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Research Article

Foreign Bodies in the Ear and Nose Among Children: A Cross-Sectional Study from Karbala, Iraq

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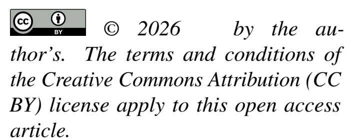

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Abstract

Background: One of the most common otorhinolaryngologic emergencies in children is the presence of foreign bodies in the ear and nose which may cause severe morbidity in case of unobserved and untreated presence. Small children are especially susceptible due to their developmental adventurousness, the easy availability of small objects and insufficient supervision.
Objective: The aim of this study was to describe the demographic and clinical features of pediatric patients who presented in the Karbala government teaching hospitals in Iraq, and also to report the patterns of diagnostics and management of ear and nasal foreign bodies in this institution.
Materials and methods: The study was a cross-sectional study carried out in Imam Hussein Medical City and Imam Al Hassan Al Mujtaba Teaching Hospital of Karbala, 1 August 2024 to 14 March 2025. A total of 50 children aged 38 years with known ear or nose foreign bodies were recruited; demographic data, location and nature of foreign body and method of entry, diagnostic procedure, removal method and procedure time were measured using a structured questionnaire and the descriptive statistics analyzed.
Results: Among 50 children 60% of them had foreign bodies in their nose and 40% in their ears. Most of the foreign objects were self-inserted (92), non-organic objects dominated (80). The diagnosis was based on autoscopy in 90 percent of the cases and the primary form of removal was by hand (66 percent); the majority of foreign bodies were cleared in less than four minutes (86 percent).
Conclusion: The self-inserted non-organic foreign materials in the ear and nose of this Iraqi cohort were predominantly nose-based, and a majority of them were self-inserted. Diagnostic tests as simple as autoscopy and unsophisticated manual methods to extract the stone proved to be safe and fast in the vast majority of cases, which is why prompt presentation and expertise at the primary and secondary care level, as well as reasonable equipment are essential.

1. Introduction

Ear and nose foreign bodies comprise a significant percentage of emergency and otorhinolaryngology presentation of acute cases especially among the pediatric population. Clinical significance of such events is that complications may occur due to the failure to diagnose or manipulate these issues in a proper way i.e. infection, tissue necrosis or in severe cases, life threatening sequelae [1, 2].

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Making use of natural orifices is a common explorative behavior in young children who often stuff little objects into them, without the parental oversight. This pattern is caused by curiosity, imitating friends or brothers, and easy access to beads, toy parts, seeds, and household objects [3]. Even though foreign bodies are most prevalent in preschool-aged children, they can also be found in the older children and in intellectually or psychiatrically challenged adults [4].

The reports of several studies in other parts of the globe have indicated that a significant proportion of ENT emergencies is represented by the presence of foreign bodies in the ear and the nose with the report showing the highest occurrence in children less than 8 years old. The geography of locations and kind of foreign objects differs depending upon the sociocultural background, local play practices, and access to small objects. Beads and seeds, which cannot be grasped, are typical and can be related to reduced instances of removal and increased instances of complication, especially canal lacerations and mucosal trauma [2, 4, 5].

Perpetrators of a large variety of objects have been reported in the nasal cavity, such as beads, buttons, stones, paper, food particles and button batteries. Particularly, it is assumed that button batteries are high-risk devices that can lead to the development of liquefaction necrosis, septal perforation, and severe epistaxis, which require an urgent removal. Early medical diagnosis and proper management is thus essential in order to reduce the short term and long-term complications [6, 7].

Majority of pediatric ear and nasal foreign bodies could be safely removed in outpatient clinics or emergency facilities with help of simple equipment and, in some cases, minimum amount of sedation can be used. General anesthesia is usually used when the children are uncooperative, or when a foreign body is so severely affected or has complications or suspected high-risk objects like button batteries. The presentation/management pattern might also be subject to larger health -system alterations as implied by the reports of pre and post COVID-19 in edition of pediatric ENT practice [7, 8].

Even though this problem is clinically relevant, limited information exists in Iraq regarding the issue of pediatric ear and nasal foreign bodies. Knowledge of local patterns can be used to resolve prevention strategies, resource allocation, and assist in the creation of context-specific management protocols. This paper thus attempted to assess both demographic and clinical characteristics of children brought with ear and nasal foreign bodies at two government teaching hospitals in Karbala, Iraq, as well as describe the method of diagnosis, process of withdrawal and time of procedure in this group of children.

2. Methods

2.1. Study design and setting

This study was a cross-sectional study carried out in Karbala in Iraq, in the Imam Hussein Medical City and Imam Al-Hassan Al-Mujtaba Teaching Hospital as part of the government hospitals. The research time covered 1 August 2024 to 14 March 2025 when all eligible pediatric patients who presented with ear or nasal foreign bodies were reviewed.

2.2. Sample size and population of the study

The population of the study included pediatric patients that presented with a recorded presence of a foreign body in the ear or nose. The number of children was 50. The participants had to be aged 3-8 years old and hospitalised and demonstrated the presence of a foreign body in the external auditory canal or the nasal cavity in the time of admission.

2.3. Inclusion criteria

The inclusion criteria comprised children aged 38 years-old with a foreign body in ear or nose. Patients were not included when they were out of range of said age bracket, had foreign bodies to other anatomical areas (oropharynx, airway) or where the study questionnaire contained incomplete or missing data.

2.4. Data collection procedures

The structured questionnaire was designed to collect the data through use of a structured questionnaire. The questionnaire included the demographic data (age and sex), clinical information (localization of the foreign body, the nature of the foreign body and entry mechanism) and temporal data (duration of time since insertion). It also captured the diagnostic process, the procedure used to remove foreign bodies, any form of anesthesia and the duration taken to carry out the process. A headlight and otoscope were used to conduct clinical examination, and a nasal speculum or the other needed instruments. The major diagnostic mode that was utilized was autoscopy, whereas plain radiography was used in specific instances when radiopaque foreign bodies or button batteries were suspected.

2.5. Techniques of management and removal

The removal of foreign bodies was done with normal otorhinolaryngologic methods. Most of them were manually extracted by forceps, hook or heretical instruments. Irrigation was applied where inappropriate and unsafe to make sure that the ear foreign bodies are not applied to suction, but instead applied to the ear so that the shape or consistency of the object could be applied to this technique. In infrequent or complicated cases, or where preliminary measures of removal had failed, surgical intervention by means of local or general anesthesia was resorted to, on clinically determined and patient-cooperative grounds.

2.6. Ethical considerations

The Department of Family and Community Medicine, College of Medicine, University of Karbala granted ethical approval of the study. Informed consent was given by the parents or legal guardians of all the children taking part in data collection through verbal means. All data was kept confidential with no part of the analysis or reporting presenting any form of patient identities.

2.7. Statistical analysis

The data were entered in the Microsoft Excel 2013 and analyzed in SPSS version 21 (IBM Corp., Armonk, NY, USA). The analysis was of a descriptive character. Categorical variables such as age group, sex, site and type of foreign body, mode of entry, diagnostic method, removal technique and time needed to remove the object were determined as frequencies and percentages. The sample size used was small and the study was exploratory, which is why no inferential statistical tests were done.

3. Results

The study conducted included 50 children. The Table 1 gives the age and sex composition of the participants. Age wise, 30 children (60%), were aged 3-5 years and 20 children (40%), aged 6-8 years of age. In terms of sex, the female population was a little higher: 24 males (48%), and 26 females (52) were included in the sample. Table 2 demonstrates the location of the foreign body. This cohort had a higher number of nasal foreign bodies than ear foreign bodies. In particular, 30 (60 percent) children brought with foreign bodies in the nose and 20 (40 percent) in the ear. Table 3 provides the mode of entry of the foreign body. The most prevalent self-inserted foreign bodies were 46 in number (92%). The proportion of the 4 cases (8 percent) where the accidental insertion was attributed showed that the most predominant mechanism was intentional self-insertion during play or exploration. Table 4 describes the nature of the foreign body that was faced. Objectives that were not organic were much more common than organic ones. The proportion of non-organic foreign bodies was 40 children (80%), and the proportion of organic foreign bodies, e.g. food particles or seeds, was 10 children (20%).

Table 1: Age and sex distribution of children with ear and nasal foreign bodies

Variable Age Group	Frequency	Percentage
3–5 years	30	60 %
6–8 years	20	40 %
Sex		
Male	24	48 %
Female	26	52 %

Table 2: Anatomical site of foreign bodies (ear versus nose)

Site	Frequency	Percentage
Ear	20	40 %
Nose	30	60 %

Table 3: Mode of foreign body entry in affected children

Mode	Frequency	Percentage
Self-inserted	46	92 %
Accidental	4	8 %

Table 4: Type of foreign bodies (organic and non-organic)

Type	Frequency	Percentage
Organic	10	20 %
Non-organic	40	80 %

Table 5 gives the time interval between the presentation and insertion. Majority of children came up early in the incident. Thirty (60 percent) of the cases came to the hospital in less than one hour of insertion, and 15 (30 percent) cases came in between 1 and 3 hours. A lesser percentage occurred later where 3 children (6%) came between 3 and 6 hours after insertion and 2 children (4%) came after more than 6 hours of the incidence. Table 6 presents diagnostic techniques that are employed to detect the foreign bodies. The main diagnostic tool was autoscopy and it was used in 45 cases (90 percent). There were three instances (6%) of a combination of the use of headlight and speculum, and plain X-ray imaging was required in 2 cases (4%), which are typically those that involve a radiopaque object that is suspected.

Table 5: Time interval between foreign body insertion and hospital presentation

Time	Frequency	Percentage
$<$1 hour	30	60 %
1–3 hours	15	30 %
3–6 hours	3	% 6
$>$6 hours	2	% 4

The procedures employed in the extraction of the foreign bodies are as follows summarized in Table 7. The most common technique was by manual extraction (used successfully in 33 children (66%). In 11 cases (22%), the irrigation was applied (suction in 5 cases (10%))

Table 6: Diagnostic methods used to identify ear and nasal foreign bodies

Method	Frequency	Percentage
Autoscopy	45	% 90
Headlight + Speculum	3	% 6
X-ray	2	% 4

generally in situations where the nature of the foreign body formed was amenable to the latter method. The overall performance of simple extraction techniques in this cohort was represented by a single child (2%) that needed surgical removal. Table 8 shows the time of the removal procedures. The removal of foreign bodies was done in a very fast manner in the majority of cases. The time spent on the procedure took less than 4 minutes in 43 children (86%). Removal took 5-10 minutes in 5 children (10%), but more than 10 minutes in only 2 children (4%), which was the duration needed in the 5 children. Such results suggest that under such circumstances, most ear and nasal foreign bodies in children were removable in a fast and effective way as soon as suitable equipment and skills were at hand.

Table 7: Techniques employed for removal of ear and nasal foreign bodies

Method	Frequency	Percentage
Manual extraction	33	% 66
Irrigation	11	% 22
Suction	5	% 10
Surgical	1	% 2

Table 8: Duration of procedures for foreign body removal in children

Time	Frequency	Percentage
<4 minutes	43	86 %
5–10 minutes	5	10 %
>10 minutes	2	4 %

4. Discussion

The current cross-sectional research indicates the trend of ear and nasal foreign bodies among 50 children in the age category of 3-8 years in two teaching hospitals in Karbala, Iraq. The results verify the existence of foreign bodies in [9].

This cohort report shows that 60 percent of them happened among children of age 3-5 years with 40 percent happening in children of 6-8 years girls, as shown in Table 1. The given age structure is consistent with those prior findings that show that children of preschool age are the most vulnerable to foreign body insertion into the ear and nose [9, 10]. The sex distribution was fairly equal with a small female predominance (52% female and 48% male) which is comparable to some published pediatric ENT series, but other studies have reported a small male predominance [11, 12].

The number of nasal foreign bodies was higher than ear foreign bodies in this sample with 60 percent of those children presenting with nasal foreign bodies and 40 percent presenting with ear foreign bodies Table 2. This trend is consistent with the idea that the nasal cavity is a frequent location of foreign bodies insertion among young children, who might have an easier time introducing small objects into the nostrils during games [13]. Nevertheless, it further highlights the necessity to keep index of suspicion of both nasal and aural foreign bodies high on the list of clinicians in this age group.

Table 3 mode of entry data demonstrate that mode of entry was self-inserted (92 percent) and only 8 percent due to the accidental insertion. These statistics underline the contribution of child behavior and monitoring to the pathogenesis of the ENT foreign bodies and the significance of preventive measures of parents and caregivers. The fact that non-organic objects (80%), compared to organic ones (20%), outnumber in Table 4 is another indication of the impact of the surroundings in which the child lives as toy parts, beads, and other small manufacture items are easily available to the child.

Time since insertion Table 5 shows that majority of children showed early with 60 percent of them attending less than one hour and 30 percent attending between 1 and 3 hours upon the event. A low percentage of them came later than 3 hours, and very few later than 6 hours. Most of the non-organic foreign bodies can be easily and safely managed early in their course, allowing direct visualization by direct presentation, and minimizing extraction attempts, thereby minimizing the risk of operating room referral. Timely clinic removal minimizes the complexity of the procedures and the risk of iatrogenic injury or subsequent infection following several or challenging extraction efforts, especially in situations of non-organic foreign bodies [14].

The method of diagnosis used in this research was based on simple and easily accessible tools. In 90% cases, the autoscopy was applied Table 6, whereas in 6 and 4 cases, it was headlight and speculum and X-ray respectively. This trend indicates that, most of the times, diagnostic can be made with particular attention to the clinical examination, with imaging being reserved in a few cases, like possible presence of radiopaque foreign bodies or button batteries [15]. Likewise, ear and nasal foreign bodies diagnosis is normally achieved by Clinical examination and endoscopic inspection, and does not require regular imaging. A number of series and reviews find no need of routine radiography when the foreign body is visible and the child is cooperative. Imagine that the examination is not conclusive, the object can be radiopaque or a button battery, or a complication or deep location is feared [16, 17].

The main method of removal was by hand, and was effective in 66 percent of the children Table 7. In 22% and 10% of the cases, irrigation and suction were used respectively and only one child (2%) had to be operated on. Such results confirm that in the hands of trained clinicians with the right tools, simple extraction techniques are very effective in most of the ear and nasal foreign bodies in children. The

data of the procedure time Table 8 support this conclusion: 86% of all foreign bodies were removed within less than 4 minutes and 4% of all procedures took more than 10 minutes.

All of this points to a consistent finding: preschool-aged children, especially those 35 years old, are the ones to be the most vulnerable; foreign bodies in the nose are a little more common than those in the ear; most of the foreign bodies are self-inserted, non-organic, and discovered and removed with basic diagnostic and treatment instruments. These findings are in line with the rest of the literature and emphasize the need to present early, educate caregivers, and have easy-to-use equipment and skills at the lowest level of care.

5. Conclusion

The current study will show that the presence of foreign objects in the ear and nose is a widespread issue among children between 3 and 8 years old in Karbala with the highest rate of 3 5 years old brackets. Nares foreign bodies were common, compared to ear foreign bodies, and the vast majority of objects were self-inserts of non-organic materials (small toy parts, and so forth).

Premature birth was common, and in the overwhelming majority of cases, diagnosis could be made by autoscopy, with manual extraction being the most important mode of removal. The large percentage of procedures that were done in four minutes and only a small number of surgeries are performed are the indications that pediatric ear and nasal foreign bodies could be dealt with in a relatively brief and safe manner in the proper equipped facilities.

Such outcome justifies the necessity of further actions to inform parents and caregivers on the harmfulness of small objects, to train the frontline medical personnel on safe retrieval methods, and to stock the necessary diagnostic and treatment equipment in primary and secondary healthcare centers.

Article Information

Disclaimer (Artificial Intelligence): The author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.), and text-to-image generators have been used during writing or editing of manuscripts.

Competing Interests: Authors have declared that no competing interests exist.

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