Original article:

Pediatric foreign body Ingestion: a retrospective study

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Abstract:

Introduction: The ingestion of foreign body is most common in the pediatric age group. Mostly foreign body are of objects commonly found in the home.In our study we aimed to study the type of foreign bodies ingested/ aspirated by children and the area of lodgement of these foreign bodies along with the predisposing factors for these kind of accidents.

Material and methods:This was a retrospective study done at a tertiary care hospital in Western part of India. All the children admitted or outpatient (whose records were available) who presented with complaint of foreign body ingestion or aspiration in last two years .Total 40 children were selected and analysis was done .

Result: Out of 40 cases ,4 (10%) were <2 years of age, 24 (60%) were between 2-5 years, 11 (27.5%) were 5-10 years and 1 (2.5%) child was between 10-12 years of age. Male: female predisposition was 1:1. Most of the cases (24, 60%) presented immediately or within 24 hours of ingestion/aspiration of foreign body.The most common site of lodgement was nose(42.5%) followed by ear, gastro-intestinal tract and respiratory tract respectively.

Keywords: Foreign body, children, foreign body aspiration

Introduction:

Ingestion and aspiration of foreign bodies are very common pediatric problems responsible for a large number of outpatient and Emergency department visits. More than 110,000 foreign-body ingestions in patients of all ages were reported in the United States in 2011 and greater than 85% of these occurred in the pediatric population (1,2). Additionally, foreign-body ingestion was responsible for more than 17,000 emergency department visits in 2000 in children less than 14 years of age (3). Foreign-body aspiration is the most common cause of mortality owing to unintentional injury in children less than 1 year of age and results in approximately 3500 deaths per year in children of all ages (4,5). Young children less than 3 years of age are most likely to aspirate foreign bodies, with 80% of pediatric cases occurring in this age group. Foreign-body ingestion is likewise a problem primarily affecting preschool-age children, with 73% of cases occurring in children less than 5 years of age (2).The vast majority of pediatric ingestions are accidental; increasing incidence of intentional ingestions starts in the adolescent age group. In the United States, the most common pediatric foreign bodies ingested are coins, followed by a variety of other objects, including toys, toy parts, sharp objects, batteries, bones, and food.(6) In adolescents and adults, meat or food impactions are the most common accidental foreign body ingestion. Peanuts are the most common, accounting for 35%–55% of all aspirated foreign bodies, with seeds, popcorn, other food particles, hardware, and pieces of toys rounding out the list (7). In India even though

foreign body ingestion is a very common scenario, this kind of data is not published till date.In our study we aimed to study the type of foreign bodies ingested/ aspirated by children and the area of lodgement of these foreign bodies along with the predisposing factors for these kind of accidents.

Material & methods:

This was a retrospective study done at a tertiary care hospital in Western part of India. All the children admitted or outpatient (whose records were available) who presented with complaint of foreign body ingestion or aspiration in last two years were included. Total 40 children were selected. The analysis was done for type of foreign body and the area/site of lodgement of foreign body along with demographic profiling.

Results:

Total 40 cases were included, out of which 4 (10%) were <2 years of age, 24 (60%) were between 2-5 years, 11 (27.5%) were 5-10 years and 1 (2.5%) child was between 10-12 years of age. Male: female predisposition was 1:1. Most of the cases (24, 60%) presented immediately or within 24 hours of ingestion/aspiration of foreign body.(Table 1) The most common site of lodgement was nose(42.5%) followed by ear, gastro-intestinal tract and respiratory tract respectively.(Table 2) Wheat grains, stones .....were the most prevalent foreign bodies found in children. (Table 3) Predisposing factor analysis showed the toddlers are more prone for ingestion and accidental aspiration of foreign bodies and prevalence increases (70%) with availability of foreign bodies within the reach areas of children Eg. Low height shelves, on the small tables, dressing tables, drawers, small containers, toys and stones while playing etc.

TABLE NO:1

TIME INTERVAL OF PRESENTATION	**NO OF CASES**	**PERCENTAGE**
0-24 hour	24	60.0
24-48 hour	0	0.0
48 hrs-7 days	5	12.5
7-14 days onwards	4	10.0
14 days onwards	6	15.0
unknown	1	2.5

TABLE NO: 2

SITE OF LODGEMENT	NUMBER OF CASES	PERCENTAGES
Ear	11	27.5
Nose	17	42.5
Respiratory tract	5	12.5
Gastrointestinal tract	7	17.5

TABLE NO :3

NATURE OF FOREIGN BODY	NO OF CASES	PERCENTAGE
Organic foreign body		
Groundnut	2	5.0
Peanut	2	5.0

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Wheat	3	7.5
Maize seed	1	2.5
Tamarind seed	3	7.5
Betel nut	1	2.5
Chana	1	2.5
Chickoo seed	1	2.5
Maggots	2	5.0
INORGANIC		
Slat pen	4	10.0
Stone	3	7.5
Screw	1	2.5
Metal top	1	2.5
Iron bar	1	2.5
Plastic bead	2	5.0
25 paise coin	1	2.5
50 paise coin	2	5.0
Steel ring	2	5.0
Wooden piece	1	2.5
Plastic toy	1	2.5
Marble	1	2.5
Safety pin	1	2.5
coal	2	5.0
Nail	1	2.5

Discussion:

The pediatric emergency experts facing most common challenge in the clinical scenario are foreign body ingestion by children.Although ingestion of foreign body may be observed at any age, it is more frequently observed in infants who tend to recognize objects found around them by delivering them to their mouths and in play age children who tend to ingest objects accidentally (2). 75% of the >116,000 foreign body ingestions reported were in children 5 years of age or younger,this was documented by the American Association of Poison Control Centers in 2000 (1). 98% of foreign body ingestions (FBIs) in children are accidental and they may be common objects found in house like coins, toys, jewelry, magnets, and batteries that is opposite to adults (2). Most foreign bodies ingested are spontaneously passing the GIS without leading to any morbid complication(18, 19). It is reported that the parents did not recognise the 40% of the cases of ingestion of foreign body .Therefore, the number of cases of ingestion of foreign body in the childhood is higher as compared to the number reported (20). Children present with symptoms like stridor, pain, drooling, fussiness, chest pain, abdominal pain, fever, feeding refusal, wheezing, and respiratory distress (3). Conversely, they may be completely asymptomatic but brought in after ingestion witnessed by a caretaker.The vast majority of

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pediatric ingestions are accidental; increasing incidence of intentional ingestions starts in the adolescent age group. In the United States, the most common pediatric foreign bodies ingested are coins, followed by a variety of other objects, including toys, toy parts, sharp objects, batteries, bones, and food. Esophageal pathology underlies most cases of food impaction. The management of foreign body ingestion is depend on the location,size and age of the patient .Ingested batteries that lodge in the esophagus require urgent endoscopic removal even in the asymptomatic patient due to the high risk of complications. The foreign body complication rate increases when the it is sharp from less than 1% to 15% to 35%, except for straight pins, which usually follow a relatively benign course unless multiple pins are ingested. Magnets are increasingly ingested, due to their ubiquitous nature and the perception that they do not pose a risk. Ingestion of multiple magnets creates a significant risk of obstruction, perforation, and fistula development.The first imaging step in suspected foreign-body ingestion is generally radiography. The initial standard imaging protocol includes frontal and lateral radiographs of the chest, neck (often included on the chest radiographs), and abdomen. Including the neck and abdomen in the imaging evaluation is important because using chest radiographs alone may result in failure to detect multiple foreign bodies, objects higher than the thoracic inlet, or objects that have passed the pylorus (8). Lateral views are also important to confirm location.Computed tomography (CT) is not generally the first-line imaging modality but can be considered in cases in which the ingested foreign body is causing symptoms or has worrisome characteristics such as large size, length greater than 5 cm, or sharp edges. CT may also be considered if the type of object ingested is unknown, if no foreign body is seen on radiographs but there is persistent clinical concern, or if there is clinical concern for an abscess or obstruction related to the foreign body (9).The management of foreign-body aspiration is determined primarily by the clinical status of the patient. Imaging, although important, generally plays a secondary role (12). The main initial clinical decision is whether the patient will need emergent bronchoscopy; this choice is based on the patient's clinical history and the clinical examination. If a patient is in stable condition, then imaging is typically performed to help establish the diagnosis and evaluate for complications. The recommended initial imaging examination for suspected foreign-body aspiration is frontal chest radiography. The presence of a radiopaque object in an airway easily allows the diagnosis to be established; however, only approximately 10% of aspirated foreign bodies are radiopaque (12).

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