

Spontaneous Expulsion of Ingested Foreign Bodies: Case Series and Review of Literature

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Abstract The amount of foreign bodies that gains access to the Gastrointestinal Tract (GIT) on yearly basis is in millions. These are done by the two main routes to the tract, i. e the mouth and the anus. Ingestion of foreign bodies may be harmless but sometimes death in the region of 1000 – 3000 yearly may also happen. The vast majority of ingested foreign bodies into the GIT pass through the tract without significant incidence. Affected individuals may be going about with their normal daily activities without any form of bodily interruption. Up to 20 % of cases however will need some form of therapeutic intervention. 80 % of cases of ingestion of foreign bodies into the GIT have been shown to occur in children. Anal insertion of foreign bodies into the GIT on the other hand occurs most often in the adult age group. Foreign bodies in the GIT may also be seen in the psychiatric patients, inmates, chronic alcoholics, drug abusers, the elderly patients with poor fitting dentures as well as the mentally retarded individuals. While ingestion of foreign bodies into the GIT may be accidental (especially in children), or experimental (anal insertion by adults), it may be purely intentional as in smugglers of illicit drugs, jewels and other valuables so as to evade detection by the security.

Keywords: *foreign bodies, ingestion, GIT*

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1. Introduction

Quite a number of anatomic and physiologic areas that are of potential obstruction to ingested materials exist in the GIT. Sometimes, this may block spontaneous passage of ingested foreign bodies. Examples of such include the cricopharynx, the middle esophagus, the lower esophageal sphincter, the pylorus, the ileocaecal valves of Houston as well as the anal sphincter. Certain other pathological conditions may also cause obstruction to the flow of ingested foreign bodies into the GIT. These also include strictures, tumours, diverticulum and hypomotility states like gastroparesis or paralytic ileus [1].

There are various types of objects that have been ingested or are inserted through the anus into the GIT. Coins (especially in children) have been the most frequently described object in history and they are of various types [1,2]. Others include beads, meat boluses, batteries, pins, keys, hair bolus, glass and stones. Loss of sex stimulant devices account for more than half of the foreign objects introduced through the anus and this is commonly seen in the adults [3]. This is quite a rare finding in children where if found should prompt abuse. Retained radio-labeled particles ingested for motility

studies may also be seen as well as surgical instruments and materials left insitu post operatively [4].

The frequency of bowel movement by the individual will determine the timing of expulsion of the ingested particles or objects. While it may be possible to recover the ingested objects within 24 hours of ingestion, most people will pass the objects after 24 hours in a carefully collected and well sampled stool.

There is paucity of data to this regard as well as the correlation between the nature of the ingested foreign bodies and gastric transit time. Objects that are pointed or have sharp ends may stick or pierce the mucosa and have a relatively slow transit time compared to rounded non pointed objects which are expected to have a relatively shorter transit in the GIT.

The time at which an object is ingested may not be known if the patient is a child, a high index of suspicion may be all that might lead to the diagnosis of ingested foreign bodies especially if those items were suddenly found to be missing and a child was present around the place as of that time. Older children, adults and the elderly patients may be able to volunteer the history regarding the time they ingested the said objects. Knowing well on time that an object has been ingested will help in planning any intervention if needed and also to do relevant investigations to localize the site of the ingested material, to know the type and to determine if it should be removed

immediately or delayed. This will prevent unnecessary emergency endoscopic therapeutic procedure which may not be without significant morbidity.

Ingested foreign bodies may pass without symptoms depending on the size and type, certain patients may present with maneuvering while swallowing, neck pain, increased salivation, vomiting, hematemesis, cough, abdominal pain, pain while defecating or bleeding per rectum. Substances that are nontoxic or non-corrosive usually would pass without symptoms while needles and batteries may be symptomatic [5]. Again once the object has passed into a larger cavity like the stomach, the symptoms may be missed especially in children.

The first investigation usually is an X-ray to localize the site of the ingested foreign body. This has been found useful in a large number of cases as accidentally most ingested foreign bodies are radio-opaque and can be well outlined in a plane film [6]. Another investigation commonly done is the endoscopy which will sub serve the dual function of identification of the site of the object as well as removal if so indicated. It is doubtful if barium study would be of any advantage over endoscopy and hence the less preference for the latter.

While most ingested foreign bodies have been left to pass on their own and expelled in the feces, some will prompt endoscopic removal because of possible toxicity

or perforation or bleeding or total obstruction with pain as the case may be [6,7].

We present two cases of ingested metallic objects by two children which were expelled spontaneously within 24 hours of ingestion without any noticeable complications.

2. First Case Report

MO is a 2 ½ year old boy in a nursery school who was well and very active with no prior history of any illness. He was seen on the said day by his mother playing with a bunch of keys and other items at home after returning from school. He was noticed to be struggling to swallow something by the forceful closure of his eyes and the tensing of his neck muscles. This lasted for a very short period of time, few seconds. His mother's attention was drawn to him by his noise of pain and the struggling. Within the next minute he was alright again but the bunch of keys has been noticed to be missing. His mother had concluded immediately that he had swallowed the keys. All effort to forcefully open his mouth and induce vomiting was not successful. Though now without symptoms, he was immediately rushed to the hospital for an urgent abdominal x-ray which showed the position of the keys in the stomach as of that time, about 2 hours after the ingestion (Figure 1).



Figure 1. SHOWING THE KEYS IN THE STOMACH AND AFTER RECOVERY

He was subsequently planned for upper GIT endoscopy for removal of the keys. He was maintained on normal fluid diet that is clear. About nine hours after the event, the baby was fed with a meal of semolina (porridge) and okra soup (*Hibiscus esculentus*, a local soup with very good lubricant effect). He was to have overnight fasting

prior to the endoscopy. The following day, the morning of the procedure, about 18 hours after the ingestion of the keys, he complained of wanting to pass stool just as they were about coming for the procedure, during this time, he passed the keys in the stool without any bleeding or pain.

3. Second Case Report

The second patient was LM, a 2 year old girl who was found to be coughing and producing saliva while in the car with her mum who was driving on the way home from school. Because of persistent symptoms, she drove straight to the hospital to see the doctor who requested for an urgent X-ray evaluation that revealed the position of a metallic structure in the cervical region (Figure 2).



Figure 2. SHOWING THE METAL IN THE CERVICAL REGION

The timing of ingestion was not known by the mum who claimed there were no similar objects in the car and that she could have ingested the said item either in the school or at home. All effort to see the Ear Nose and Throat (ENT) surgeon proved abortive that day and when the position of the object was communicated to her she booked to see the patient the following day.



Figure 3. SHOWING THE RECOVERD METAL IN THE STOOL

The baby was also fed with okra soup and semolina as she was completely symptomless afterwards. The following morning at about 16 hours after the detection in the hospital, the baby passed stool with the metal object found in it as the mother was directed to collect and examine the stool afterwards (white arrow in Figure 3).

4. Discussion

Ingestion of foreign bodies has been seen in both sexes equally in the infants and very young children. As the age increases however, probably due to the more exploratory and experimental nature of boys compared to girls, there seems to be an increase in the rate of ingestion of foreign bodies in boys compared to girls in the adolescent stage⁸. In the two cases presented the sex ratio is equal and this is in keeping with findings in the literature for the age group affected by ingestion of foreign bodies.

Although ingestion of foreign objects can be seen in all age groups, children between the ages of six month to 4years have been reported to be commonly affected [8]. Children in the oral stage of growth and development tends to put almost everything they come in contact with first into the mouth and may not be restrained unless noticed. It is also possible that they may be given foreign bodies to feed by older children during play or be intentionally given foreign bodies by abusive house-helps or caretakers. The two cases presented occurred in children less than four years but no evidence was found to support a deliberate feeding but rather that they were accidentally ingested unknowingly by the children as to the nature of what they were ingesting in terms of associated dangers posed by the objects.

The symptoms presented by the children included cough and salivation with difficulty swallowing evidenced by the noticed maneuvering in one of the cases. Some other children commonly come to medical attention after an episode has been witnessed and reported or the child may present because of signs or symptoms of a complication of ingestion of foreign object not previously witnessed by an adult [9]. It is also possible to report the presence of ingested foreign objects in the stools while cleaning up the babies. This usually would be followed with some apprehension and more care by the parents to prevent future events [10].

If not noticed and the objects are small, the vast majority of cases would pass without symptoms such as small coins, beads, pebbles and dislodged tooth. Others may present with nonspecific symptoms which may not lead to the suspicion of such a case. Others may present with dysphagia, food refusal, weight loss, drooling, gagging, stridor, chest pain, sore throat and cough in the upper tract while symptoms like abdominal pain and swelling, fever and lower GIT bleeding may also be seen. The examination of affected children may not be rewarding as nothing may be found in a lot of cases. However, objects may be discovered in the mouth, drooling of saliva may be a clue as well as crepitation in the course of migration of the objects [1,4,10].

Although the ingested objects by the presented cases were metals (keys and peg clip), a review of the literature reveals that different types of objects with different characteristics in shape and size, has either been ingested

or inserted into the body. [11] In one retrospective review of 262 cases of foreign object ingestion in adults, the most commonly ingested items were identified as toothbrushes, pens, pencils, spoons, batteries, razor blades, pieces of glass, and paper clips [13].

Another similar study reported ingestion of batteries and sharp metal or glass objects. Foreign bodies has been reported to be inserted through the nose, skin, urethral and anus for various reasons [14]. Drug traffickers have been reported to insert wraps of cocaine and heroin into the vagina and rectum while in transit to avoid detection by scanners.

Complications due to ingested foreign objects may occur and in some cases may be life threatening. This may be so in children with preexisting GI abnormalities such as fistula, gut stenosis and past surgery involving the gut. Such complications include failure to thrive or recurrent aspiration pneumonia, esophageal perforation, crepitations, and pneumomediastinum [15].

The two cases presented had chest X-ray for initial evaluation. This is consistent with findings in the literature, in one study of 325 children, only 64 percent of the ingested objects were radiopaque [16]. Radiographs of the neck, chest or abdomen may be needed while tracking the progress of the ingested object. Metal detectors can identify ingested metal objects but offer little added benefit over plain radiographs and are not widely available especially in the rural areas. Though the vast majority of foreign objects are radiopaque and may be seen on a plain film, certain objects such as wooden, plastic, and glass objects, as well as fish and chicken bones are not and may be missed radiologically by this method.

Other reported methods of identification include barium studies, endoscopies, computed tomographic scans, ultrasonography, and magnetic resonance imaging depending largely on their costs and specific indications.

Treatment of ingested foreign bodies varies from center to center depending on the available facilities and the nature of the ingested object in terms of its likelihood to cause complication or pass spontaneously or is impacted in the gut. Although up to 90 percent of foreign bodies that have passed the esophagus will pass spontaneously, some centers recommends that sharp objects be removed endoscopically before they have passed beyond the duodenal curve because they are more likely to cause complications or require surgical removal. Endoscopic removal is done in some places while nothing is done at all in a lot of places. Emergency endoscopic procedures or surgery are not entirely safe and they are froth with some complications and so their advantages should be carefully weighed against non-removal.

Certain patients may only need to be followed with repeated radiographs especially those with small, blunt objects lodged distal to the esophagus, or with any asymptomatic object beyond the reach of the endoscope. While most objects will pass within the first week some may take longer and may need weekly evaluation with careful stool sampling and examination for the objects. Ingested foreign objects causing systemic symptoms such as fever, vomiting and abdominal pain should be considered for emergency removal.

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