www.directivepublications.org

World Journal of Otolaryngology

ISSN 2831-8056

Research Article

Foreign Bodies In Ear, Nose And Throat: Experience From A New Tertiary Care Pediatric Institute In North India.

Dr. Abhishek Gupta, Dr. Manish Girhotra, Dr. Arshiya Farheen, Dr. Simran Bohra.

Department of paediatric Otorhinolaryngology Post Graduate Institute of Child Health, Sector-30, NOIDA,Uttar Pradesh-201301, INDIA.

Abstract

Aim: This retrospective study performed in the department of pediatric otorhinolaryngology in a tertiary care pediatric hospital aims to analyze foreign bodies in terms of type, sight, age and gender distribution, methods of removal, outcomes and complications.
Methodology: A retrospective study with the study population consisting of patients aged 18 or less presenting with ENT FB lodgment in the outpatient department (OPD) or in the ENT emergency unit during the 8-year study period (2016 to 2023) was performed. The patients were grouped according to the location of FB into throat FBs (swallowed) aural FBs and nasal FBs.
Result: A total of 920 patients with ENT foreign bodies were examined and managed at the pediatric otorhinolaryngology department. The most commonly encountered were Nasal (450 case 48.91%) followed by aural foreign bodies (400 cases-43.4%) and throat foreign bodies (70 cases 7.6%)
Conclusion: The management of foreign bodies in the Ear, Nose and Throat in Children should be adapted to the location, nature of foreign body, and child's age /compliance in order to ensure a safe and gentle removal.

Keywords : Foreign body, paediatric otorhinolaryngology.

INTRODUCTION

Foreign bodies, (FB's) in the ear, nose and throat (ENT) are commonly seen in the medical practice by otorhinolaryngologists, pediatricians, Emergency department surgeons, physicians and even in the primary care setting.[1]

Foreign bodies can be introduced spontaneously or accidently in both adults and children. Generally, ENT FBs are more common in younger children; this may be due to various factors, such as curiosity to explore orifices, imitation, boredom, playing, intellectual disabilities, insanity and attention deficit hyperactivity disorder, along with the availability of the objects and absence of watchful caregivers.[2]

The primary objective of treatment is immediate and painless removal. This is facilitated by a detailed history followed by a clinical examination to determine the precise location of the foreign body. In older children, a direct history may be possible, while with younger children, information provided by the parents must suffice. Although, both the children and the parents are unable to recount the incident. Foreign bodies can be found in the ears, nose or throat, pharynx, esophagus, larynx and the tracheobronchial system. Most foreign bodies above the larynx can be removed easily in compliant children. Here, the child's age and the location of the foreign body play a major role.

In general, the older the patient, the easier it is to remove the foreign body. If the examination or removal process proves difficult, then an individual evaluation is required to determine whether extraction should be performed under general anesthesia, in order to ensure the patient's safety, minimize the risk of iatrogenic complications such as eardrum injury, hemorrhage, aspiration of the foreign body as well as emotional trauma of the child during the procedure.[3,4,5,6]

Consequences of FB injuries vary from low impact disturbances with or without hospitalization to death. The variability is related to many factors, such as the chemical composition, shape and dimensions of the FBs and the anatomical site involved. [7]

***Corresponding Author:** Dr. Abhishek Gupta , Department of paediatric Otorhinolaryngology Post Graduate Institute of Child Health, Sector-30, NOIDA,Uttar Pradesh-201301, INDIA. **E-mail:** drabhishekgupta@gmail.com.
Received: 19-Feb-2025, Manuscript No. WJOGY-4558 **; Editor Assigned:** 25-Feb-2025 **; Reviewed:** 13-Mar-2025, QC No. WJOGY-4558 **; Published:** 25-Mar-2025, **DOI:** 10.52338/Wjogy.2025.4558
Citation: Dr. Abhishek Gupta. Foreign Bodies in Ear, Nose and Throat: Experience from a new Tertiary care Pediatric Institute in North India. World Journal of Otolaryngology. 2025 March; 10(1). doi: 10.52338/Wjogy.2025.4558.
Copyright © 2025 Dr. Abhishek Gupta. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

OBJECTIVES

This retrospective study was performed in the department of pediatric otorhinolaryngology in a tertiary pediatric hospital to analyze foreign bodies in terms of type, sight, age and gender distribution, methods of removal, outcomes and complications.

METHODS

A retrospective study was performed in the department of pediatric otorhinolaryngology in a tertiary pediatric hospital. The study population included all patients of age 18 or less presenting with ENT FB lodgment in the outpatient department (OPD) or in the ENT emergency unit during the 8-year study period (From 2016 to 2023) The patients were evaluated carefully, with thorough history taking and a complete ENT examination, Radiological investigations, like X ray, were performed when the FB was not visible. This was followed by removal of the FB. An anterior rhinoscopy was performed to diagnose nasal FBs. Rigid or flexible nasal endoscopic examinations were also performed in suspected cases of FBs in the nasal cavity that were not visualized with the anterior rhinoscopy. Direct vision with or without otoscopic assistance was employed to diagnose aural FBs. Examination under a microscope was an additional method for diagnosis and it was useful for removal of the FB of the ear. For swallowed FBs, direct vision was obtained with a tongue depressor, indirect laryngoscopy was performed for co-operative patients or trans nasal flexible endoscopy. Plain X-rays of the neck were taken from patients with a history of FB ingestion. A rigid endoscopic examination (Hypopharyngoscopy/ esophagoscopy) was performed in cases in which the FB was not visible in the X-ray to rule out presence of the FB or to determine its site of impaction, as well as to remove it.

Data were obtained from the ENT clinic registration books and ward admission record books. The following data were obtained from patients; age, sex, type of FB and the site/side of impaction, complementary tests, duration of insertion, previous attempts of removal, methods of removal, outcomes and complications. The patients were grouped according to the location of FB into throat FBs (swallowed) aural FBs and nasal FBs. The data collected from the patients were analyzed using the Microsoft Excel 2010 (Microsoft, Redmond, WA, US) software. This study was conducted after receiving approval from the research ethics Committee of our institution.

RESULTS

A total of 920 patients with ENT foreign bodies were examined and managed at the ENT department of a Tertiary Paediatric hospital during the period of 2016 to 2023. A total of 515 cases involved males (55.97%) and 405 involved females (44.02%). The age of the patients ranged from 0 to 18 years. The major proportion of foreign body impactions were found in children between 2 to 5 years of age (54.6%) followed by children between 5 to 10 years of age (29.3%) Among all of the foreign bodies, the most commonly encountered were Nasal (450 case -48.91%) followed by aural foreign bodies (400 cases-43.4%) and throat foreign bodies (70 cases-7.6%). **Figure 1** and **Table 1** describe the distribution of ENT foreign bodies by site, gender and age groups.

Figure 1. Site of Foreign Bodies (FBs)Impaction.

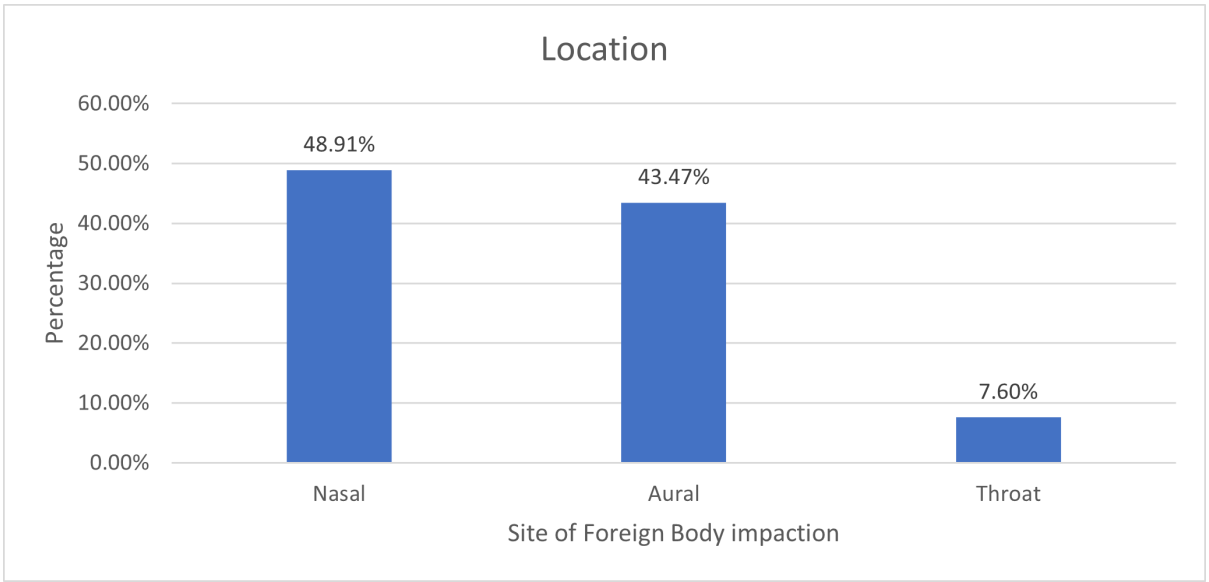


Table 1. Distribution of ENT foreign bodies by Site, Gender & Age Group.

Site of foreign body	Sex		Age					Total
	Male	Female	0-2 years	2-5 Years	5-10 Years	10-15 Years	>15 Years	
Nasal	302(67.1%)	148(32.88%)	50(11.1%)	245(54.4%)	140(31.1%)	12(2.66%)	3(0.66%)	450(100%)
Aural	175(43.7%)	225(56.25%)	27(6.75%)	222(55.5%)	103(25.75%)	36(9%)	12(3%)	400(100%)
Throat	38(54.28%)	32(45.71%)	5(7.1%)	35(50%)	27(38.5%)	3(4.2%)	0(0%)	70(100%))
Total	515(55.97%)	405(44.02%)	82(8.9%)	502(54.5%)	270(29.34%)	51(5.54%)	15(1.63%)	920(100%)

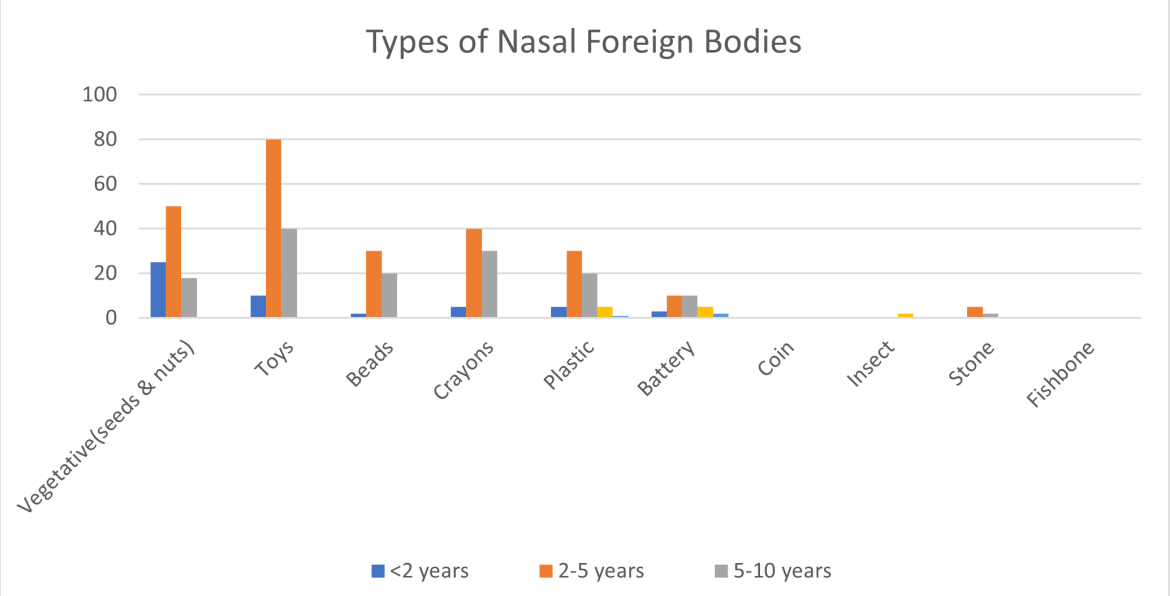
The foreign bodies were removed with or without local anaesthesia in 810 patients (88.04%) whereas patients requiring removal under general anaesthesia were 110(11.9%).

Foreign bodies in the nose

This group of patients was by far the most common in 450 patients, 302 of which were males, and 148 of which were females. A total of 245 (54.4%) patients were in age group of 2-5 years, and 140(31.1%) had ages between 5 and 10, followed by 50(11.1%) in age less than 2 years.

Toys were the most common type of foreign body found in the nose, constituting 130 cases. This was followed by vegetative (seeds and nuts) in 93cases, crayon in 75 cases, beads in 52 cases, plastic in 61 cases, battery in 30 cases, stone in 07 cases and other FBs in 2 cases. **Figure 2** describes the type of Nasal FBs.

Figure 2. Types of Nasal Foreign Bodies (FBs).



The patients presented with a history of introduction of the FB by themselves or with a history of guardians who saw the FB in the nose, local pain, and unilateral offensive Nasal discharge in cases of neglected FBs, epistaxis, and other symptoms like rhinitis, Nasal obstruction, and sensation of swelling.

Most of the FBs were seen on direct vision. The Nasal endoscope was employed to locate deep seated Nasal FBs.Previous attempts of removing Nasal FBs had been made in 50 patients before they presented to our hospital.

Of 450 cases of FB in the nose, 415 were removed in the OPD or ENT emergency unit with or without LA under direct vision by hook, forceps and by suctioning. Only 35 cases required removal under GA, because these patients were uncooperative or due to deep impacted FB. (**Table 2**)

Table 2. Method of removal of ENT foreign bodies.

Foreign Body Site	Removal under LA	Removal under GA	Total
Nasal	415(92.22%)	35(7.77%)	450(100%)
Aural	395(98.75%)	5(1.25%)	400(100%)
Throat	0(0%)	70(100%)	70(100%)
	810	110	920

Only 24 patients with Nasal FBs had complications: epistaxis (20 cases), laceration (02 cases) and ulceration of the Nasal septum (02 cases).

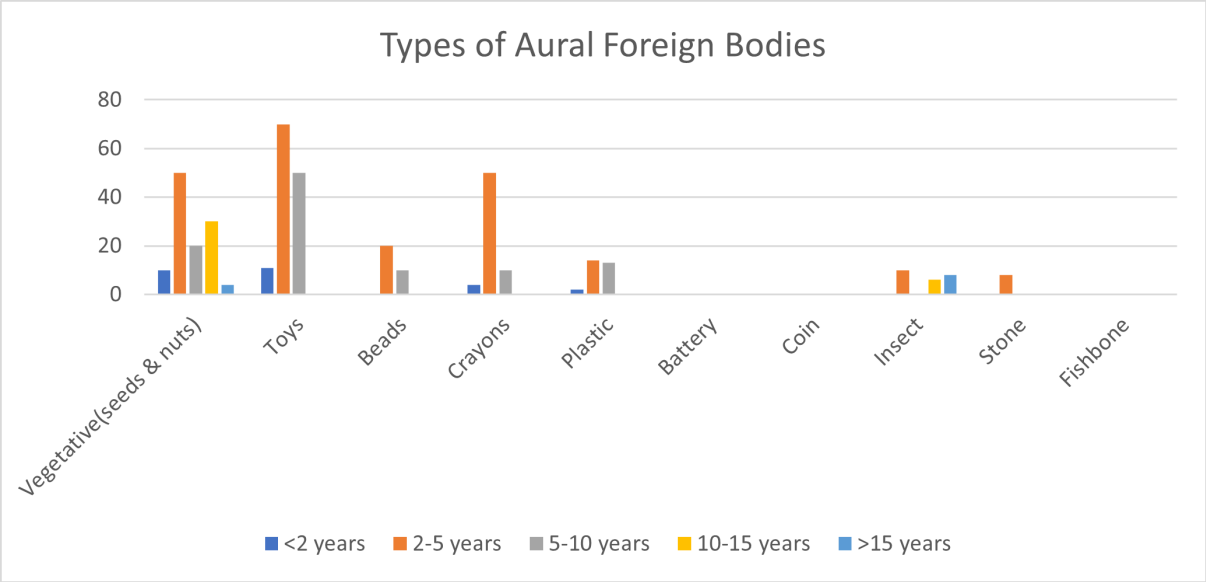
Foreign bodies in the ear

Out of the 400 patients who presented with foreign bodies in their ears 175 were males and 225 were females.

The highest incidence of ear foreign bodies occurred in children 2 to 5 years of age comprising 222(55.5%) cases. This was followed by children 5 to 10 years of age who comprised 103(25.75%) cases.

A total of 131patients had toy parts in their ears, followed seeds and nuts which were found in 114 cases, crayons in 64 cases, beads in 30 cases, metallic foreign bodies in 29 cases, insects were seen in 24 cases and stone in 08 cases. **Figure 3** shows the type of aural foreign bodies.

Figure 3. Types of Aural Foreign Bodies (FBs).



Most of the patients with aural foreign bodies were asymptomatic at presentation, with history of verbal admission by the patient or incident witnessed by the care giver. Other patients presented with otalgia, bleeding from the ear, otorrhea, tinnitus, hearing loss, a sense of ear fullness or symptoms of otitis media. All the foreign bodies were seen on direct vision with or without otoscope assistance. Regarding their locations, the most frequent anatomical site of foreign body in the ear is the bony part of the external auditory canal. Previous attempts to remove the aural foreign bodies had been made in 20 patients before they presented to our hospital. Of the 400 cases of foreign body ear 395 were removed in OPD or ENT emergency unit with or without LA by ear syringing, suctioning, forceps, probe or fine hook. Only 5 cases required removal under GA because these patients were uncooperative or due to impaction of the foreign body. Live insects were killed first by drowning in turpentine oil before ear syringing. (Table 2)

Complications were reported in25 patients with FBs in their ears, especially in those with previous failed attempts at removal. Complications included the following: otitis externa (15cases), laceration/bruising of the external auditory canal (10 cases).

Throat foreign bodies

This group of patients was least common with 70 patients presenting in the study period, of which 38 were males and 32 were females.

A total of 35 (50%) patients who had come with swallowed foreign bodies were children of the age of 2 to 5 years and 27(38.5%) were children aged between 5 to 10 years. The most common swallowed foreign bodies were coins, which represented 57 cases followed by battery in 11 cases, fish bones in 01 cases, metallic item in 01 case.

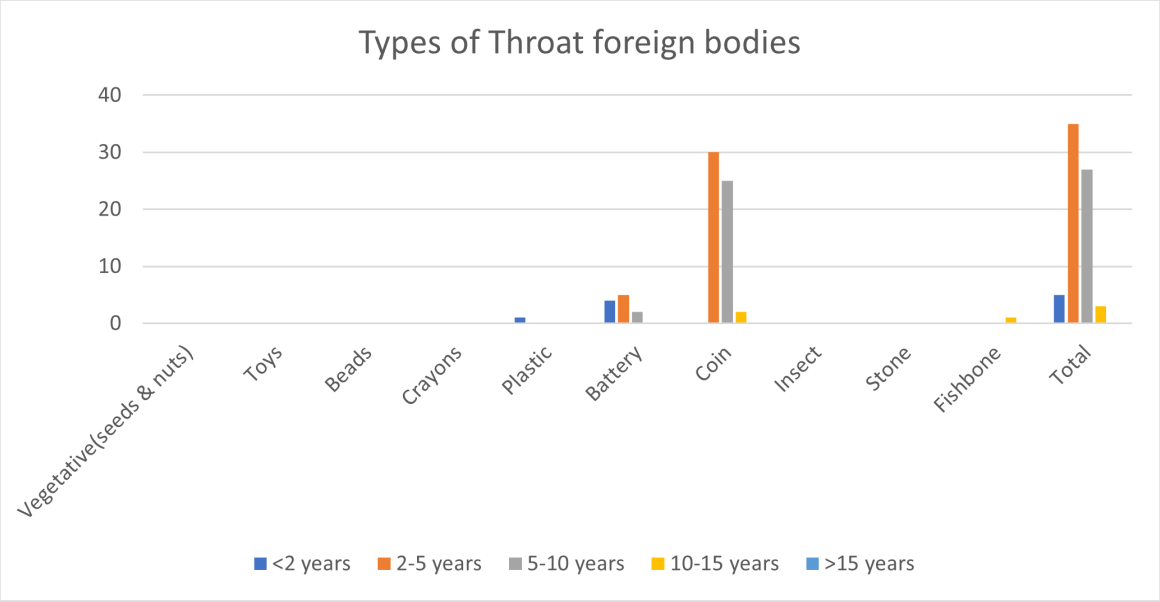
Figure 4 shows the types of swallowed foreign bodies. The clinical features of these patients were mainly dysphagia for solids followed by throat pain, foreign body sensation inside the throat odynophagia and pooling of saliva.

The most common site of impaction was the hypopharynx particularly at the cricopharyngeal sphincter, the other sites of foreign body impaction were the oesophagus.

Radiographs were performed when the foreign body could not be found to aid in the determination of the exact site of the

foreign body. These were mainly plain X ray neck lateral views and when necessary, chest and abdominal radiographs Out of 70 throat foreign bodies all patients had their foreign bodies removed under general anaesthesia via rigid endoscopy. (Table2) No complications were observed, but for a few days for observation was needed in 6 cases that had long standing neglected coins or disk batteries.

Figure 4. Types of Throat/Swallowed Foreign Bodies (FBs).



DISCUSSION

The present study considered patients examined for ENT foreign bodies in the OPD and in the ENT emergency unit in a tertiary paediatric hospital from 2016 to 2023. The 920 cases of ENT foreign bodies accounted for 30% of all patients examined in the ENT emergency services during this period.8-10 According to the literature foreign bodies account for 11% of the cases observed in ENT emergency services. Ear, nose and throat foreign body injuries represent an emerging problem in the population, especially in the paediatric age group, because of their human and social costs.[11-12] In the present study, foreign bodies represented the most common ENT emergencies; this is similar to other studies which is also recorded foreign bodies to be the most common ENT emergencies.

The precise history and physical examination are essential to aid diagnosis and maximise the opportunity to remove the foreign body under safe conditions. Older children can often be directly questioned but in younger patients the anamnesis has to be taken by the accompanying parents, relatives or care givers.

In the present study, FBs were more prevalent in younger children: 54.6% of the patients aged 2 to 5 years and 29.33% of patients aged 5-10 years presented with FBs. Male individuals were the majority by a slight difference. These findings are in agreement with the literature and with reports of FBs being more common in children around 6 years of age. Several factors can be responsible for the age distribution: an analysis of the literature reveals that the mouthing activity of children appears to be the most important factor. Insertion of FBs by the little children may also be precipitated by boredom and frustration, or they also may be mimicking the unhealthy habits of ear and nose picking by adults. Patient with psychological problems is prone to FB insertion: suitable measures should be taken to prevent them from putting FBs in their nose or ears.

In our patient population the nasal cavity (450 cases, 48.9%) was most commonly affected followed by the ear and ear canal (400cases 43.5%) the Throat (70cases 7.6%). Nasal cavity and ear are here regularly the most affected regions for foreign bodies.[13-15]

The key to successful removal is immobilization. Quick atraumatic removal of foreign bodies is a real challenge for ENT physicians. Therapeutic success depends on several factors, but there is no strong evidence to indicate that one specific removal method should be performed over others.[16] It is known, however, that the permanence of foreign bodies in ENT cavities for over 72 hours and repeated attempts to remove the foreign body increase the risk of complications. In our study, the foreign body was removed with or without LA in 88.04 of the patients ;11.95% of the patients required removal under GA.

The most common foreign body found in our patient population study was a plastic toys and vegetative food items (nuts and seeds). In the literature such objects almost always take the top spot on the list of foreign bodies found in the ENT field in children. In general, the extraction of foreign bodies

from the nasal cavity is possible without anaesthesia; only 8.4%% of children studied had a general anaesthesia for the removal.

The second most common location for foreign bodies is the ear (400 cases 43.5%), including the ear canal. Around 1.2% of patient require general anaesthesia to remove foreign body but in majority (98.8%) of cases are removed with or without LA from ear. In the literature the use of anaesthetic for removal of ear foreign bodies is also described, especially when unsuccessful attempt had already been made in other departments. [17,18,19]

This may be due to anatomical limitations, the pain sensitivity of the ear canal and tympanic membrane, the noise level and the risk of injuring nearby anatomical structures during the removal of foreign body. Therefore, a lower threshold for general anaesthesia is justified in an uncooperative child in this patient group.

If, after removal of the foreign body there is a macerated ear canal, a local treatment with non-ototoxic antibiotic drops or a combination product consisting of a non-ototoxic antibiotic with cortisone is indicated.

All swallowed/ throat cases (70) require general anaesthesia. No complications were observed, but hospitalization for a few days for observation was needed in 6 cases that had a long-standing neglected coins or disc batteries. Disc batteries may release small amounts of chemicals and voltage that may lead to alkaline chemical burns, necrosis, or even perforation. Batteries should be removed as soon as possible to prevent these complications

Imaging to locate the foreign body played a rather subordinate role in our patient group. When available, a detailed medical history with clinical examination was sufficient in most cases. All throat/swallowed cases required X rays to locate the foreign body. But negative findings on X rays do not exclude foreign bodies, since they can be radiolucent if made from plastic, wood or glass.

In addition to a non-traumatic removal of the foreign body, attention must be paid to reactions caused by the foreign bodies or to complications arising from it. The button battery, for example, can cause greater collateral damage. Even harmless foreign bodies can cause complications after a very long period of time, for example, in the nose. Thus, it is important to ask about the duration of signs and symptoms such as a strictly unilateral rhinorrhoea[20,21]. These diagnostic techniques should be used to locate quickly and safely recover foreign bodies. Interdisciplinary cooperation is very important. The ENT doctor, because of his or her expertise and accessed to equipment, is in most cases, best suited for the atraumatic removal of foreign bodies from the ear, nose, mouth and the upper aerodigestive tract.[22,23]

CONCLUSION

The management of foreign bodies in the Ear, Nose and Throat in Children is an emerging problem, with evolving nuclear families with working parents where children are often looked after by negligent caregivers. It requires a high level of suspicion and has to be adapted to the location, nature of foreign body, and child's age. Its management should be atraumatic and child's compliance is essential in order to ensure a safe and gentle removal. Airway Foreign bodies are life threatening and require general anesthesia for swift removal.

REFERENCES

1. Thompson SK, Wein RO, Dutcher PO. External auditory canal foreign body removal; management practices and outcomes. Laryngoscope 2003;113(11):1912-1915

2. Shrestha I, Shrestha BL, Amatya RCM. Analysis of ear, nose and throat foreign bodies in dhulikhel hospital. Katmandu Univ Med J(KUMJ)2012;10(38):4-8(KUMJ)

3. Adhikary B, Bora Bandyopadhyay's, Sen I, Basu SK. Foreign body in ENT-general practitioner's duty. J Indian Med Assoc. 2008;106(5):307-9.

4. Chinski A, Foltran F, Gregori D, Passali D, Bellusi L. Nasal foreign bodies; the experience of the Buenos Aires paediatric otolaryngology clinic. Pediaatr Int. 2011;53(1): 90-3.doi: 10.1111/j.1442-200X.2010.031176. x.

5. Chavoshzadeh Z, Golnabi A, Rezaei N, Mehdizadeh Laryngeal foreign body aspiration misdiagnosed as asthma: two case reports and a review of the literature. B-ENT.2011;7(2):137-40

6. Kitcher E Jangu A, Baidoo K. Emergency ear, nose and throat admissions at the Korle Bu teaching hospital. Ghana Med J. 2007;41(1):9-11.

7. Pecoraro G, Tavormina P, Riva G, Landolfo V, Raimondo L, Garzaro M. Ear, nose and throat foreign bodies: the experience of the pediatric hospital of Turin. J Pediatr Child Health 2014;50(12):978-984

8. Figueiredo RR, Azevedo AA, Kos AO, Tomita S. Complications of Ent foreign bodies: a retrospective study. Rev Bras Otorhinolaringol (Engl Ed) 2008 ;74(01):7-15

9. Silva BSR, Souza LO, Camera MG, Tami so AGB,

Castanheira LVR.Foreign bodies in otorhinolaryngology: a study of 128 cases. Int Arch Otorhinolaryngol 2009;13(04):394-399

10. Bressler K, Shelton C. Ear foreign -body removal: a review of 98 consecutive cases. Laryngoscope 1993;103(4 Pt 1):367-370

11. Gregori D, Scarinzi C, Berchialla P, et al; ESFBI Study Group. The cost of foreign body injuries in the upper aero-digestive tract: need for a change from a clinical to a public health perspective? Int J Pediatr Otorhinolaryngol 2007;71(09):1391-1398

12. Harlan LC, Harlan WR, Parsons PE. The economic impact of injuries: a major source of medical costs. Am J Public Health 1990;80(04):453-459

13. Mackle T, Conlon B. Foreign bodies of the nose and ears in children. Should these be managed in the accident and emergency setting? Int J Pediatr Otorhinolaryngol. 2006;70(3):425-8. doi: 10.1016/j.ijporl.2005.07.007.

14. Rourke T, Tassone P, Philpott C, Bath A. ENT cases seen at a local's walk-in centre': a one-year review. J Laryngol Otol.2009;123(3):339-42. doi:10.1017/S0022215108002508.

15. 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. doi: 10.1016/j.ijporl.2006.03.018.

16. Heim SW, Maughan KL. Foreign bodies in the ear, nose and throat. Am Fam Physician 2007 ;76(08):1185-1189

17. Chinski A, Foltran F, Gregori D, Passali D, Bellussi L. Foreign bodies in the ears in children: the experience of the Buenos Aires pediatric ORL clinic. Turk J Pediatr.2011;53(4):425-9.

18. Gregori D, Morra B, Berchialla P, Salerni L, Scarinzi C, Snidero S, et al. Foreign bodies in the ears causing complications and requiring hospitazation in the children 0-14 age: results from the EFSBI study. Auris Nasus Larynx. 2009;36(1): 7-14.doi: 10.1016/j.anl.2008.01.007.

19. Iseh KR, Yahaya M. Ear foreign bodies: observations on the clinical profile in Sokoto, Nigeria. Ann Afr Med. 2008;14(4):18-23.

20. Figueiredo RR, A zevedo AA, Kos AO, Tomita S. Complications of Ent foreign bodies: retrospective study. Braz j Otorhinolarhingology. 2008;74(1):7-15

21. Bachmann J, Niewels A, Henschke F, Folz B. [A dangerous nasal foreign body: the button battery]. Laryngorhinootologie.2009;88(2): 116-8. doi:10.1055/s-2008-1077754.

22. Coulet O, Thiery G, Gal M, Drouet Y, Liard O, Tomasi M. [Extracting a foreign body from the nasal fossa without an ENT specialist] Med Trop (Mars).2008;68(1):83-6.

23. Singh GB, Sidhu TS, Sharma A, Dhawan R, Jha SK, Singh Management of aural foreign body: an evaluative study in 738 consecutive cases. Am J Otolaryngology. 2007;28(2):87-90. doi: 10.1016/j.amjoto.2006.06.018.