

Original Research Article

# UNUSUAL FOREIGN BODIES OF AERODIGESTIVE TRACT: HOW WE MANAGED THEM

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## ABSTRACT

Foreign body in the digestive and respiratory tract is a very common medical presentation which an otorhinolaryngologist comes across in day to day practice. Maximum chances of foreign body ingestion or aspiration are noticed in the paediatric population, followed by edentulous adults, persons under alcohol intoxication and psychiatric patients. Of all the factors, wearing removable dentures is most commonly associated with foreign bodies in adults [1, 2]. At times these could be the life threatening emergencies specially if not diagnosed and intervened early. Here we present series of 4 cases of various types of foreign bodies that we encountered in our institute which we found to be unusual and reportable. Efforts made to diagnose early after detailed history, clinical examination and appropriate radiological investigations like digital x ray of neck, chest & abdomen, HRCT chest and CT virtual bronchoscopy. After well informed consent therapeutic rigid bronchoscopy or rigid oesophagoscopy done and foreign body were removed successfully.

## 1. INTRODUCTION

Foreign body either aspiration or ingestion both are accidental emergencies. Foreign body aspiration being more emergency situation and life threatening and its early detection and removal should be done as soon as possible. Foreign body aspiration (FBA) is an accidental occurrence specially in paediatric age group. If misdiagnosed, it can result in serious morbidity and mortality. Presenting symptoms and signs may include coughing, dyspnoea, wheezing, cyanosis, and stridor, which can mimic a multitude of other illnesses, such as URTI, LRTI, asthma, and pneumonia [3, 4].

On the other hand diagnosis of foreign body ingestion seems to be less difficult. Patient presentations vary, although dysphagia and odynophagia are the most frequently reported symptoms. The overall approach towards patients with oesophageal F.B. comprises a

meticulous history, methodical examination and pertinent investigations followed by prompt and appropriate management. The type of foreign body, duration and nature of symptoms are all useful indicators regarding the site of lodgement and the need for immediate intervention [5].

## 2. MATERIAL AND METHODS

Here we are reporting some interesting cases of F.B aerodigestive tract. All the cases came to the ENT emergency department with suspected history of aspiration or ingestion of some F.B. Based upon symptoms, detail history; thorough clinical and radiological examination diagnosis is made. Therapeutic oesophagoscopy or bronchoscopy was performed accordingly and F.B. was removed successfully in all the cases.

## 3. DISCUSSION

Any endogenous or exogenous things which are present at unusual anatomical location is considered as foreign body [6]. Children of age less than 4 years are more prone to aspirate or ingest foreign body because they lack molar teeth and they have tendency to explore things and putting them in mouth, playing & crying while eating, and their neuromuscular coordination is also poor [7][8]. Among adults the chances are more in psychiatric patients, persons using artificial dentures and persons under intoxication.

Most common site of tracheobronchial F.B. is right main bronchus as it is wider, shorter and more vertical. The classic triad of cough, wheeze, and diminished breath sounds is not universally present [9]. Multi-dimensional CT (MDCT) along with multi-planar reconstructed (MPR) images & virtual bronchoscopy (VB) are alternative imaging modality in the evaluation of foreign bodies and their complications [10]. Among available means of therapeutic intervention i.e. flexible bronchoscopy and rigid bronchoscopy, the later is the gold standard in diagnosis and retrieval of tracheobronchial F.B.

The narrowest portion of the GI tract is the oesophagus and consequently, it is the commonest site of foreign body impaction. An oesophageal foreign body may lodge in the thoracic inlet at the level of cricopharynx, the aortic arch area, or the gastroesophageal (GE) junction. The most common site of impaction of foreign bodies is the cricopharynx level, followed by the GE junction and then the aortic arch [11]. Symptoms of foreign body ingestion are dysphagia, throat irritation, odynophagia, vomiting etc.

Various investigations to confirm the presence of a foreign body in the oesophagus include X-ray of the neck, chest and abdomen, Barium swallow and Computed Tomography. Among these, CT is the best radiological investigation to diagnose or rule out a case of foreign body impaction in the oesophagus. There are various modes of treatments reported in the literature such as the use of flexible oesophagoscopy, cervical oesophagotomy, and the use of Foley's catheter under fluoroscopic guidance but the most well accepted modality of treatment in such cases is Rigid oesophagoscopy and foreign body removal. [12].

Moslty foreign body ingested in children are coins. Foreign body like button batteries, sharp objects have higher risk of complications [13]. Foreign body can be vegetative or non vegetative. Vegetative foreign body are more dangerous as they swell and break into pieces which makes their extraction difficult. Some foreign body are silent in nature as they present with minimum symptoms due to their hollow nature they allow air to pass thus ventilating the lung.

The advent of Hopkins rodtelescope and optical for cepshas enhanced the efficacy as well as the safety of removing endobronchial and oesophageal foreign bodies. These instruments have become the method of choice for managing the majority of foreign bodies [14].

**Case 1:** A 11 yr old male child presented with history of foreign body whistle ingestion/aspiration 5 days back, however on further questioning and detailed history taking attenders accepted that they manipulated history and the child had ingested/aspirated 30 days back and has been having intermittent cough since then. On clinical examination patient was vitally stable, afebrile, respiratory rate normal, pulse and saturation normal. On respiratory examination bilateral air entry equal and right lower lobe region had coarse crepitation and rhonchi on auscultation. Digital chest x-ray was within normal limit. HRCT chest was within normal limit except a focal peripheral calcification involving right lower lobe bronchus causing its narrowing [Fig.1 (a)]. This finding on CT scan of no clear foreign body in bronchus further complicated the diagnosis of foreign body bronchus.

However considering the history, clinical examination and the inconclusive HRCT chest we took the child for diagnostic rigid bronchoscopy, where intra operatively foreign body was seen in right lower lobe bronchus and it was retrieved in two attempts with an alligator forceps. After removal, the foreign body whistle was examined, it was tubular in shape and hollow from inside [Fig.1(b)] this being the reason for appropriate and sustained normal ventilation and late presentation to hospital, foreign body only caused narrowing of the bronchus evident in CT scan.



**Fig. 1(a) HRCT chest showing narrowing of Rt. Lower bronchus (Red Arrow)**

**Fig. 1(b) Foreign body whistle**

**Case 2:** A 40 yr. male presented to ENT OPD with alleged history of foreign body? Fish bone ingestion under alcohol intoxication 2 days back. Patient complained of difficulty in swallowing both for solid and liquid, throat pain, throat irritation, hematemesis single episode. On examination patient was vitally stable but agitated and in severe throat pain. On laryngeal endoscopy no obvious foreign body seen. Digital x-ray neck and chest AP & Lateral showed radioopaque foreign body resembling vertebrae in proximal oesophagus at around C6-T1 vertebral level [Fig.2 (a)]. As patient was in pain and considering hematemesis history, we took patient for emergency Rigid oesophagoscopy and retrieved foreign body roughly of size 2 cm, which was fish spine having 3 vertebral bodies and some part of rib attached which were like pointed projection which further caused trauma to oesophageal wall [Fig.2(b)]. Postoperatively patient was kept on RT feeds for 3 days, from POD 4 peritubal

fluids intake allowed, RT removed on POD 5 and patient discharged on 7<sup>th</sup>POD. This foreign body was unusual and very interesting one as most people present with foreign body fish bone which are generally thin, small bony pieces mostly ribs, but in this case it was spine with 3 vertebral bodies and ribs attached.



**Fig. 2(a) Digital X-ray cervical spine lateral view showing FB in oesophagus (Red arrow)**

**Fig. 2(b) Fish bone with 3 vertebrae and ribs**

**Case 3:** A 9 year old boy presented in emergency with complain of excessive cough and breathing difficulty just after accidental swallow of sketch pen cap while doing homework at home. On examination with laryngeal endoscopy, a yellow colored plastic material could be appreciated stuck in subglottic region just below vocal cord which was causing constant cough, excessive gag reflex and breathing difficulty. Patient's saturation was fluctuating so we advised HRCT chest and CT virtual bronchoscopy which confirmed some F.B. in subglottic area [Fig. 3(a)]. Urgent Rigid bronchoscopy and exploration under GA was planned. We introduced rigid bronchoscope of appropriate size and then visualised F.B. via endoscope introduced inside the bronchoscope. After confirmation of nature and location foreign body endoscope is withdrawn and foreign body removed with help of alligator forceps [Fig. 3(b)]. Patient was shifted to pediatric ICU for further monitoring kept on oxygen mask. After 24 hr of monitoring patient shifted to ENT ward and was stable.



**Fig. 3(a) CT scan showing F.B. at subglottic level.**

**Fig.3(b) F.B. plastic pen cap**

**Case 4:** A 60 year old male presented to ENT opd with alleged history of foreign body denture ingestion last night and complained symptoms of dysphagia ,and odynophagia otherwise he was vitally stable. Patient underwent X Ray neck and chest and we found radiopaque foreign body impacted at the level of cricopharynx [Fig.4(a)] . After consent patient was taken for emergency Rigid oesophagoscopy and foreign body denture [Fig.4(b)] removed under general anaesthesia. Patient was kept on RT feed for few days then shifted to oral feed and discharged.



**Fig. 4(a) x-ray neck showing radiopaque F.B.**

**Fig. 4(b) F.B. Removable denture****CONCLUSION**

Accidental inhalation or ingestion of either organic or non organic items continues to be an emergency and both are related to unpleasant outcomes if not managed appropriately. In these cases prevention is the best however while dealing with such cases early diagnosis and management play important role. More advanced instruments, surgeon's skill and post-op monitoring are equally important for best outcome.

**4. REFERENCES**

1. George SP, Dubey NK, Sharma A. et al. Foreign bodies in the upper digestive tract: study in a tertiary care centre. International journal of scientific research. 2023 April; 12(4):16-19. doi:10.36106/ijsr.
2. Kumar AGN. Foreign bodies in esophagus: our experiences. Int J Otorhinolaryngol Head Neck Surg 2019; 5:83-7.
3. Dubey NK, Upadhyay A, Raghuwanshi N, Godha S, Mundra R. Title-Optical Forceps: The Real Boon for Surgeon, Residents and Patients with Foreign Body Aspiration. Indian J Otolaryngol Head Neck Surg. 2022 Dec; 74(Suppl 3):5354-5360. doi: 10.1007/s12070-021-02596-8. Epub 2021 May 4. PMID: 36742834; PMCID: PMC9895720.
4. Baram A, Kakamad FH, Bakir DA. Scarf pin-related hijab syndrome: A new name for an unusual type of foreign body aspiration. Journal of International Medical Research. 2017; 45(6):2078-2084. doi:10.1177/0300060517711086.

5. Ashraf O. Foreign body in the esophagus: a review. *Sao Paulo Med J.* 2006 Nov 7; 124(6):346-9. doi: 10.1590/s1516-31802006000600010. PMID: 17322958.
6. Kamath P, Bhojwani KM, Prasannaraj T, Abhijith K. Foreign bodies in the aerodigestive tract--a clinical study of cases in the coastal belt of South India. *Am J Otolaryngol.* 2006 Nov-Dec; 27(6):373-7. doi: 10.1016/j.amjoto.2005.11.011. PMID: 17084219.
7. Higo R, Matsumoto Y, Ichimura K, Kaga K. Foreign bodies in the aerodigestive tract in pediatric patients. *Auris Nasus Larynx.* 2003 Dec; 30(4):397-401. doi: 10.1016/s0385-8146(03)00087-7. PMID: 14656566.
8. Reilly JS, Cook SP, Stool D, Rider G. Prevention and management of aerodigestive foreign body injuries in childhood. *Pediatr Clin North Am.* 1996 Dec; 43(6):1403-11. doi: 10.1016/s0031-3955(05)70525-3. PMID: 8973519.
9. Tan HK, Brown K, McGill T, Kenna MA, Lund DP, Healy GB. Airway foreign bodies (FB): a 10-year review. *Int J Pediatr Otorhinolaryngol.* 2000 Dec 1;56(2):91-9. doi: 10.1016/s0165-5876(00)00391-8. PMID: 11115682.
10. Kocaoglu M, Bulakbasi N, Soyulu K, Demirbag S, Tayfun C, Somuncu I. Thin-section axial multidetector computed tomography and multiplanar reformatted imaging of children with suspected foreign-body aspiration: Is virtual bronchoscopy overemphasized? *Acta Radiol.* 2006 Sep; 47(7):746-51. doi: 10.1080/02841850600803834. PMID: 16950716.
11. Wahbeh G, Wyllie R, Kay M. Foreign body ingestion in infants and children: location, location, location. *Clin Pediatr (Phila).* 2002 Nov-Dec;41(9):633-40. doi: 10.1177/000992280204100901. PMID: 12462312.
12. Patel NR, Sharma P. Foreign Bodies in Esophagus: An Experience with Rigid Esophagoscope in ENT Practice. *Int J Head Neck Surg* 2021; 12 (1):1-5.
13. Brady PG. Esophageal foreign bodies. *Gastroenterol Clin North Am.* 1991 Dec; 20(4):691-701. PMID: 1787010.
14. Good GM, Deutsch ES. Method for removing endobronchial beads. *Ann Otol Rhinol Laryngol.* 1998 Apr; 107(4):291-2. doi: 10.1177/000348949810700405. PMID: 9557762.