

Foreign Bodies in Ear Nose and Throat: A Retrospective Study

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Abstract: Ear, nose and throat (ENT) foreign bodies (FBs) are common occurrences, particularly among children. The proper recognition, study, and management of FBs are required to prevent complications. Their consequences are greatly variable, from mild disturbances that may not require hospitalization up to life threatening complications. In this study, we share our experience in dealing with hundred cases of various types of ENT foreign bodies in the age-groups of 1-60 years. We also analyse the clinical profile of these hundred cases of ENT FBs and share our experience of removal of these foreign bodies.

Keywords: Foreign Bodies, Emergencies, Airway Obstruction

1. Introduction

Foreign Bodies (FBs) in the ear, nose and throat are one of the most commonly seen emergencies for otorhinolaryngologists. Foreign bodies have been estimated to account for 11% of the cases seen in ENT emergency services.¹⁻³ If not managed properly may lead to increase in mortality and morbidity.

Foreign bodies might be introduced spontaneously or accidentally in both adults and children. Generally, ENT FBs are more common in younger children which may be due to various factors, such as curiosity to explore orifices, imitation, boredom, playing, intellectual disabilities, insanity and attention deficits, hyperactivity disorder, along with the availability of the objects and absence of watchful caregivers⁴.

Foreign bodies in ENT can have a wide range of outcomes which range from mild discomfort to death. The outcome is related to various factors like chemical composition of the FBs, shape, size, time and the site of lodgement⁵.

This study was performed to analyze FBs in terms of type, site, age, and gender distribution, method of removal, outcomes and complications.

2. Methods and Materials

A retrospective study was conducted in Gauhati Medical College and Hospital, Guwahati amongst 100 patients who presented to the OPD and emergency services of our hospital over a period of 1 year between 1st JUNE 2018 to 31st MAY 2019. Patients between the age groups of 1 year to 60 years were included in the study.

The following data were obtained from the patients:

- Age
- Sex
- Type of FB
- Site and side of impaction
- Duration of insertion and previous attempts at removal

- Methods of removal
- Outcomes
- Complications.

The patients were grouped according to the location of the FB into throat FBs (swallowed & inhaled FBs), aural FBs, and nasal FBs.

Detailed history was taken and detailed ENT examination was done for all the patients.

An anterior rhinoscopy and sometimes nasal endoscopic examinations were performed to diagnose nasal FBs. Direct vision with or without otoscopic assistance and examination under a microscope was useful for diagnosis and removal of the aural FBs.

For swallowed FBs, direct vision was obtained with a tongue depressor, indirect laryngoscopy and/or rigid endoscopy. Plain X-rays of the neck were performed in cases of swallowed foreign bodies. A rigid endoscopic examination (hypopharyngoscopy/laryngoscopy/esophagoscopy) was performed in cases where the FB was not visible in the X-ray to determine its site of impaction, as well as to remove it.

3. Results

Age of the Patient

Age in Numbers	Number
1-10	60(60%)
11-20	14(14%)
21-30	8(8%)
31-40	8(8%)
41-50	6(6%)
51-60	4(4%)

In this study, patients in the age group of 1-60 years in age were considered. Maximum numbers of patients included in the study were in age group of 1-10 years and the age group of 51-60 was the least represented in the study.

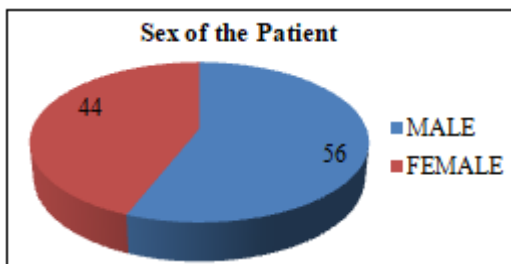
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Sex of the Patient

There were 56 males and 44 females included in the study. All the patients included in the study had a ENT foreign body.



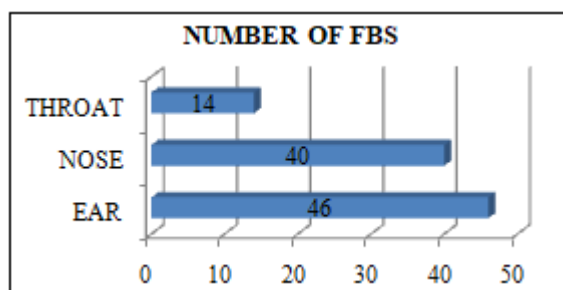
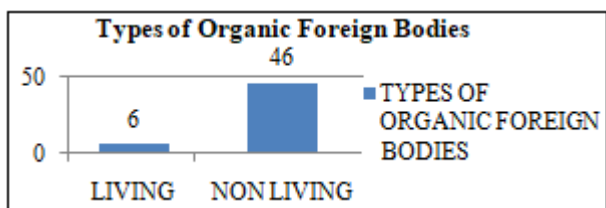
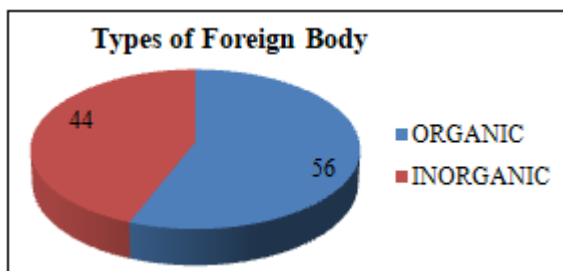
Types and Locations of Foreign Bodies

In the study 56 patients had organic foreign body and 44 patients had a non- organic foreign body

Of the 56 organic foreign bodies, 50 were non-living and 6 were living. None of the patients included had more than one foreign body.

In this study, 26 organic ear FBs were seen, and 20 inorganic ear FBs were also seen.

24 organic nose FBs were seen, and 16 inorganic nose FBs were seen, 6 organic throat foreign bodies were seen, and 8 inorganic throat foreign bodies were seen.



Management of Foreign Bodies

Ear Foreign Bodies

In this study, some patients needed anaesthesia for foreign body removal and few patients allowed removal without

anaesthesia. Of the 46 patients with ear foreign bodies, 16 required FB removal under anaesthesia and all of them were in the age group of 1-10.

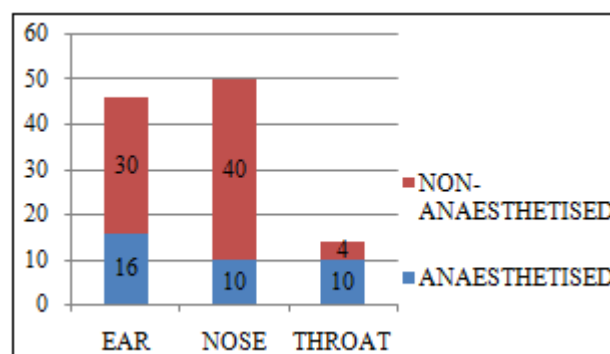
Nasal Foreign Bodies

Out of the 40 patients with nasal foreign bodies, 10 required removal under anaesthesia .In all the 30 patients where nasal FBs were removed without anaesthesia, the FB was in the nasal vestibule and was easy to visualize and remove the foreign body under direct vision.

Whenever anaesthesia was given prior to removal, radiological investigation was done to determine the exact location of the FB.

Throat (Aerodigestive Tract) Foreign Bodies

Out of the 14 patients with throat FBs, 10 required anaesthesia prior to FB removal. The remaining 4 patients had FBs in the tonsillar fossa.



4. Discussion

The different types of foreign bodies (FB) are classified as living and non-living. The non-living ones are categorized into organic or inorganic and hygroscopic (hydrophilic) or non-hygroscopic (hydrophobic). Organic foreign bodies generally have a tendency to elicit inflammatory reactions. They predispose to in the ear otitis externa, suppurative otitis media and hearing loss whereas FB impaction in the nose predisposes to infective rhinosinusitis, foreign body granuloma and septal perforation.

Common sites for lodgement:

Ear-Lateral recess

Nose-between inferior turbinate and nasal septum

Throat- tonsils ,vallecula ,base of tongue ,cricopharynx

FB throat has a tendency to lead to peritonsillar and paratonsillar abscess, dysphagia and sometimes acute upper airway obstruction. These outcomes are more grievous, if the affected child does not volunteer,if there is a history of FB ingestion or aspiration, if the FB elicits an inflammatory reaction by nature or if it is impacted along the airway or if there is no expertise for its removal. FB impaction in the larynx often presents as an emergency.



Figure 1: fb fish bone at the level of C4 vertebrae in x-ray soft tissue neck ap view and lateral



Figure 2: fb coin in ap and lateral view x-ray soft tissue neck

FB cases seldom go without symptoms which again are determined by the time or duration the FB stays in place before removal. In the nose initial symptoms are sneezing, serous coryza and nasal obstruction, which may progress after a few days to unilateral foul smelling purulent rhinorrhea. FBs in the nose may progress with epistaxis, septal perforation and rhinosinusitis depending on the time the FB has been in place and its location.

In the ear initial symptoms may be hypoacusis, otorrhagia, otorrhea or buzzing and the diagnosis may be confirmed by otoscopy. The size and shape of FBs determines the level of difficulty in their removal. In ear FBs the external auditory canal is small and important anatomical structures are close and removal may be difficult when the FB is close to the tympanic membrane or the bony external auditory canal because of intense pain due to increased sensitivity.

Commonly occurring complications include:

- Laceration of the external auditory canal,
- Tympanic perforation,
- External otitis media
- Hematomas.

FB removal may require instruments like aural syringes, foreign body hooks and wax probes, endoscopes, laryngoscopes and even ventilating bronchoscopes. This study was performed to analyze FBs in terms of type, site, age, and gender distribution, method of removal, outcomes and complications.



Figure 3: Foreign body hook and aural syringe

A: Age and Sex of the Patients

In our study, 56 (56%) patients studied were males and 44 (44%) patients studied were females. A male to female preponderance of 1.27:1 was noted. This was like the study by Mangussi Gomes et al where 53.5% patients seen were male⁶. In the study by Awad et al, 56.7% patients included were males, which is in agreement to our study⁷.

In our study, approximately 60 (60%) cases belonged to the paediatric age group whereas the least number of patients included were in the age group of 51-60. It was similar to the study done by Mangussi -Gomes et al, where the peak incidence was seen in the first decade of life⁶.

In the study conducted by Awad et al, 76.4% cases were in the age-group of 2-20 years which was in agreement to our study where 74% patients belong to the age-group of 2-20 years⁷.

In literature, we have observed that 50.1% of all ENT foreign bodies reported were in the age below eight, which is in broad agreement to our study where 60% patients belong to age group of 1-10 years^{9,10,11}

B: Types and Locations of FBs

In our study 46 (46%) FBs were ear FBs, 40 (40%) were nasal FBs and 7 (14%) were throat FBs. In the study by Mangussi-Gomes et al, 64.4% FBs was in the ear, 19.5% FBs were in the nose and 8.9% FBs were in the throat⁶. This was not in agreement to our study.

In the study conducted by Shreshta et al, 47.4% FBs were aural, 26% were nasal and 29.25% were throat FBs⁸. This was in partial accordance to our studies.

Some authors suggested the following specific order of frequency and location of foreign bodies: ears, nose, pharynx, oesophagus, and tracheal bronchial tree which is in agreement to our study.

In our study, 56 (56%) patients had an organic foreign body while 44 (44%) had non-organic foreign body.

There were 50 (89%) non-living and 6 (11%) living foreign bodies amongst the 56 organic foreign bodies. Hence in our study we had 94 (94%) non-living foreign bodies and 6(6%) living foreign bodies. In the study conducted by Shreshta et al, 96.16% FBs were non-living, and 3.84% FBs were living FBs, also there were 48.7% inorganic FBs and 47.4% organic FBs, which is in broad agreement to our study

C: Management

36(36%) patients in our study needed anaesthesia for foreign body removal in our study and 64(64%) needed no anaesthesia for removal of FBs.

Out of the 36 patients who needed anaesthesia, 16(44%) were Ear FBs, 10(27%) were nasal FBs and 10 (27%) were throat FBs.

Amongst the 46 ear FBs, 16(34%) needed anaesthesia, amongst the 40 nasal FBs, 10(25%) needed anaesthesia and amongst the 14 cases of throat FBs, 10(71%) needed anaesthesia.

In the study conducted by Mangussi-Gomes et al, only 4.4% patients required anaesthesia to facilitate removal, which was not in accordance to our study⁶.

In literature, approximately 30% of all ENT FBs need anaesthesia prior to removal, which is in broad agreement to our study^{12, 13, and 14}

5. Conclusion

ENT foreign bodies appear seemingly easy to remove; hence we see attempts being made by untrained individuals to remove them. Not only does this make it difficult for the otorhinolaryngologists to remove, but it also puts the patients at higher chances of morbidity or even mortality. All foreign bodies in children ideally should be removed under GA. A thorough examination using all available investigations needs to be done in cases of deeply entrenched foreign bodies especially of the nose and throat to obtain an idea about the depth of the foreign body and to know its exact location, as they can lead to life threatening complications like airway obstruction. We also need to understand that if we attempt to remove a foreign body in an uncooperative patient, we may end up pushing the foreign body deeper leading to further complications, hence in such patients, anaesthesia must be given prior to removal, especially when the foreign body is in the nose or throat. While removing a foreign body from the nose we should block the posterior conchae with the middle finger of our hand to prevent the foreign body from entering the larynx. If the foreign body enters the larynx, HEMLICH MANOUVRE has to be performed immediately for removal of foreign body. Protocols need to be developed for foreign body removal in developing communities where we encounter majority cases of ENT foreign bodies to decrease the morbidity/mortality associated with them to decrease the overall health care cost of a community.

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