Journal of Rare Cardiovascular Diseases
ISSN: 2299-3711 (Print) | e-ISSN: 2300-5505 (Online)
www.jrcd.eu
RESEARCH ARTICLE

A Prospective Observational Study to Assess the Management Strategies for Foreign Bodies in Otorhinolaryngology in A Tertiary care Centre

Grahalakshmi Ayyadurai[1], Meykandanathan A[2], Pradeep Dhanapal[3], Anand S[4], Selvarajan G[5], Sivaranjani Marimuthu[6]

[1]Assistant Professor, Department of ENT, Head & Neck Surgery, SRM Medical College Hospital & Research Centre, Kancheepuram, Tamil Nadu, India. ORCiD: 0000-0002-3273-0361.
[2]Final Year Postgraduate, Department of ENT, Head & Neck Surgery, SRM Medical College Hospital & Research Centre, Kancheepuram, Tamil Nadu, India. ORCiD : 0009-0008-9637-597X
[3]Senior resident, Department of ENT, Head & Neck Surgery, SRM Medical College Hospital & Research Centre, Kancheepuram, Tamil Nadu, India. ORCiD : 0000-0002-4970-6608
[4]Assistant professor, Department of ENT, Head & Neck Surgery, SRM Medical College Hospital & Research Centre, Kancheepuram, Tamil Nadu, India. ORCid : 0000-0001-9069-6520
[5]Professor & Head, Department of ENT, Head & Neck Surgery, SRM Medical College Hospital & Research Centre, Kancheepuram, Tamil Nadu, India.
[6]Associate professor, Department of ENT, Head & Neck Surgery, SRM Medical College Hospital & Research Centre, Kancheepuram, Tamil Nadu, India.

*Corresponding Author
Dr.Pradeep Dhanapal

Article History
Received: 12.08.2025
Revised: 08.09.2025
Accepted: 24.09.2025
Published: 08.10.2025

Abstract: ***Introduction :*** Foreign body (FB) is an inevitable diagnosis in an ENT surgeon's daily practice. FB by definition is an object in a site where it is not meant to be, where it can cause harm by its mere presence if immediate medical attention is not sought [1,2]. This study aims on analyzing the current trend in presentation of foreign bodies in ENT in terms of type, site involved, age and gender distribution along with the methodology applied for their removal and its outcome thereby helping to improvise the management strategies. ***Methodology:*** 250 patients who have been managed by the department of ENT in a tertiary care Centre in Chennai, India, over a period of 1year (November 2023 - November 2024) were included in the study. Their records were analyzed in various disciplines. The result obtained was comparatively analyzed with published literatures (past twenty years) to learn about the changing trend in foreign body presentations and management from an otolaryngologist perspective. ***Results:*** A male predominance was observed with a wide age distribution. The most involved site being the ear with 44% followed by nose and throat. Commonly used instruments were Jobson's Horne probe, alligator forceps, foreign body hook and Tilley forceps. ***Conclusion:*** Foreign body presentation is age specific, region specific and the interesting fact observed is that, both the presentation and management strategies show a paradigm shift and it shall continue to show with the evolution of time.

Keywords: Foreign bodies, ENT, mastoid, lead battery, hairclip, coin.

INTRODUCTION

The study of foreign body in otorhinolaryngology is fascinating at any given point of time because of its dynamicity in the mode of presentation and its management, both of which is seen to be evolving with time and development of technology. Foreign body (FB) is an inevitable diagnosis in an ENT surgeon's daily practice. Not only confined to otorhinolaryngologists, but it is also a common diagnosis encountered by any paediatrician, emergency medicine physician, general physicians, and even in a primary care setting [1]. FB by definition is an object in a site where it is not meant to be, where it can cause harm by its mere presence if immediate medical attention is not sought. Foreign bodies have shown to contribute up to 11% - 30% of the emergencies attended by ENT surgeons [1,2]. Though it has a wide age distribution its commonly seen amongst pediatric population and it's because of their curiosity to explore the orifices, boredom, imitation, playing, insanity, intellectual disability and attention deficiency along with the absence of watchful caregivers and accessibility to the objects available around. Consequences of FB vary from nil to low impact disturbances with or without hospitalization up to death. This variability in the outcome of a FB depends on a wide array of factors such as shape, composition, dimension of the foreign body and its anatomical location involved [1]. Foreign bodies can be inanimate (non-living) or animate (living.) Inanimate foreign bodies can be classified as non-vegetative and vegetative, hygroscopic and non-hygroscopic. Although foreign body presentations are commonly encountered in otorhinolaryngology, there is a lack of literature highlighting recent trends and geographical distribution. In this article, we not only analyze the foreign bodies we have encountered but also discuss the evolving patterns of presentation and their geographical distribution in relation to the available literature.This study aims on analyzing the current trend in presentation of foreign bodies in ENT in terms of type, site involved, age and gender distribution along with the methodology applied for their removal and its outcome thereby helping to improvise the management strategies.

MATERIAL AND METHODS

After obtaining Institutional Ethics committee clearance (Reference number - SRMIEC - ST1024 - 1880), a prospective study was performed in the Department of ENT, Head and Neck surgery in a tertiary care Centre in Chennai, India. The study population included the patients who presented either to the outpatient department (OPD) or emergency with foreign bodies in ear, nose or throat during the study period (November 2023 - November 2024). The data were recorded and preserved after obtaining prior consent from the patients and they were on regular follow-up (whenever required). Analysis of the data was done and keen categorization of patients according to their age group, sex, site and type of foreign body presentation, instrumentation used for removal and outcome was done and analyzed. Radiological investigations were also preserved to the maximum possible extent pertaining to the availability of documents. Data of patients for whom surgical intervention was done were also taken into consideration and preserved after obtaining prior consent and analyzed in the above-mentioned domains. Patients who weren't willing to give consent were excluded from the study.

RESULTS AND OBSERVATIONS:

A total of 250 cases were examined and managed in the department of ENT. Gender distribution with a male predominance was noticed in all age groups contributing to 55% of the total cases presented.

The most common age group was <10years of age contributing to 63% followed by 10-30years and >30years contributing to 23% and 14% of the total cases respectively. Ear foreign bodies contributed to 44% of the total cases followed by nose (39%) and throat (17%). Of the foreign bodies presented 56% of them were non - hygroscopic, 27% hygroscopic and 17% were animate and all the animate foreign bodies encountered were in the ear (no animate foreign bodies in nose and throat). The foreign body types and their site distribution was as represented in Table 1.

Totally 42 patients presented with animate foreign bodies of which cockroach, bee, bedbug were the commonly noticed ones. Almost the entire group of patients with foreign body throat (43 patients) presented with bones (fish - 31, chicken - 11, duck - 1). 32 (12.8%) patients had edible foreign bodies, 31 (12.4%) beads were removed

followed by the removal of 29 (11.6%) stationery items (example: eraser, pencil tip, pen cap, crayon), 21 (8.6%) cotton, 12 (4.8%) coins, 9 (3.6%) button batteries (BB), 8 (3.2%) sharps and 23 (9.2%) other materials (clay, hairclip, earphone's bud, toy, plastics, polystyrene). 96% of the cases were managed as outpatient and 4% of the patients required admission and OT intervention (Table 2). Commonly used

instruments were Jobson's Horne probe, Tilley forceps, crocodile forceps, foreign body hook. 12% of the patients presented with complications such as residual foreign body in retropharyngeal space, bleeding, granulation and otitis externa.

In our study FB contributed for about 17% of emergencies which was almost near to the 11% as mentioned by Ricardo et.al [3]. A slight predominance of male population (55%) was noticed in our study which was in corroboration with Ramesh et.al and few other published literatures [1-4]. Pediatric age group with children less than 10years of age contributed to 38% of the total patients which was almost similar to 48.07% as observed by Al Hussein et.al [1].

Though few literatures [3] suggest that in adults throat foreign bodies are encountered more than ear or nose, we observed ear to be the commonly involved site for otorhinolaryngological foreign bodies across all age groups. In our study done in southern part of India the most common site involved was ear followed by nose and throat which was in accordance with S.Endican et.al [5]

Table 1 – Foreign body type and site distribution

Site	Non-Hygroscopic	Hygroscopic	Animate	Total
Ear	12%	15%	17%	44%
Nose	35%	4%	-	39%
Throat	17%	-	-	17%
Total	64%	19%	17%	100%

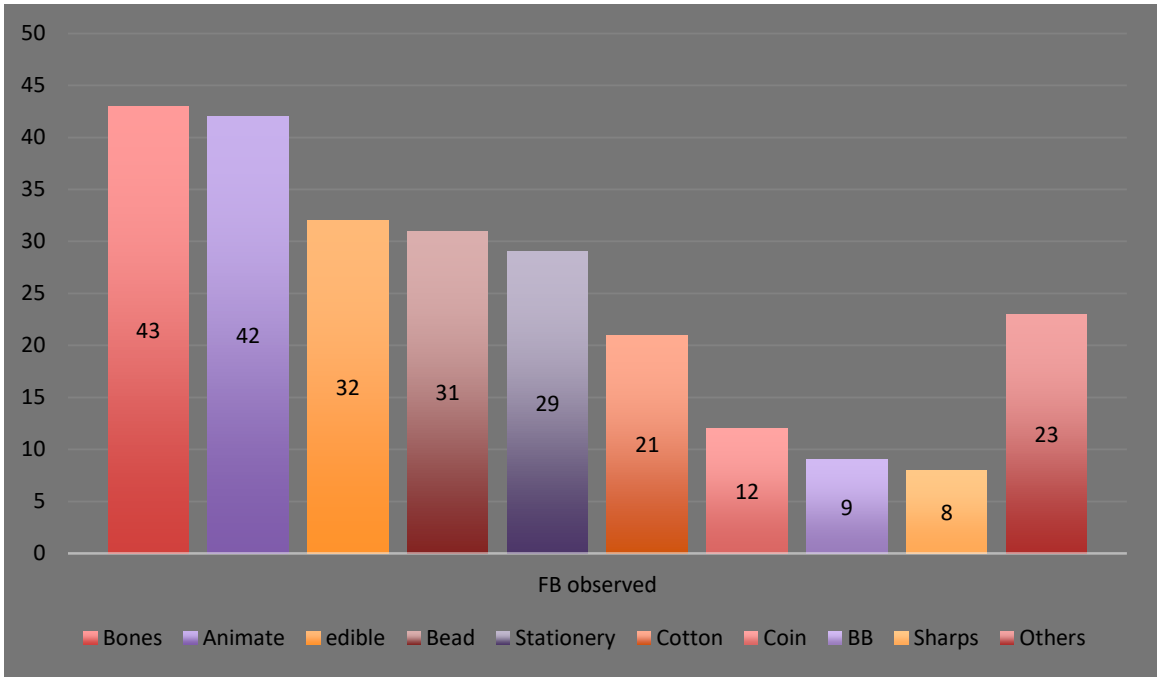

Figure 1 Foreign bodies observed

Table 4 - Type of Anesthesia

DISCUSSIONS:

An increase in the literacy rate and health awareness along with the evolution of technology is seen to be reflected in the presentation of foreign body and its management, not only in India but globally. This is evident by the changing trend in the common site involved and the management options available.

Figure 2 : Case 1 showing Impacted Ryle's tube; Case 2 showing paint in mastoid; Case 3 showing residual foreign body that resulted in retropharyngeal abscess.

whereas in a study done in Kolkata (northern part of India) by Saurav et.al highest number of foreign bodies were in throat (tonsil - fish bone), followed by ear and then nose. This variation is considered to be because of the difference in dietary pattern. Similarly in a study by Awad et.al done in Egypt, the most common site involved was throat (coin - pyriform fossa).

Figure 3 : Case 4 showing needle in pyriform fossa ; Case 5 showing hairclip in uvula.

Reference: Animate foreign bodies encountered in our study was insects like bee, bedbug and cockroaches. One interesting fact noticed was that, we did not come across any maggots in our study. Number of literatures mentioning maggots in otorhinolaryngology is seeing a decreasing trend, but that doesn't mean its extinct. Maggots are still prevalent amongst the poor hygienic and amongst the people with poor literacy rates and poor health awareness, supported by Prasanna et.al case report showing maggots in tracheostomy stomal site [6]. Hence, it's important to know how maggots present and its management options. The increasing health awareness and an increase in literacy rates along with the urban civilization has led to safe hygienic practices which might have in turn lead to a decrease in maggots' presentation. As evidence to substantiate the query of sneaking in urbanization, foreign bodies noticed in our study were bead, cotton, coin, lead battery, Bengal gram, pomegranate seed, nuts, fish bone, chicken bone, duck bone, earring, etc.

12% of the total patients had complications like bleeding, external auditory canal abrasion, granulation and residual foreign body. This number was almost similar to Lou et.al who had reported 17% [7] complication in their literature. It was also observed that endoscopy assisted removal for foreign bodies in ear and nose, especially amongst pediatric age group caused less trauma with an added benefit of better visualization. From the above mentioned peculiarities in regional distribution and observation from the studies within the nation, done fifteen to twenty years ago, it's evident that factors like literacy rate, development of the nation, evolution of technology in medical sciences have all together played a significant role in the paradigm shift in foreign body presentation by creating awareness amongst the public and increasing the access to health care.

Anesthesia	Ear	Nose	Throat
General	0	4	7
Local	0	7	19
Without Anesthesia	110	86	17
Total	110	97	43

Few interesting case reports that we came across during our study period were: -

Case 1: A 64year old male post 35cycles of radiotherapy for carcinoma hypopharynx presented to our casualty with partly removed Ryle's tube (RT). Removal of the nasogastric tube was attempted elsewhere but in vain, following which removal under general anesthesia was advised and he presented to our casualty for the same. On examination three fourth of the RT was exteriorized and remaining one fourth was impacted in right nasal cavity, which on an attempt to mobilize caused severe pain to the patient. Diagnostic nasal endoscopy (DNE) in right nasal cavity showed the RT to be piercing the septal mucosa and cartilage to enter the left nasal cavity where it was found to be kinked and then re piercing the septum from left side to re-enter the right nasal cavity with the distal end heading towards the choana and tip hidden within fossa

of Rosenmuller. Computerized tomography scan of paranasal sinus confirmed the DNE findings, and the tip of RT was found within fossa of Rosenmuller just abutting the internal carotid artery. Under local anesthesia (4% lignocaine and 1:100000 adrenaline patties placed and removed) the kinked portion of the tube was cut. Owing to its presence for more than ninety days it was so rigid that it had to be cut with turbinectomy scissors and one cut portion removed from right nasal cavity. The tip of the tube was dislodged carefully from fossa of Rosenmuller and removed. Post removal, nasopharynx was ensured to be free of residual foreign body. Iglesia et.al have reported Ryle's tube insertion into brain resulting in intraventricular hemorrhage [8]

Case 2: A 34year old electrician male with alleged history of trauma to right side of face with an electrical saw admitted in plastic surgery for pinna reconstruction and wound management was referred to ENT department in view of foreign body suspicion in mastoid which was noticed in CT scanning of temporal bone. Under GA post auricular William Wilde incision made and mastoid periosteum elevated. Greenish ceramic paint like material was found adherent to the mastoid cortex. It was too adherent to be scraped out, hence we had to drill the surrounding cortex for a depth of 1cm and then remove the adhered material. Similarly, few interesting mastoid foreign bodies have been reported including "An Unusual Foreign Body in The Mastoid", by J N Guru et.al in which a plastic refill of the dot pen had pierced the mastoid bone [9].

Case 3: A 59year old female with complaints of dysphagia following Chico seed ingestion has been managed by medical gastroenterologists elsewhere came to our OPD one week later with persistence of dysphagia, but now with pain and fever spikes. On examination, a bulge was noticed in the posterior pharyngeal wall following which a clinical suspicion of retropharyngeal abscess was made and was supported by the CT scan of neck. External approach incision and drainage was done along the anterior border of sternocleidomastoid and residual Chico seed removed (Fig 2). AK Mehta et.al had reported a case of retropharyngeal foreign body which had been conservatively managed but surprisingly had no sequelae of abscess or any other complications [10]. According to literature tuberculosis prevails as the most common cause of retropharyngeal abscess. Tiresse N et.al reported the occurrence of a multi drug resistant tuberculous retropharyngeal abscess in an immunocompetent patient. [11]

Case 4: A 19year old male on an attempt to mimic the act of his favourite film star resulted in ingestion of a long needle which on video laryngoscopy was found to be piercing the mucosa of vallecula and pointing toward the epiglottis awaiting aspiration. Under LA (10% lignocaine spray) and 70degree Hopkins endoscope visualization the needle was removed.

Case 5: A 2year old child with ingestion of hair clip came to casualty. On examination the foreign body was clipped across the uvula. One resident had to hold the base of the clip and the other released the clip's lock from uvula and gently removed.

CONCLUSIONS:

Foreign body presentation is age specific, region specific and the interesting fact observed is both the presentation and the management strategies show a paradigm shift and it shall continue to show with the evolution of time. Having said that, to our observation the gold standard management for foreign body removal at any given point of time would be to remove the foreign body with the best available resource causing less trauma to the patient.

REFERENCESS:

1. Awad, Al, and Mostafa ElTaher. "ENT Foreign Bodies: An Experience." International Archives of Otorhinolaryngology, vol. 22, no. 02, 14 July 2017, pp. 146–151, https://doi.org/10.1055/s-0037-1603922. Accessed 23 Apr. 2021.
2. Ramesh Parajuli. Foreign Bodies in the Ear, Nose and Throat: An Experience in a Tertiary Care Hospital in Central Nepal. Vol. 19, no. 02, 30 Dec. 2014, pp. 121–123, www.ncbi.nlm.nih.gov/pmc/articles/PMC4399165/, https://doi.org/10.1055/s-0034-1397336.
3. Figueiredo, Ricardo Rodrigues, et al. "Complications of Ent Foreign Bodies: A Retrospective Study." Brazilian Journal of Otorhinolaryngology, vol. 74, no. 1, Jan. 2008, pp. 7–15, https://doi.org/10.1016/s1808-8694(15)30744-8.
4. Sarkar, Saurav, et al. "Foreign Bodies in ENT in a Teaching Hospital in Eastern India." Indian Journal of Otolaryngology and Head & Neck Surgery, vol. 62, no. 2, June 2010, pp. 118–120, link.springer.com/article/10.1007/s12070-010-0040-6, https://doi.org/10.1007/s12070-010-0040-6. Accessed 29 Sept. 2024.
5. Endican, Sam, et al. "Ear, Nose and Throat Foreign Bodies in Melanesian Children: An Analysis of 1037 Cases." International Journal of Pediatric Otorhinolaryngology, vol. 70, no. 9, 1 Sept. 2006, pp. 1539–1545, www.sciencedirect.com/science/article/abs/pii/S016558760600111X, https://doi.org/10.1016/j.ijporl.2006.03.018.
6. S. Prasanna Kumar, et al. "Tracheostomal Myiasis: A Case Report and Review of the Literature." Case Reports in Otolaryngology, vol. 2011, 1 Jan. 2011, pp. 1–3, https://doi.org/10.1155/2011/303510. Accessed 4 Feb. 2024.

7. Lou, Zhengcai. "The Outcome and Complication of Endoscopic Removal of Pediatric Ear Foreign Body." International Journal of Pediatric Otorhinolaryngology, vol. 146, 29 Apr. 2021, p. 110753, www.sciencedirect.com/science/article/abs/pii/S0165587621001464, https://doi.org/10.1016/j.ijporl.2021.110753.
8. Iglesias, J., et al. "Intraventricular Haemorrhage by Nasogastric Tube Insertion into the Brain after Transsphenoidal Surgery. A Case Report and Review of the Literature." Interdisciplinary Neurosurgery, vol. 24, June 2021, p. 101022, https://doi.org/10.1016/j.inat.2020.101022.
9. Gurtu, J N, and B K Jha. "An Unusual Foreign Body in the Mastoid Process." Indian Journal of Otolaryngology and Head & Neck Surgery, vol. 49, no. 2, 1 Apr. 1997, pp. 160–161, pmc.ncbi.nlm.nih.gov/articles/PMC3450826/, https://doi.org/10.1007/bf03023799. Accessed 24 Feb. 2025.
10. Mehta, AK, et al. "Retropharyngeal Foreign Body." Medical Journal Armed Forces India, vol. 60, no. 4, 1 Oct. 2004, pp. 390–391, pmc.ncbi.nlm.nih.gov/articles/PMC4923443/, https://doi.org/10.1016/s0377-1237(04)80020-0. Accessed 24 Feb. 2025.
11. Tiresse, N., et al. "The Occurrence of a Multidrug-Resistant Tuberculous Retropharyngeal Abscess in an Immunocompetent Patient: A Case Report." IDCases, vol. 26, 4 Sept. 2021, p. e01282, www.sciencedirect.com/science/article/pii/S2214250921002389, https://doi.org/10.1016/j.idcr.2021.e01282.
12. Bhaskaran, Manoj Kumar, et al. "Intraoperative Use of C-Arm Fluoroscope for Location of Foreign Body in Maxillofacial Surgery: Series of Cases." Craniomaxillofacial Trauma & Reconstruction Open, vol. 3, no. 1, Jan. 2019, p. s-0039-1685504.