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A comprehensive study of oesophageal foreign bodies

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ABSTRACT

Background: Various foreign bodies of respiratory and food passage are enlisted. Nature of foreign bodies their presentation, management and complications are discussed.
Methods: 200 consecutive cases of foreign bodies in the oesophagus which were admitted in a tertiary care hospital are included in the study.
Results: Most of the ingested foreign bodies managed with oesophagoscopy except three cases of denture.
Conclusions: Children below 10 years of age are the commonest candidates prone to ingest foreign bodies. The coins are the most frequently ingested foreign bodies. Though most of the foreign bodies can be managed safely with oesophagoscopy, yet one has to be careful while removing sharp foreign bodies like dentures etc.

Keywords: Foreign bodies, Oesophagus, Oesophagoscopy

INTRODUCTION

Foreign bodies in the oesophagus are commonly encountered in emergency in otolaryngology practice. A complete study of foreign bodies in the oesophagus and upper respiratory tract was reported by Jackson and Jackson.[1] WHO published records of over 3000 patients who had ingested foreign bodies. This is by far the largest series of cases. Very young children aspirate the foreign bodies in to respiratory passage more frequently, whereas older children have a tendency to ingest instead of aspiration.

According to Jackson, poor children who are not given individual attention and left to feed themselves at an early age are more liable to swallow a foreign body.[1] On the other extreme the incidence of foreign bodies rises again in old edentulous patients, who are apt to chew their food poorly and get lumps of meat impacted in the oesophagus, this may be due to lack of propulsion efficiency. Further, a patient with artificial denture is unable to detect a fish or meat bone in the mouth as easily as a person with normal palate and therefore, more likely to swallow a foreign body. If the denture or plate is ill fitting or broken it may itself be swallowed and this occasionally occurs while the patient is drunk or asleep.

Local conditions of oesophagus, for example stricture is likely site for lodgement of a small foreign body which would otherwise normally pass through. In carcinomatous stricture, the first sign of this disease may be lodging of a foreign body, with the sudden onset of dysphagia. Carelessness in preparation of food is another factor in etiology of a foreign body oesophagus. Certain types of food are eaten very rapidly because the patient does not suspect the presence of bones. Stew and soups may contain meat with splinters of bone attached, if the meat has been prepared with chopper. Fish cakes may also contain bones which may impact in oesophogus.

Foreign bodies are swallowed voluntarily by patients who attempt suicide, by prisoners, mentally ill patients, deep sleep and certain religious factors.[2,3]

Since many times, history of foreign body ingestion in children is not available and even up to 35% of children

may be asymptomatic of initial ingestion of foreign body. It is the parent suspicion which leads to the diagnosis.

The aims of the study was to assess the prevalence of oesophageal foreign bodies in each sex and age groups, to find out the incidence of commonly ingested foreign bodies, to study the incidence and type of complications while managing these foreign bodies.

METHODS

This is retrospective observational study comprised of 200 consecutive patients of foreign bodies in the oesophagus which were admitted in Goa Medical College Hospital, and were successfully treated from June 2012 to January 2017.

Inclusion criteria were all patients with history of foreign body ingestion irrespective of duration of ingestion. Exclusion criteria were patients with spontaneous passage of foreign body into stomach were not included in the study analysis.

Plain X-ray of chest PA view was done in all the cases. Computerized tomography (CT) scan was done where foreign body was not visualised in plain X-ray of chest. All patients were kept fasting for 6 hours and were taken under general anaesthesia for rigid oesophagoscopy for foreign body removal. Patients were observed for two days in the ward postoperatively for any complication.

Most of the cases were admitted through emergency service and presented within 48 hours of the ingestion but some patients reported late up to 15 days. Adult patients usually gave the history of foreign body ingestion, however in children; history of foreign body ingestion was not so forthcoming. At first there was only slight difficulty in swallowing but later the difficulty becomes more pronounced. There was also regurgitation of food and later regurgitation of blood stained saliva and mucus, in few patients with long standing foreign body. An infant a foreign body in upper oesophagus also presented with stridor due to pressure of foreign body over trachea.

There were two cases of button cell battery in children aged 10 and 12 years. Both gave history of button cell ingestion accidently while they have kept them in the toys while playing.

RESULTS

These were 155 males and 45 females, giving a male:female ration 3.4:1. Most of the patients (45%) were children below 10 years (Table 1).

Table 1: Age and sex relationship in patients with foreign bodies in the oesophagus.

Age in years	Total number	%	Sex			
			Male	%	Female	%
0-10	90	45	59	65.5	31	34.5
11-20	32	16	20	62.5	12	37.5
21-30	15	7.5	13	86.6	2	13.4
31-40	14	7	8	57.1	6	42.9
41-50	7	3.6	5	71.4	2	28.6
>50	42	21	36	85.7	6	14.3
Total	200	100	141	70.5	59	29.5

Table 2: Types of foreign bodies in patients with foreign bodies in oesophagus.

Type of foreign body	No. of cases	%
Coins	114	57
Denture	18	9
Seeds	12	6
Meat and bone	8	4
Iron nail/sewing needle	4	2
Stones	4	2
Insects	4	2
Whistles	3	1.5
Safety pins	3	1.5
Miscellaneous	28	14
Button cell battery	2	5
Total	200	100

A variety of foreign bodies were seen (Table 2). Coin and disc-shaped objects were lodged in upper part of oesophagus i.e. at the level of C6 to T1 vertebrae. Dentures, safety pins, meat bolus, were found in mid oesophagus.

The foreign bodies were removed by oesophagoscopy in all except 10 cases. In seven cases, foreign was passed in to stomach while the patient was being prepared for oesophagoscopy. Two cases of denture required thoraco-oesophagotomy and one case of denture required cervical oesophagotomy as shown in Table 3.

X-ray soft tissue neck and chest were done in each case after oesophagoscopy to rule out pneumothorax. Two cases developed pneumothorax following oesophagotomy

which were successfully managed by water seal drainage of pleural cavity.

Table 3: Various procedures required for removal of foreign bodies.

Procedure of foreign body oesophagus	No. of patients (%)
Oesophagus removal	190 (95)
Passed in the stomach	07 (3.5)
Thoraco oesophagotomy	02 (1)
Cervical oesophagotomy	01 (0.5)

DISCUSSION

The diagnosis of a foreign body is sometimes difficult if the foreign body is small and not radio-opaque and radio logical examination is inconclusive. Such cases are also candidates for oesophagoscopy, though there is no history of foreign body ingestion. Although oesophagoscopy for removal of a foreign body may be an emergency operation, the surgeon must have the knowledge of nature, size and site of the foreign body, and if possible a replica should be examined. In earlier days, foreign bodies from the oesophagus were removed by employing a blunt metallic hook, oesophageal forceps, a noose wire, gun elastic catheter, coin catcher and miniature forms of umbrella. These days, however the management has become easier, thanks to the development of safe anaesthesia and untiring efforts of Jackson, who devised the modern day endoscopes.[1] Dormia basket can also be employed in case of round foreign bodies which are difficult to catch with forceps. Foley's catheter has also been employed successfully in extracting coins.[4] Magill forceps have also been found to be a possible method for removing coins from the upper esophagus or just below the cricopharyngeus.[5] This method is minimally invasive and quick, and can be used in children with respiratory distress (because the airway is secure), or when the duration of coin impaction is indeterminate, or there has been previous esophageal surgery.[5] Before going ahead with this technique, the lodgment should be radiographically confirmed and it should be confirmed that there is no clinical evidence of perforation.[5]

A large series reported from India so far have shown that bone and meat are the commonest foreign bodies.[6,7] However in the present series coins were the commonest foreign bodies and confirms the observations of Singh et al.[8] However, a significant number of patients presented with denture as foreign bodies.

Stones, fish even live, safety pins, multiple coins and insects are also reported.[3,9-11] Coin may stay in the oesophagus for many months and causes only a slow ulceration of the oesopfageal wall, but meat and fish bones will very soon give rise to ulceration, perioesophagities and other complications.[11] The complications typically encountered include perforation, laceration, abscess formation and mediastinitis.[12,13] These complications can be managed easily and effectively, if detected early. Conservative treatment with or without water seal drainage of pleural cavity will suffice but time repair by thoracotomy has to be undertaken. However, rarely foreign body oesophagus may prove fatal.[14]

CONCLUSION

Children below 10 years of age are the commonest candidates prone to ingest foreign bodies. Older people above the age of 50 years again are more prone to swallow their ill-fitting dentures. The coins are the most frequently ingested foreign bodies. Though most of the foreign bodies can be managed safely with oesophagoscopy, yet one has to be careful while removing sharp foreign bodies like dentures which may require major surgical interventions like cervical and thoraco-oesophagotomy.

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