



Upper Aerodigestive Tract Foreign Bodies – An Overview of the Incidence and Management in a Rural Based Tertiary Hospital

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ABSTRACT

Aerodigestive tract foreign bodies pose major challenges to the otorhinolaryngologist in both diagnosis and management. It is a common accident that befalls both children and adults alike. A study was conducted in a rural tertiary hospital for a period of 1 year with the objective of finding out the incidence and types of upper aerodigestive tract foreign bodies in different age groups and their management. A total of 50 cases were studied. All vegetative and non-vegetative foreign bodies in the nasal, digestive tract and airway were successfully removed without complications with the conclusion that early intervention by trained hands does not pose serious problems. Also, public awareness and parental education are key elements to help foster a culture of preventive medicine.

KEYWORDS : Aerodigestive tract, foreign body, children

Introduction

Aspiration and ingestion of foreign bodies in the upper aerodigestive tract, either accidentally or deliberately often constitute otolaryngologic emergencies in both children and adults.¹ It frequently mimics other conditions and is often the result of an unwitnessed episode.² The type, shape, size and location of the foreign body determine the necessity of an emergency removal. Of utmost importance are a good history and nothing can substitute for a high index of clinical suspicion. Developments in radiology have an important role in the rationalized and safe management of these cases.³

An aggressive approach is needed for sharp foreign bodies.⁴ Early diagnosis is the key to successful and uncomplicated management of these accidents to avoid significant morbidity and mortality.⁵

Methodology

A prospective study with 20 cases of nasal, 20 cases of digestive tract and 10 cases of airway foreign bodies for a period of 1 year were studied. The oesophagus, larynx, trachea and bronchus were included in this study. Foreign bodies beyond the oesophagus and lungs were excluded.

Results

Children in the age group 3-4 years followed by 4-5 years had the highest incidence of nasal foreign bodies. Majority (50%) of the patients with foreign body in the digestive tract were above 10 years. The age group between 2-3 years and 3-4 years had the highest incidence of airway foreign bodies with 40% of the cases.

Male and female ratio was 1.2:1 in nasal foreign bodies, 1.8:1 for digestive and 3:2 for airway foreign bodies.

Right nasal cavity was mainly involved in 55% of the cases. Cricopharynx was the common site in the digestive tract with 50% of the cases. In the airway, right main bronchus was the common site in 80% and left main bronchus was involved in 20% of the cases.

Majority of nasal foreign bodies were treated as out patients. 30% of cases of digestive tract foreign bodies were discharged within 72 hours. However 80% of the patients with airway foreign bodies needed in patient care for more than 72 hours.

Foreign body in the nasal cavity (95%), nasal obstruction (20%) and foul smelling

nasal discharge (15%), were the predominant symptoms in the nasal foreign bodies.

Throat pain (75%) and dysphagia (70%) were the predominant symptoms in the digestive tract foreign bodies. Dyspnoea (60%), wheeze (50%) and stridor (40%) were the predominant symptoms in the airway foreign bodies.

Foreign body in the nasal cavity (95%) followed by foul smelling nasal discharge (15%) were the common signs at presentation for nasal foreign bodies. Pooling of saliva in the pyriform sinuses (65%) followed by foreign body seen on IDL (20%) were the common findings among the digestive tract foreign bodies. Decreased air entry (60%) followed by respiratory distress and crepitations (40%) were the main signs among airway foreign bodies.

Most common foreign body in the nasal cavity was ground nut (30%), in digestive tract, currency coins (55%) and in airway, ground nuts (30%). In nasal cavity, non-vegetative foreign bodies were more in number (60%). In digestive tract, majority were non-vegetative (55%), while in airway (80%) were vegetative.

TABLE 1 : SYMPTOMS OF PRESENTATION

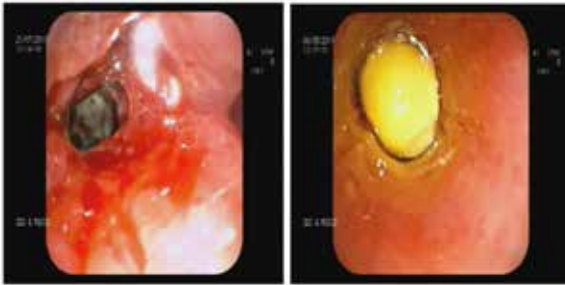
	Nasal	Digestive	Airway
Foreign body in nasal cavity	19 (95%)	0 (0%)	0 (0%)
Nasal obstruction	4 (20%)	0 (0%)	0 (0%)
Foul smelling nasal discharge	3 (15%)	0 (0%)	0 (0%)
Bleeding	1 (5%)	0 (0%)	0 (0%)
Dysphagia	0 (0%)	14 (70%)	0 (0%)
Throat pain	0 (0%)	15 (75%)	0 (0%)
Foreign body sensation in throat	0 (0%)	6 (30%)	0 (0%)
Odynophagia	0 (0%)	4 (20%)	0 (0%)
Drooling of saliva	0 (0%)	3 (15%)	0 (0%)
Refusal to feed	0 (0%)	6 (30%)	0 (0%)
Fever	0 (0%)	1 (5%)	0 (0%)
Vomiting	0 (0%)	2 (10%)	0 (0%)
Cough	0 (0%)	0 (0%)	2 (20%)
Dyspnoea	0 (0%)	0 (0%)	6 (60%)
Wheeze	0 (0%)	0 (0%)	5 (50%)
Stridor	0 (0%)	0 (0%)	4 (40%)

TABLE 2 : SIGNS AT PRESENTATION

	Nasal	Digestive	Airway
Mucopurulent/ Foul smelling nasal discharge	3 (15%)	0 (0%)	0 (0%)
Foreign body seen in the nasal cavity	19 (95%)	0 (0%)	0 (0%)
Bleeding	1 (5%)	0 (0%)	0 (0%)
Foreign body seen in the tonsil	0 (0%)	3 (15%)	0 (0%)
Pooling in pyriform sinus	0 (0%)	13 (65%)	0 (0%)
Foreign body seen on IDL	0 (0%)	4 (20%)	0 (0%)
Decreased air entry	0 (0%)	0 (0%)	6 (60%)
Crepitations	0 (0%)	0 (0%)	4 (40%)
Respiratory distress	0 (0%)	0 (0%)	5 (50%)

TABLE 3 : SITES OF FOREIGN BODY

Site	Percentage of cases
Right nasal cavity	11 (55%)
Left nasal cavity	8 (40%)
Bilateral nasal cavities	1 (5%)
Tonsillar fossa	3 (15%)
Valleculae	1 (5%)
Anterior commissure	1 (5%)
Pyriform sinus	2 (10%)
Cricopharynx	10 (50%)
Middle 1/3 rd of oesophagus	3 (15%)
Right main bronchus	8 (80%)

**Pen cap in left middle bronchus and jowar seed in right middle bronchus****TABLE 4 : TYPES OF FOREIGN BODY**

	Nasal	Digestive	Airway
Tamarind seed	2 (10%)	0 (0%)	2 (20%)
Groundnut	6 (30%)	0 (0%)	3 (30%)
Betel nut (Areca nut)	0 (0%)	0 (0%)	1 (10%)
Jowar/Maize	0 (0%)	0 (0%)	1 (10%)
Watermelon seed	0 (0%)	0 (0%)	1 (10%)
Plastic beads	2 (10%)	0 (0%)	1 (10%)
Pen cap	1 (5%)	0 (0%)	1 (10%)
Metal beads	2 (10%)	0 (0%)	0 (0%)
Denture	0 (0%)	1 (5%)	0 (0%)
Meat piece	0 (0%)	3 (15%)	0 (0%)
Fish bone	0 (0%)	5 (25%)	0 (0%)
Currency coins	0 (0%)	10 (50%)	0 (0%)
Sand stones	1 (5%)	0 (0%)	0 (0%)
Chalk piece	4 (20%)	0 (0%)	0 (0%)

Others (Rubber piece, paper, vegetable piece)	2 (10%)	1 (5%)	0 (0%)
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Discussion

The upper aerodigestive tract refers to the parts of the respiratory system till the inlet of larynx and the digestive system till the level of the cricopharynx. A foreign body is an endogenous or exogenous substance incompatible with the anatomy of the part of the body where it is found. They can be classified as organic and inorganic. Personal factors such as age, sex, occupation, physical factors, social and mental conditions, properties of foreign bodies and endogenous foreign bodies play a vital role in etiology.^{6,7,8,9}

Particular characteristics influence the reaction of the tissue to its presence. The pathological changes in tissues depends on the character of the foreign body like the size, shape, surface, degree of obstruction and diffuseness of the reaction of the tissues to its presence.¹⁰

Clinical presentation can be in myriad fashions especially in children and complications depend on factors like size, site, character and duration of entrapment. Diagnosis should be quick to avoid respiratory sequelae.

A thorough history, general and ENT examination, roentgenographic study is needed. Direct laryngoscopy, oesophagoscopy and rigid bronchoscopy is indicated in selective cases.^{11,12}

Proper diagnosis and prompt treatment can ward off complications and fatal sequelae, as seen in our study. X rays and CT scans were done in appropriate cases of digestive and airway foreign bodies in our study.

In our study nasal and airway foreign bodies are invariably seen in children below the age of 5 years. Digestive tract foreign bodies are encountered more in older children and adults/elderly people. It is in contrast to Hawkin's D.B et al(1990) where children under 3 years of age had the maximum incidence. Edentulous people were seen to be having a higher incidence for digestive foreign bodies.

Conclusion

Aerodigestive foreign bodies continue to present challenges to the otorhinolaryngologists with the accurate diagnosis eluding even the sophisticated physician. Children and adults are equally affected. Oro-exploratory behaviour in children analysed by Sigmund Freud states that anal and phallic Oedipal stages following the oral stage not only predisposes a child for anal manipulations, but also give him pleasure of manipulating the various orifices including Ear, Nose and Throat. Adults have a predilection for digestive tract foreign bodies and it could be attributed to dietary habits and hasty consumption of food. Most cases in our study were accidental in nature and due to carelessness. Parents' negligence and lack of attention by leaving small objects at the reach of children contributes to the high incidence of foreign bodies. A comprehensive approach to early recognition, high index of suspicion, experience, clinical acumen and timely management can ward off significant health implications, morbidity and mortality. The study at our set up revealed that upper aerodigestive tract foreign bodies do not pose serious problems as highlighted in various studies. Also, public awareness and parental education are key elements to help foster a culture of preventive medicine.

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