the deliberate introduction of cement into the external auditory canal of a schizophrenic patient.

2. Case Report

Initial Presentation: This is a 60-year-old patient who has been treated for paranoid schizophrenia for 25 years. He initially presented with a behavioral disorder consisting of isolation, social withdrawal, and irritability. Subsequently, he began to verbalize delusions of persecution against his colleagues and family, which led to his first hospitalization on the psychiatric ward in 2001. A diagnosis of paranoid schizophrenia was made, and the patient was put on haloperidol, chlorpromazine, and fluphenazine, with good improvement but no return to the premorbid state. The course was marked by several episodes requiring repeated hospitalisations for therapeutic adjustments. The patient stopped his treatment 3 months ago, claiming to be cured. He then developed auditory hallucinations and began to verbalise mystical-religious delusions, leading to a further hospitalization in the psychiatric emergency unit, where he was put on Haloperidol 12 mg/day and Chlorpromazine 300 mg/day. During this hospitalisation, the psychiatrists suspected a left otitis externa, for which he was referred to the Otolaryngology department.

The questioning of the patient and his family revealed that the patient had deliberately introduced fresh cement into his left ear to compensate for the auditory hallucinations from which he was suffering. One month later, the patient developed hearing loss, otalgia, and otorrhea in the left ear, with no associated otorrhoea, vertigo, or neurological signs, all evolving in the context of apyrexia. The physical examination was easily performed; the patient was cooperative despite his psychiatric condition. On inspection, we found purulent otorrhoea draining from the left external auditory canal, with no associated retroauricular inflammatory mass. Otalgia was exacerbated by pressure on the tragus. Facial inspection revealed no left peripheral facial paralysis. Otoscopic examination revealed, after aspiration of the otorrhoea, a greyish mass with a hard, stony consistency, completely obstructing the bony and cartilaginous left external auditory canal, which was inflamed and prevented visualization of the tympanic membrane (**Figure 1**). Examination of the right ear was strictly normal. Tinnitus measurement revealed a negative Rinne, and a Weber lateralized to the left side in favor of a left conductive hearing loss. The vestibular examination was unremarkable: we found no segmental deviation or nystagmus. The rest of the ENT and neurological examinations were strictly normal.

A paraclinical assessment was carried out. Audiometry confirmed a moderate conductive hearing loss on the left (**Figure 2**). Hearing on the right was normal. A non-injected CT scan of the temporal bone revealed an obstruction of the left

external auditory canal by a radio-opaque material that was not adherent to the skin lining of the canal. The relief of the tympanic membrane appeared to be respected, the middle ear was not affected in its container and contents (Figure 3), the mastoid was well ventilated with no signs suggestive of mastoiditis, and no indirect signs of labyrinthitis were present (Figure 4).

Surgical Management: Once the work-up was completed, the patient was admitted to the operating room for the surgical removal of the foreign body under general anesthesia. The patient was positioned supine, with the head turned to the contralateral side. Under the microscope, the foreign body was carefully and meticulously removed using a 2 mm suction, a micro-detachment device, a 45˚ Rosen micro-hook, and a point to avoid traumatizing the external auditory canal (Figure 5). The cement, which was firmly attached to the walls of the canal, was completely removed without being fragmented. Following the removal of the foreign body, a lesion assessment was carried out. The skin lining of the external auditory canal was inflamed, and the tympanic membrane was slightly hyperemic (Figure 6). Fortunately, the patient did not suffer any complications, in particular a chemical burn. A pop-oto wick was not necessary.

Postoperative Course: The patient was put on local Ofloxacin and then readmitted to the psychiatric ward for an assessment of his condition, an adjustment of his treatment, and, above all, to correct his auditory hallucinations in order to avoid reintroducing a new foreign body into his ear. He was put on Haloperidol 6 mg/day, Chlorpromazine 150 mg/day, and Fluphenazine 75 mg/month. Regular and close medical control by the two cooperating departments continues. The patient's condition has stabilized, with his auditory hallucinations disappearing, his mystico-religious delusions receding into the background, and his sleep returning to normal. His otoscopic examinations revealed no abnormalities. A follow-up tonal audiometry revealed strictly normal hearing (Figure 7).

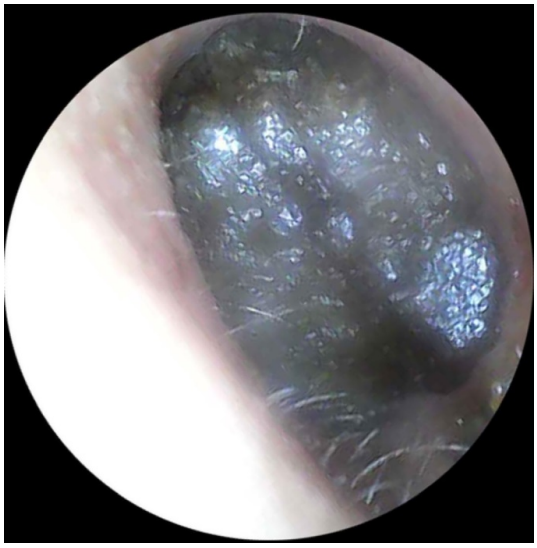

Figure 1. A greyish, hard, stony mass completely obstructed the left external auditory canal, which was inflamed and prevented visualization of the tympanic membrane.

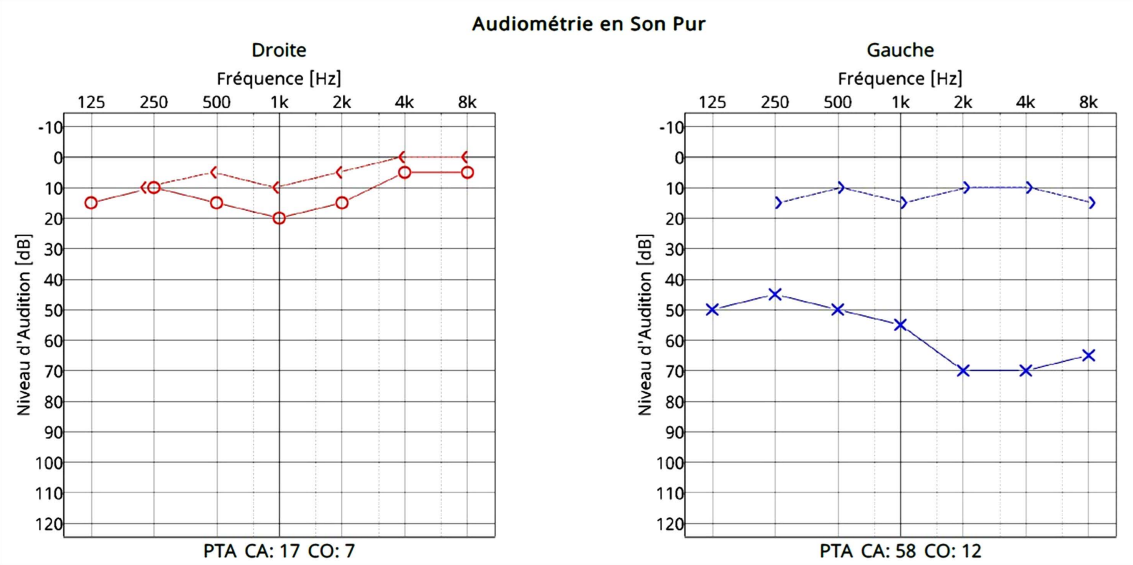

Figure 2. Moderate conductive hearing loss on pure tone audiometry.

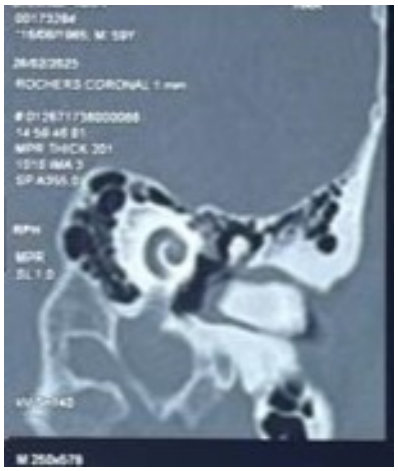

Figure 3. Non-injected CT scan of the temporal bone (coronal section) showing an obstruction of the left external auditory canal by a radio-opaque material that was not adherent to the skin lining of the canal. The relief of the tympanic membrane appeared to be respected.

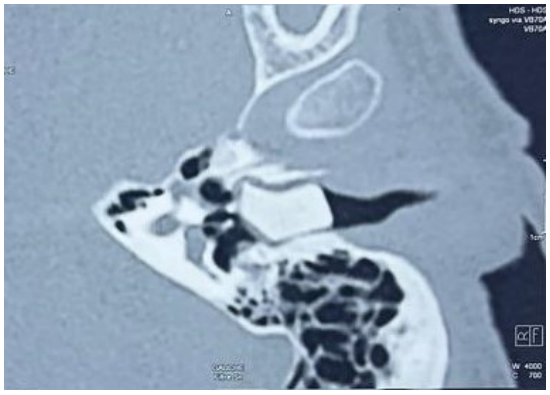

Figure 4. Non-injected CT scan of the temporal bone (axial section) showing a well-ventilated mastoid with no signs suggestive of mastoiditis, and no indirect signs of labyrinthitis.

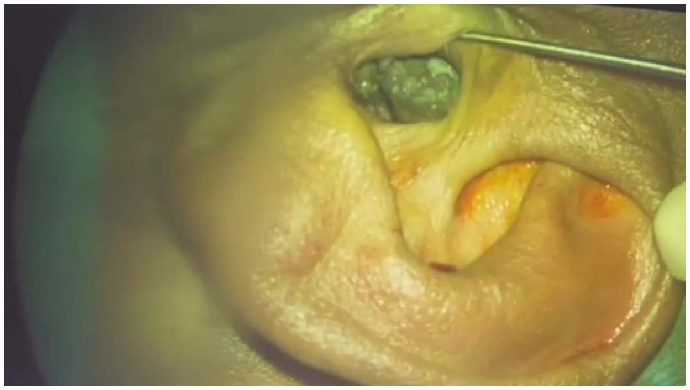

Figure 5. Extraction of the auricular foreign body under a microscope using otological microinstruments.

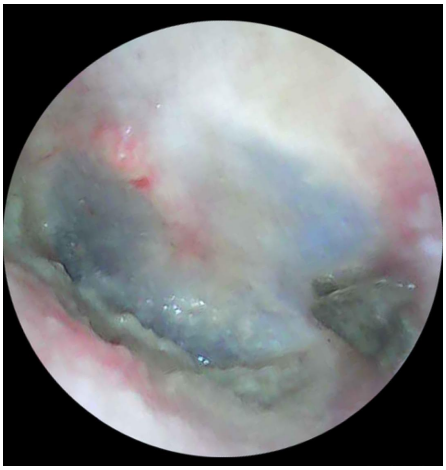

Figure 6. Skin lining of the external auditory canal was inflamed, and the tympanic membrane was slightly hyperemic during otoscopic examination after extraction.

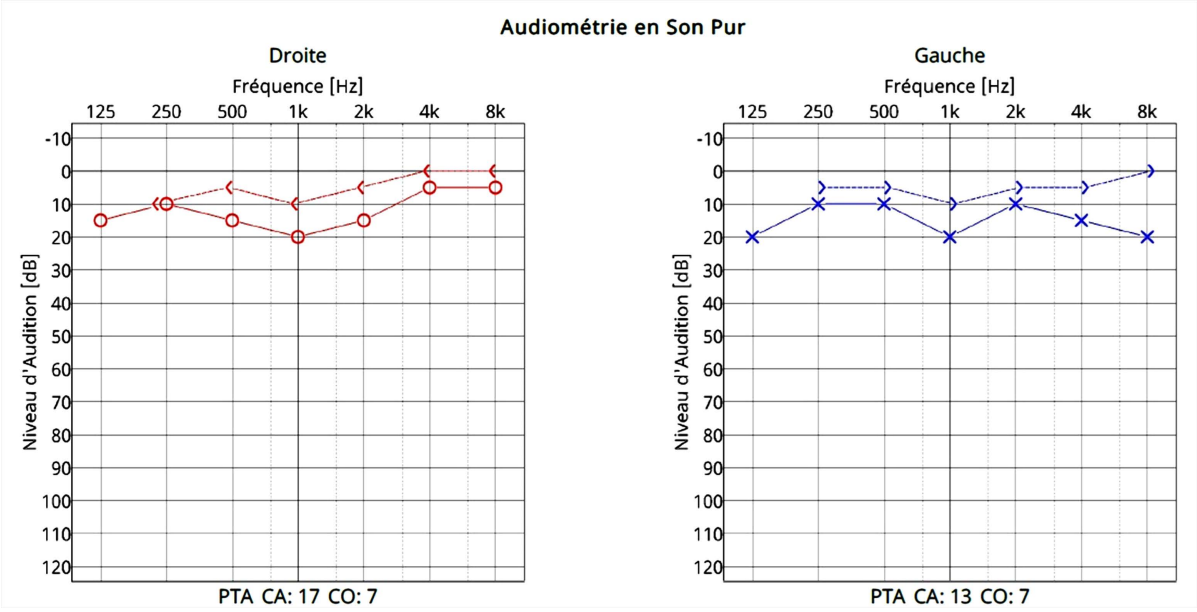

Figure 7. Hearing strictly normalized to tone audiometry.

3. Discussion

The first observation of a neglected auricular foreign body for more than two decades dates back to 1883, and was reported by Lucius Holland. Undiagnosed cases of foreign bodies in the ear, whether introduced deliberately or accidentally, remain rare, with prevalence estimated at less than 0.4% in the various series reported in literature. The majority of cases involve children aged between 2 and 15 years, with a male predominance (56%), often associated with a disadvantaged socio-economic background. In adults, the introduction of a foreign body into the external auditory meatus is exceptional, occurring generally in a psychiatric context such as schizophrenia (Yadav & Yadav, 2021; Karimnejad et al., 2017; Skandour et al., 2014).

Schizophrenia is a complex neuropsychiatric disorder combining positive symptoms such as hallucinations and delusions with negative symptoms such as apathy and social withdrawal (Boksa, 2009). Among the most common hallucinations are auditory hallucinations, manifested by internal voices that the patient perceives as coming from outside, disrupting reality (Thakur & Gupta, 2025). These hallucinations are linked to a dysfunction in dopaminergic regulation within the auditory cortex and limbic system, regions responsible for sound perception and emotional processing, respectively.

The prevailing hypothesis is that excessive dopamine activity leads to a misattribution of internally generated stimuli. Neural signals that normally correspond to inner speech or self-generated thoughts are abnormally processed as if they were external sensory inputs. In other words, the patient's brain misinterprets self-generated neural activity as coming from an external source, giving rise to the perception of "voices" that are not actually present (Boksa, 2009; Thakur & Gupta, 2025). Functional imaging studies support this model, showing hyperactivation of the superior temporal gyrus and auditory association areas during hallucinations, similar to the patterns observed when hearing real external speech.

This faulty signal attribution mechanism explains why patients experience these hallucinations as intrusive and uncontrollable, and why they may adopt extreme strategies to suppress them. In our case, the patient's act of inserting cement into his external auditory canal can be interpreted as a desperate attempt to physically block the perceived source of the voices, illustrating the profound impact of dopaminergic dysregulation on behavior.

There are several types of foreign bodies that can be introduced into the external auditory canal, both organic and biological. Cement, which was introduced into our patient's ear, is a widely used construction material that can cause serious damage. Its alkaline strength and ability to harden rapidly make it a potentially aggressive foreign body. Fresh cement contains calcium hydroxide and other basic compounds (Naoi et al., 2019). Once introduced into the external auditory canal, it can cause chemical burns due to a local rise in pH and mechanical damage due to expansion during setting or adhesion to the eardrum and canal skin after hardening (Naoi et al., 2019). The consequences for the ear are varied, ranging from minor to major, with perforation of the tympanic membrane, trauma to the ossic-

ular chain, and damage to the inner ear. Fortunately, in our case, the cement introduced did not cause any deleterious lesions.

The main clinical symptoms associated with the introduction of a foreign body into the ear are otalgia, a feeling of fullness in the ear, hearing loss, otorrhagia, tinnitus, and vertigo. In some cases, the presence of a foreign body may be revealed by chance during a routine otoscopic examination. However, in the absence of suggestive symptoms, these foreign bodies may remain asymptomatic and only manifest themselves at a more advanced stage, during complications such as otitis externa, mastoiditis, chronic otitis media, labyrinthitis, peripheral facial paralysis, or endocranial complications. The paraclinical work-up is essentially based on audiometry combined with a CT scan of the temporal bone to assess the position of the foreign body in the ear, its depth, its relationship with adjacent structures, and to look for signs of complications (Yadav & Yadav, 2021; Karimnejad et al., 2017; Skandour et al., 2014). In our case, the patient presented with a local superinfection with no other signs of complications.

If a foreign body is found, it must be removed urgently under a microscope, sometimes under general anaesthetic. The choice of technique depends on the nature, shape, and size of the foreign body, and above all, its position and the length of time it has been in the ear (Yadav & Yadav, 2021; Karimnejad et al., 2017; Skandour et al., 2014). Management varies according to the state of the cement at the time of diagnosis. When the cement is still fresh, some authors suggest immediate evacuation under a microscope using gentle saline irrigation followed by careful aspiration if the eardrum is intact. However, caution is required since the hydration of cement triggers an exothermic reaction and releases alkaline compounds, which may accelerate setting and exacerbate chemical burns. Therefore, irrigation should only be attempted if the cement is in a slurry state and before significant hardening occurs, while other mechanical extraction techniques (such as micro forceps or curettes) may be preferable in most cases (Naoi et al., 2019). Once the foreign body has been extracted, the lesions must be assessed. Skin necrosis of the external auditory canal requires immediate debridement, as necrotic tissue acts as a nidus for secondary infection and delays healing. Moreover, failure to remove necrotic areas increases the risk of granulation tissue formation and subsequent canal stenosis, which can lead to long-term conductive hearing loss. If a tympanic perforation or trauma to the ossicular chain is found, a subsequent procedure is required to correct the abnormalities with the aim of restoring hearing function (myringoplasty, ossiculoplasty).

Multidisciplinary management is essential to prevent the reintroduction of a foreign body in a psychiatric context. Treatment is then required to stabilize the patient's condition and, above all, to make the auditory hallucinations disappear. Pharmacological treatment of schizophrenia relies mainly on antipsychotics, which target dopamine receptors (dopamine receptor antagonists), in particular D2 receptors, to reduce the excessive transmission of dopamine responsible for psychotic symptoms (Boksa, 2009; Thakur & Gupta, 2025). New-generation antipsychotics (such as D2 and 5-HT2A receptor inhibitors) have improved efficacy and a more

favorable side-effect profile (Thakur & Gupta, 2025). At the same time, psychotherapeutic interventions such as cognitive behavioral therapy (CBT) help to reduce the intensity and impact of hallucinations. In particular, CBT can assist the patient in re-evaluating the origin and meaning of the voices, diminishing their perceived power, and developing alternative coping strategies to manage distress, thus lowering the risk of maladaptive behaviors such as self-insertion of foreign bodies (Boksa, 2009).

4. Conclusion

Although foreign bodies in the ear are exceptional in adults, they should be suspected in patients with psychiatric disorders, particularly auditory hallucinations. Once the diagnosis has been made, rapid and atraumatic removal is essential to avoid complications and hearing damage. Anticipated and coordinated multidisciplinary management remains the key to avoiding another episode with potentially deleterious consequences.

Declarations

- This is a simple case report which, unlike prospective research studies, does not require the approval of our institution's ethics committee.
- Written informed consent was obtained from the patient's parents/legal guardian for publication and any accompanying images.
- All data are available in the patient's medical file.
- Provenance and peer review: Not commissioned, externally peer-reviewed.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

Boksa, P. (2009). On the Neurobiology of Hallucinations. *Journal of Psychiatry and Neuroscience, 34,* 260-262. https://doi.org/10.1139/jpn.0934

Karimnejad, K., Nelson, E. J., Rohde, R. L., & Costa, D. J. (2017). External Auditory Canal Foreign Body Extraction Outcomes. *Annals of Otology, Rhinology & Laryngology, 126,* 755-761. https://doi.org/10.1177/0003489417731578

Naoi, Y., Kariya, S., Tachibana, T., & Nishizaki, K. (2019). Application of Burow's Solution for Cement Foreign Body in the External Auditory Canal. *European Annals of Otorhinolaryngology, Head and Neck Diseases, 136,* 397-399. https://doi.org/10.1016/j.anorl.2018.01.014

Skandour, D., Nouri, H., Rochdi, Y., Aderdour, L., & Raji, A. (2014). [Persistent Otorrhea Revealing a Foreign Body of the Middle Ear]. *Archives de Pédiatrie, 21,* 873-875. https://doi.org/10.1016/j.arcped.2014.05.017

Thakur, T., & Gupta, V. (2025). *Auditory Hallucinations*. StatPearls.

Yadav, R., & Yadav, D. K. (2021). Foreign Bodies in Ear: A Descriptive Study. *Indian Journal of Otolaryngology and Head & Neck Surgery, 74,* 4077-4080. https://doi.org/10.1007/s12070-021-02826-z