

FOREIGN BODIES IN UPPER DIGESTIVE TRACT

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ABSTRACT: Foreign body ingestion is a common problem frequently encountered in both children and adults. A total number of 152 patients (104 children and 48 adults) with ingested foreign body admitted in our hospital are reviewed. Location of foreign body was made out by radiological examination. History of having swallowed foreign body was the most common symptom in both blunt and sharp foreign bodies. Endoscopic removal of foreign body was done under general anaesthesia for all cases, except one in which foreign body was removed by open surgical method. Blunt, foreign bodies were common among children, where as meat with bone was common in adults (19/48). Most of blunt foreign bodies in children (83.5%) were impacted in post cricoid region. Where as in adults, the foreign bodies (37.5%) were seen in upper oesophagus. Retropharyngeal abscess was seen in 2 cases, which was associated with sharp foreign bodies. In all but one, endoscopic removal was successful. In one case denture impacted in post cricoid region was removed by open surgical method. There was no mortality in our series.

Key Words: Foreign body, pharynx, esophagus

INTRODUCTION

Foreign body ingestion is common in children, but frequently seen among adults also.^[1] Foreign body is ingested accidentally but occasionally homicidal or suicidal. Most common foreign bodies in children are coins, but marbles, button, batteries, safety pins and bottle tops are also reported.^[2-4] In adults common foreign bodies are bones, dentures and metallic wires. Foreign bodies which have gone beyond the oesophagus will pass uneventfully through intestinal tract in 70-80% cases. The level at which progress is impeded are pylorus, duodenum, duodenojejuno-flexure etc, Radiological localization is mandatory^[5] for decision making regarding the removal. Smooth foreign bodies do not pose much threat but may cause airway obstruction. Sharp foreign bodies, if not retrieved at the earliest may penetrate oesophageal wall and cause complications. So, aggressive approach is required for sharp foreign bodies like, chicken bone, safety pin, fish bones.^[2,4] The best method of removing impacted foreign body remain controversial. Rigid endoscopic removal of foreign body is safe and effective, but often requires GA.^[6] The flexible fibreoptic endoscopic removal, which can be done under LA in outpatient department has gained great popularity over the past decade. We report our experience of 152 cases seen in our unit of Bapuji Hospital, Davangere.

MATERIALS AND METHODS

Patients who presented with history of ingested foreign body,

between July 1998 - December 2002 are included in this study. A total of 152 cases of upper digestive tract foreign bodies were treated (Table 1). Patients with history of ingested foreign body, were clinically examined. Inability to swallow saliva, was a frequent symptom of foreign body impaction. Pain while swallowing was major symptom in cases of sharp foreign bodies. Routinely neck and chest X-ray in both AP and lateral views were obtained for these cases. In cases of blunt foreign bodies oesophagoscopy was done within 24 hours, but in cases of sharp objects it was done as an emergency procedure. Endoscopy in such cases was deferred only until preoperative studies were performed, patient were prepared optimally for operation. All patients underwent oesophagoscopy in operating room under general anaesthesia with IV succinyl choline muscle paralysis. Rigid oesophagoscopy of appropriate size depending upon age and sex was used. Different types of foreign body forceps were utilized for removal of foreign body. Occasionally fluoroscopy (C-ARM) was used for easy removal. After removal, oesophagoscope was re-inserted and site of foreign body impaction was re-examined for any erosion of mucosa, for a possible second foreign body or any other cause of foreign body impaction like presence of carcinoma. After procedure, cases were monitored in ICU.

RESULTS

Out of 152 cases, 104 were children 48 were adults. Age of

the patients ranged from 10 months to 68 years. 102 patients were males, remaining were females.

In children

Foreign body was commonly seen (60.5%) in 2-6 years of age. 61.53% were seen within 24 hours after ingestion of foreign body. 23% cases were seen between 24-48 hours and the remaining were seen after 48 hours. Coin was the most common foreign body (89.5%). Other foreign bodies were safety pin, meat, fish bone, toe ring and metallic wire (Table 2). [Figure 1-6] Majority of the coins were impacted at cricopharyngeal sphincter (83.5%) and remaining in the upper oesophagus. Among 7 cases of safety pins, 5 were seen in the pharynx, remaining 2 were in oesophagus. 2 cases of these safety pins in the pharynx had retropharyngeal abscess due to foreign body penetrating the posterior wall. In one of the cases of safety pin in oesophagus, sharp point was facing up which was removed with great difficulty under GA. (After locating the foreign body with the scope, pin was held by the forceps and was pushed distally to disimpact and then pointed edge was sheathed into the scope and retrieved along with the scope). 2 cases of metallic wire were impacted in the hypopharynx. There were no complications neither during endoscopy nor during foreign body removal.

In adults

In contrast to children, sharp foreign bodies were common among adults (89.58%). It was commonly seen among males (70.88%). In 24 out of 34 males, there was history of ingestion of foreign body while having food after alcohol consumption. Common foreign bodies were meat with bones (39.58%). The other foreign bodies were fish bone (20.83%), metallic wire, metallic spring, denture, sewing needle. [Figures 7-10] Meat without bone, coins and closed safety pin were blunt foreign bodies that came across in this series. In 4 cases ill fitting denture was ingested accidentally. In two cases of meat without bone as a foreign body, patients were edentulous. In all cases except one, foreign body was successfully removed by using rigid endoscope under GA. In one case of denture which was firmly impacted at the cricopharyngeal sphincter was removed by open surgical procedure. In one of the cases of sharp foreign bodies impacted in hypopharynx, fluoroscopy (C-ARM) was utilized to locate the foreign body, since it was not visible through the endoscope. There was no mortality in the whole series.

DISCUSSION

Foreign body impaction in upper digestive tract has been a problem since long time. Foreign body ingestion often require endoscopic removal but occasionally foreign body may pass through the whole gut without creating any problem to the patients. Foreign bodies less than 2.5 cm in diameter and/or

<5 cm in length usually pass through whole gut. However any foreign body which is large or sharp may be impacted. Rarely foreign bodies which are not large may be impacted in oesophagus in cases of strictures and smooth muscle spasm.^[7] The common sites of impaction of foreign bodies in oesophagus are post cricoid region, level of aortic arch, left main bronchus and diaphragm. There is one more site of impaction especially in cases of flat objects like coin at the level of T1 i.e. thoracic inlet.



Figure 1: Showing safety pin in the pharynx with retropharyngeal abscess



Figure 2: Showing open safety pin in cricopharynx with pointed end facing upwards



Figure 3: Showing open safety pin in oesophagus with pointed end facing upwards



Figure 5: Showing toe ring in cricopharynx



Figure 4: Showing coin in cricopharynx

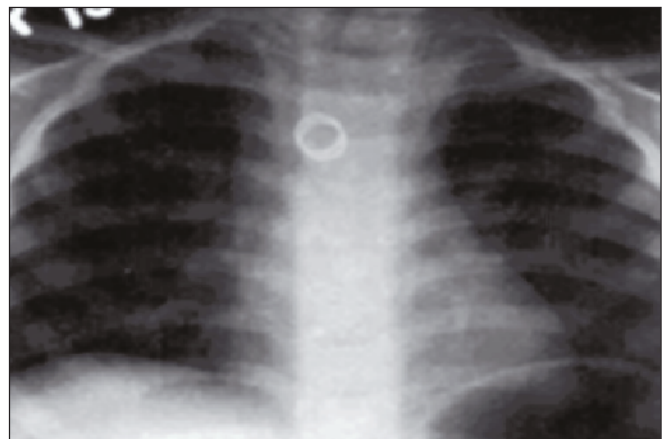


Figure 6: Showing metallic spring at t3 level in oesophagus

In our series majority of foreign bodies were impacted at post cricoid level. In most of children foreign body was ingested accidentally while playing, whereas in adults foreign body ingestion occurred when they were intoxicated with alcohol. Blunt foreign bodies can be removed safely from oesophagus without any major complications.^[3] However they cause erosions if present for a long time. In our series there were no major complications due to blunt foreign bodies. Rigid

oesophagoscope is routinely used as an effective tool to remove foreign body. In recent years alternate techniques have been advocated for removal of blunt foreign bodies. The most popular alternate method is the use of foley catheter to extract foreign body under fluoroscopy.^[8] Another method is pushing the foreign body into the stomach with a bougie.^[9]

Fluoroscopically controlled foley catheter can be used to remove non opaque esophageal foreign bodies which are smooth and soft, like meat without bone.^[10] The procedure is performed under fluoroscopy, usually with patient sedated and in the Trendelenberg position. After catheter is advanced past the foreign body, the balloon is filled with radio opaque contrast material and catheter withdrawn and foreign body is usually delivered into a pharynx and then expectorated.



Figure 7: Showing sewing needle in pharynx



Figure 9: Showing metallic wire in cricopharynx



Figure 8: Showing sewing needle in upper part of pharynx



Figure 10: Showing denture in cricopharynx

Vascular catheters such as fogarty or swan ganz have been used in few cases.^[10] Intravenous glucagon as a method of treatment for oesophageal meat impaction has been tried.^[11] The effect of glucagon is thought to be secondary to relaxation of oesophageal and oesophagogastric junction smooth muscles. When it fails, oesophagoscopy has to be performed within 6 hours.

These methods have not been tried in our series. Sharp foreign

bodies like fish bone, chicken bone, sharp metallic wire, can be impacted any where from base of tongue to lower end of oesophagus. If they are not removed at the earliest, can cause erosion, perforation, retropharyngeal abscess and pulmonary complications. Sharp foreign body can also be removed safely by endoscopic technique avoiding open surgical methods.^[12] But in some cases of sharp metallic wire, locating it in pharynx or oesophagus is difficult. This may be due to light reflecting from the foreign body or major part of foreign body being

Table 1: Age distribution

Age in years	Male	Female
Children: 104		
0-1	3	3
1-2	5	7
2-3	18	4
3-4	9	4
4-5	13	3
5-6	7	5
6-7	1	1
7-8	3	2
8-9	2	2
9-10	3	3
10-12	2	1
12-14	2	1
Total	68	36
Adults: 48		
14-20	4	-
20-30	6	2
30-40	4	5
40-50	8	5
50-60	7	2
60-70	5	-
Total	34	14

hidden in the wall with only a small projection in the lumen. In such cases the C-arm fluoroscopy has to be utilized.

There are different techniques described for removal of open safety pins with pointed edge facing up - Rotating it in stomach, engaging the pointed edge into the scope and withdrawing it, or closing it in the lumen of oesophagus, but all these techniques require experience. The second method was followed in our series. Rigid scope is preferred for removal of sharp and penetrating foreign bodies.^[13] The sharp ends of the foreign body or entire foreign body itself can be introduced into the lumen of rigid endoscope and removed without any risk of lacerating the mucosa during extraction. No such protection is possible with flexible endoscope. Partial dentures with sharp hooks, metallic springs are the most difficult and dangerous object to remove from oesophagus.^[13] One can cause laceration and perforation during removal of

Table 2: Foreign bodies

Foreign bodies	No. of cases	
	Children	Adults
Coins	91	2
Open safety pin	7	1
Meat with bone	2	19
Metallic wire	2	8
Toe ring	1	-
Meat without bone	-	2
Fish bone	1	10
Denture	-	4
Sewing needle	-	2
Total	104	48

such objects. Occasionally (1 to 18%) sharp foreign bodies do require surgical intervention,^[14] specially in case of perforation or abscess formation or impaction. Surgical intervention was done in 3 of our cases.

Technological advances have allowed us to master the techniques of foreign body removal, but still complications do occur. Pulmonary complications are most common, followed by retropharyngeal abscess and local infectious complications. Complications rate of 12.6% in adults and 4.6 in children has been reported, pulmonary complications being the most common in children and retropharyngeal abscess in adults.^[15] Retropharyngeal abscess in adults is commonly due to sharp foreign bodies like fish bone.^[15] However, in our series it was seen in children who had open safety pin piercing the posterior wall of pharynx. Some times complications tend to occur, even after removal of foreign bodies. Pulmonary complications are common in such cases, which are often due to general anaesthesia. In elderly patients with meat without bone as a foreign body impaction may be due to weak muscular contractions or pre-existing malignant growth.^[16] So, endoscopic re-insertion after removal of foreign body is mandatory to search for such lesions.

CONCLUSIONS

The most common foreign bodies in children are blunt. Sharp foreign bodies are frequently associated with serious complications like - retropharyngeal abscess due to delay in presentation. So foreign body must be removed at the earliest. Loose fitting denture can become foreign body any time, so must be replaced, Elderly patients must be advised not to gulp large pieces of meat. Rigid endoscopy is very effective and safe procedure for foreign body removal.

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