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Research Article

Foreign bodies in the oesophagus - surgery for failed endoscopic retrieval

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ABSTRACT

Background: Foreign body (FB) ingestion is common in children, but frequently seen in adults. Most of the ingested foreign bodies pass spontaneously. Sharp FBs can perforate the oesophagus or get impacted. FBs retained in the oesophagus need to be removed.
Methods: The aim of the study was to analyse the symptoms, management and outcome of patients presenting with foreign bodies in the oesophagus. All patients who presented with a retained FB in the oesophagus between September 2013 and August 2015 were included in the study.
Results: There were 27 patients with foreign bodies retained in the oesophagus. In 22 patients the foreign bodies were removed using an upper GI endoscope. In 5 patients the foreign bodies were impacted in the oesophagus and endoscopic removal failed. These patients required surgical removal. In 3 patients it was removed by a cervical approach and 2 patients required a thoracotomy. Two patients developed post-surgical leak. Both these patients had presented more than 24 hours after ingestion. There was no mortality.
Conclusions: Delayed presentation is associated with a higher risk of leak and complications. Early diagnosis and immediate removal is important to avoid complications. A multidisciplinary approach is needed to manage these patients.

Keywords: Foreign body, Oesophageal perforation, Foreign body ingestion, Foreign body impaction

INTRODUCTION

Foreign body (FB) ingestion is common in children, but frequently seen in adults.[1] Most foreign bodies are ingested accidentally but occasionally suicidal.[2] About 70 – 80% of ingested foreign bodies will pass spontaneously without need for intervention.[3] Smooth FBs tend to pass spontaneously. Sharp FBs retained in the oesophagus, if not removed at the earliest are likely to get impacted or perforate. Even sharp objects pass uneventfully once they cross the oesophagus.[2] In children, the commonest FBs are coins followed by marbles, buttons, batteries, safety pins, etc.[3] In adults the common FBs are bones, dentures and metallic wires. In adults FB ingestion is more common in those with psychiatric disorders, developmental delays or alcohol intoxication.

Rigid endoscopic removal of FB is easy and safe but requires general anaesthesia. Of late, flexible video endoscopes have been used for removal of FB under local anaesthesia with equal success. Need for surgical intervention is seen in 12–16% of the patients.[4, 5] Delay in presentation increases risk of impaction and perforation. Surgery is associated with significant morbidity. A multidisciplinary approach is needed to manage these patients.

METHODS

Patients who presented with history of foreign body ingestion between September 2013 and August 2015 to the Government Mohan Kumaramangalam medical college hospital, Salem, India, were included in the study. The age and sex of the patients, and a detailed history regarding the nature of foreign body, time of ingestion, predominant symptoms and time lapse in presenting to the hospital were noted. An X– ray of the neck and chest were taken. If the FB had passed beyond the oesophagus into the stomach, they were excluded from the study. Upper gastro-intestinal endoscopy was done at the earliest. In adults it was usually done without anaesthesia or under conscious sedation if required. Endoscopy was done under general anaesthesia only in children. The FB was removed using a video endoscope. Patients in whom endoscopic removal failed were taken up for surgical exploration and removal. The surgical approach was decided depending on the site of impaction of the FB.

RESULTS

Out of 27 patients who had a retained FB in the oesophagus, 21 were adults and 6 were children below 12 years of age. 17 patients were males and the remaining females. The median age was 48 years (range: 6–72 years) as given in Table 1. The median time lapse between ingestion and presenting to medical care was 6 hours (range: 1 – 48 hours). The common symptom was discomfort in the chest, seen in 19 patients (70.3 %). The next common symptom was dysphagia (12 patients) followed by chest pain (10 patients) as shown in Table 2. In 22 patients the FB was successfully removed using the upper GI endoscope. In five patients endoscopic retrieval failed, requiring surgical exploration and removal of the foreign body. In 3 patients the FB was impacted in the cervical oesophagus and was removed by accessing the oesophagus from the left side of the neck. In two patients the FB was retained in the thoracic oesophagus requiring a thoracotomy.

Table 1: Patient parameters.

Parameter	Value
Total number of patients	27
Age of the patient	6 - 72 years (Median age - 48 years)
Adults: Children	21 : 6
Male: Female	17 : 10
Median delay in presenting to hospital	1 - 48 hours (Median - 6 hours)
No. of patients in whom removed endoscopically	22
No. of patients in whom removed surgically	5
Cervical exploration	3
Thoracic exploration	2

Table 2: Incidence of symptoms.

Symptom	Number
Chest discomfort	19 (70.3%)
Dysphagia	12 (44.4%)
Chest pain	10 (37%)
Fever	4 (14.8%)
Drooling of saliva	2 (7.4%)
Vomiting	2 (7.4%)
Respiratory distress	1 (3.7%)

Table 3: Types of foreign bodies ingested.

Objects	Numbers
Dentures	9
Meat with bone / bone	9
Coins	6
Safety pin	2
Metal screw	1

In children the common FBs were coins; 5 out of 6 children had ingested coins. In adults the commonest FB was dentures. Overall, dentures and bones were the most common FBs, each accounting for 9 cases. Among the 5 patients who required surgical exploration, 3 patients had ingested dentures and 2 patients, bones.

Figure 1: X-ray showing metal hooks of denture at level of thoracic inlet.

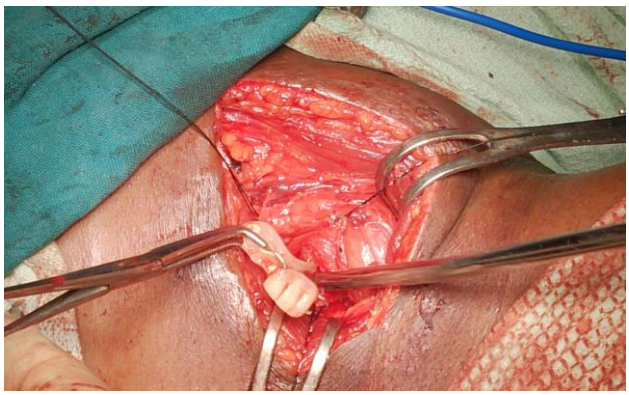

Figure 2: Partial denture being removed from cervical oesophagus.

Figure 3: Removed partial denture.

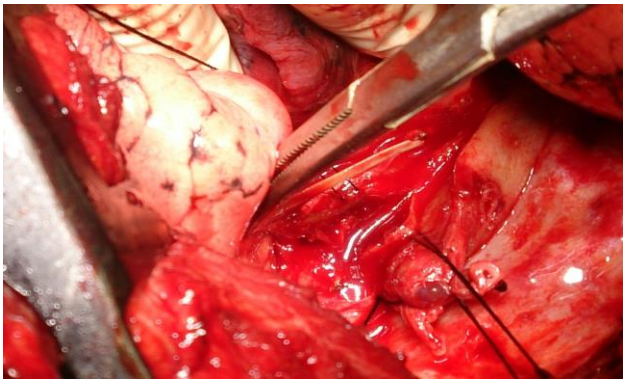

Figure 4: Chicken bone piercing through wall of thoracic oesophagus.

Figure 5: Removed 'V' - shaped chicken bone.

Cervical exploration

The patient was placed in the supine position with a sandbag under the back, with the neck extended and turned towards the right side. An oblique incision was made along the anterior border of the sternocleidomastoid muscle. The oesophagus was opened longitudinally and the FB removed. The rent in the oesophagus was closed over a nasogastric tube by interrupted sutures using absorbable suture material. A drain tube was placed in the subcutaneous plane and wound was closed in layers.

Thoracic exploration

The patient was placed in the left lateral position. A right postero-lateral thoracotomy was done through the 6th intercostal space. The oesophagus was opened and FB removed. The oesophagus was closed over a nasogastric tube. The thoracotomy was closed after placing an intercostal drain (ICD) under water seal. A feeding jejunostomy was done through a small midline abdominal incision to provide feeding access if a leak develops.

The median delay in presenting to hospital was 4 hours in those patients who had a successful endoscopic removal when compared to 11 hours in those who needed surgical exploration. Four out of the 5 patients who needed surgical exploration had presented with fever. One patient in whom a cervical exploration was done, developed a salivary fistula. The leak was minor and settled spontaneously in a week's time. Patient was allowed oral diet after that. One of the patients who underwent thoracic exploration had persistent thin purulent drainage in the ICD tube. Patient had a minor leak demonstrable on fluoroscopy with oral contrast. Patient was maintained on feeding through the jejunostomy. It took 15 days for the ICD drain to reduce. Patient had a prolonged hospital stay before he completely recovered and was able to tolerate normal oral diet. There was no mortality. Both the patients who developed a leak had come to the hospital more than 24 hours after ingestion of the FB.

DISCUSSION

Foreign body ingestion is commonly encountered both in children and adults. Though most of the ingested FBs pass spontaneously, those retained in the oesophagus require endoscopic removal. Endoscopic removal is required in less than 10% cases and surgical removal is needed in only 1%.[6-8] Foreign bodies less than 2.5 cms in diameter and less than 5 cms in length usually pass through without causing problem.[2] But FBs which are large or sharp may get impacted. When a large FB is impacted in the oesophagus, the mucosa can become oedematous and wall becomes weakened leading to perforation. Sharp FBs can perforate the oesophagus leading to pulmonary complications, local infections or retropharyngeal abscesses. Rarely FBs can get impacted at sites of previously existing strictures.[9] The common sites of impaction of foreign bodies in the oesophagus are post cricoid region, level of arch of aorta, left main bronchus and diaphragm.[10, 11]

In children foreign bodies are usually accidentally ingested while playing. In adults it can be accidental ingestion of an ill-fitting partial denture, under alcohol intoxication or in a patient with psychiatric illness or mental retardation.[12,13] The common age group in children where FB ingestion is common is between 6 months and 6 years. Patients can present with foreign body sensation, drooling, respiratory distress due to tracheal compression, vomiting and dysphagia,

depending on the location and nature of foreign body.[14] Children may not give a reliable history and may present with vague symptoms like choking, refusal to eat, wheezing and blood stained saliva.[15, 16]

Plain X-rays of the neck and chest are necessary to evaluate the location of the foreign body. CT scan may be needed in patients who present late or in the event of ingesting a sharp object. It helps to identify the location, presence of fluid collection adjacent to the oesophagus and damage to surrounding structures.[17, 18]

Removal of the foreign body using a flexible endoscope has become the routine. Different techniques and various accessory gadgets like rat-toothed forceps, alligator forces, snares, over tubes, etc. have been used for the purpose. Rigid oesophagoscopes are rarely used for difficult foreign bodies. Partial dentures with sharp metal hooks, metal springs and sharp bone pieces are the most difficult and dangerous objects to remove from the oesophagus.[19] It is common to cause laceration and perforation of the oesophagus or aggravate an existing perforation while attempting to remove such foreign bodies.

Failure to remove FB using an endoscope or impacted FB is an indication for surgical removal. Complication like local infections and retropharyngeal abscesses also warrant surgical intervention. The surgical approach is decided by the location of the impacted foreign body. A foreign body impacted just below the cricopharynx can be reached by a cervical approach from the left side. Removal is relatively easy and carries less morbidity. Foreign bodies impacted in the thoracic oesophagus require thoracotomy and is associated with higher morbidity. FBs can be removed by opening the oesophagus over the foreign body and the oesophagus can be sutured back.[20] A nasogastric tube is usually left in situ. The chances of leak from the closure site are higher if the patients presented late or with complications. Hence in our patients who needed thoracotomy, a feeding jejunostomy was done to facilitate early enteral feeding in the event of a leak.

Foreign body ingestion is a distressing emergency and is avoidable at many occasions. Correct fitting dentures can avoid slippage and accidental ingestion in elderly persons. Similarly keeping small object away from reach of children is important to prevent their accidental ingestion. Endoscopic removal may be difficult in some patients and surgical removal, if required is associated with significant morbidity.

CONCLUSION

Though most ingested foreign bodies pass spontaneously, those retained in the esophagus need to be removed. Early identification and immediate removal is important to avoid complications. Surgical exploration and removal is reserved for patients with complications or in whom endoscopic removal has failed. Complications and leaks are higher in patients who present late for management.

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