

# Clinical Study of Foreign Body in Aerodigestive Tract

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## Abstract

**Aim:** The present study of foreign bodies in aerodigestive tract was undertaken to study the various parameters basis of history, examination, and investigations.

**Materials and Methods:** A total of 72 cases of foreign bodies in aerodigestive tract were admitted in ENT ward of Government Rajaji Hospital were included in the study. All the cases selected and studied in detail for age, sex, incidence, type of foreign body, site of lodgment, common symptoms with which type presented, and the nature of the problem in dealing with these patients during the management.

**Results:** A total of 72 cases of inpatients were categorized as nasal foreign bodies, digestive tract foreign bodies, and airway foreign bodies. The incidence of admitted foreign body cases (72 cases) was more for males (38 cases) than for females (25 cases). Likewise, it was encountered more in pediatric age group, with more commonly involving 1-2 years of age group.

**Conclusion:** Foreign in aerodigestive tract is a common clinical problem in otorhinolaryngological practice an evident in this study. Although many does not have an immediate problem of airway, some of them are serious and life-threatening emergencies. Educating the parents about keeping away the article from reach of children and to observe the activity of child will prevent the higher incidence of foreign body in children.

**Key words:** Aerodigestive, Cricopharynx, Nasopharynx, Otorhinolaryngological

## INTRODUCTION

Foreign body ingestion and aspiration are common childhood adverse events hence are the most common causes of morbidity and mortality in infants and children worldwide. They form the third-leading cause of death in children under the age of 1 year and the fourth-leading cause in the age group of 1-6 years.<sup>1</sup> The maximum prevalence is seen between the ages of 1 and 2 years; however, no age group is completely immune. Foreign body is ingested accidentally but occasionally homicidal or suicidal.<sup>2</sup> Most common foreign bodies in children are

coins, but marbles, button, batteries, safety pins, and bottle tops are also reported. In adults, common foreign bodies are bones, dentures, and metallic wires. The foreign bodies that have gone beyond the esophagus will pass uneventfully through the intestinal tract in 70%-80% cases. The foreign bodies in tracheobronchial area pose additional diagnostic problem, which is all the more so in radiolucent foreign bodies.<sup>3,4</sup>

## Aim

The present study of foreign bodies in aerodigestive tract was undertaken to study the various parameters basis of history, examination, and investigations.

## MATERIALS AND METHODS

A total of 72 cases of foreign bodies in aerodigestive tract were admitted in ENT ward of Government Rajaji Hospital from August 2014 to August 2015. All the cases selected and studied in detail for age, sex, incidence, type

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of body, site of lodgment, and common symptoms with which they presented and the nature of the problem in dealing with these patients during the managements. Inclusion criteria: Patients presenting with or without h/o swallowing, inserting or inhaling the foreign body with symptoms such as dysphagia, drooling of saliva, wheeze, and acute respiratory distress were included in the study. Patients fulfilling inclusion criteria were clinically examined, investigated, and treated accordingly.

**RESULTS**

A total of 72 cases of inpatients were categorized as nasal foreign bodies, digestive tract foreign bodies, and airway foreign bodies; 16 cases in nasal cavity, 40 cases in digestive tract, and 16 cases in airway foreign bodies were selected for the study analysis of positive cases revealed the following observation.

Nasal foreign bodies: 2-3 years had a maximum incidence of nasal FB (37.5%), youngest patient was 1 years, and oldest was 12 years. Digestive tract foreign bodies: Patients aged > 10 years constituted maximum number. Airway foreign bodies: Patient aged 1-2 years is most common (Table 1).

Nasal foreign bodies: 68% were male and 32% were female. Digestive tract foreign bodies: 50% were male and 50% were female. Airway foreign bodies: 69% were male and 31% were female (Table 2).

Nasal foreign bodies: 75% of the cases presented with a history of foreign body nasal cavity and next common symptom is nasal obstruction and foul smelling nasal discharge.

**Table 1: Age of the patients**

Age group	Nasal (%)	Digestive (%)	Airway (%)
1-2	5 (31.25)	4 (10)	7 (42.75)
2-3	6 (37.5)	7 (17.5)	2 (12.5)
3-4	2 (12.5)	0	2 (12.5)
4-5	1 (6)	5 (12.5)	1 (6)
5-6	0	2 (5)	1 (6)
6-7	0	2 (5)	1 (6)
7-8	0	3 (7.5)	0
8-9	1 (6)	2 (5)	0
9-10	0	4 (10)	1 (6)
>10	1 (6)	11 (27.5)	1 (6)

**Table 2: Gender distribution**

Site of foreign body	Male (%)	Female (%)
Nasal	11 (68.5)	5 (31.5)
Digestive	20 (50)	20 (50)
Airway	11 (69)	5 (31)

Digestive tract foreign bodies: Throat pain/dysphagia is most common symptom in foreign body digestive tract, next most common symptom is foreign body sensation in throat and drooling of saliva refusal of feeds.

Airway foreign bodies: Dysphonia is most common symptom in foreign body airway, followed by cough and wheeze.

Nasal foreign bodies: FB in nasal cavity is most common sign in anterior rhinoscopy followed by mucopurulent foul-smelling discharge. Digestive tract foreign bodies: Drooling of saliva is most common sign followed by FB in IDL. Airway foreign bodies: Reduced air entry is most common sign in foreign body airway, followed by respiratory distress and crepitations (Table 3).

Nasal foreign bodies: Right nasal cavity is most common site followed by left nasal cavity. Digestive tract foreign bodies: Cricopharynx is most common site followed by upper esophagus. Airway foreign bodies: Right main bronchus is most common site (Table 4).

Nasal foreign bodies: Bead is most common FB in nasal cavity. Digestive tract foreign bodies: Coin is most common FB in digestive tract, followed by metal piece, fish, bone, and mutton piece. Airway foreign bodies: Groundnut is most common FB in airway tract followed by roasted gram (Table 5).

All the cases were managed with orotracheal intubation with general anesthesia in case of esophageal foreign bodies

**Table 3: Signs of presentation**

Signs of presentation	Nasal (%)	Digestive (%)	Airway (%)
Mucopurulent foul smelling discharge	4		
FB in the nasal cavity	12		
Bleeding	1		
Drooling of saliva		7	
FB in IDL		4	
Reduced air entry			12
Crepts			10
Respiratory distress			11

**Table 4: Site of foreign bodies**

Site of FB	Number of cases (%)
Nasal cavity	15 RT-10, LT-5
Nasopharynx	1
Poster pharyngeal wall	1
Cricopharynx	21
Upper esophagus	11
Mid esophagus	6
Lower esophagus	1
RT main bronchus	14
LT main bronchus	2

**Table 5: Types of foreign bodies**

Type of foreign body	Nasal (%)	Digestive (%)	Airway (%)
Tamarind seed	2		2
Ground nut	2		5
Betel nut	2		
Seed (sapota, others)	2		1
Bead	3		
Denture		2	
Whistle		1	
Battery	1	1	
Metal piece		4	
Safety pin	1	1	
Stone	2		
Mutton piece		4	
Fish bone		4	
Coins		20	
Button	1		
Pen and plastic cap			2
Coconut piece		3	1
Air pin			1
Pottu kallai		3	3
Mucus plug			1

**Table 6: Type of procedure**

Type of procedure followed	Number of cases
Endoscopic removal	16
DL scopy	22
Rigid esophagoscopy	2
Rigid bronchoscopy	16
Thoracotomy	1

and ventilation by side arm of bronchoscope in cases of foreign bodies of trachea-bronchial tree (Table 6).

## DISCUSSION

Foreign body removal from the throat is difficult and is associated with large number of complications in an inexperienced hand. Most common of them are injury to surrounding structures, perforations, injury to vocal cords, and mediastinitis.

The incidence of admitted foreign body cases (72 cases) was more for males (38 cases) than for females (25 cases). Likewise, it was encountered more in pediatric age group, with more commonly involving 1-2 years of age group. Earlier findings of Banerjee *et al.* and Rothman and Boeckman that the highest incidences of foreign body aspiration and ingestion were in children below 3 years. Since these children lack molar teeth, edibles placed in the mouth are usually broken up but not chewed which they easily ingest aspirate, especially if the child is running, playing, or talking.<sup>5,6</sup>

Out of 72 cases, 15 cases were seen in the nasal cavity. The most common being ground nut and button battery.

Radiological investigation showed the exact site of the foreign body, and it was removed through endonasal endoscopic approach. In the study of Steven C, 47 Coins, 23 sharp objects, 4 Button batteries, and 65 blunt and non-corrosives were found.<sup>7</sup>

One case presented with foreign body in the nasopharynx and foreign body being an open safety pin. It was identified in X-ray, and endoscopic removal was done. The clinical presentation of these cases varied according to the site of lodgment of a foreign body. Among the foreign body in the air passages, most of them presented with choking, gagging, coughing, and dyspnea followed by a symptomless interval in some cases. One adult female presented with sapota seed after aspirating accidentally, patient was asymptomatic, radio logically the seed was identified in the bronchus and patient underwent rigid bronchoscope under general anesthesia, and first attempt failed due to the slippery nature of the seed. Then, patient underwent flexible bronchoscope and this one too failed. Again patient was planned for rigid bronchoscopy with modified position of the patient, and foreign body was successfully removed under general anesthesia. During post-operative period, no complication was identified. The foreign bodies in the food passage presented with various clinical presentation such as dysphagia, painful swallowing, chest discomfort, chest pain, throat pain, hematemesis, and vomiting.<sup>8-11</sup>

## CONCLUSION

Foreign bodies in aerodigestive tract are a common clinical problem in otorhinolaryngological practice an evident in this study. Although many does not have an immediate problem of airway, some of them are serious and life-threatening emergencies. Such is the clinical spectrum of presentation. Educating the parents about keeping away the article from reach of children and to observe the activity of child will prevent the higher incidence of a foreign body in children.

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