

Foreign Body Ingestion

ABSTRACT

Foreign body ingestion are commonly seen in children and mentally handicapped adults. Most foreign bodies can pass through G.I tract without any problem. Metallic objects except aluminium, most animal bones except fish bones and glass foreign bodies are opaque on radiographs, whereas plastic and wooden foreign bodies are not opaque. Foreign body can simulate the appearance of medical device. It is important that all ultrasound, CT, nuclear medicine and MR images be interpreted in light of radiographs of the same region.

If plain x-ray does not show ingested foreign bodies, then barium studies should not be done due to risk of aspiration. CT will demonstrate foreign bodies as well as localize their complications like perforation, vascular-oesophageal fistulas. CT provides better detection of thin, small and minimally calcified foreign bodies due to its capability of evaluation with bone and soft tissue windows.

Children most commonly ingest metal coins throughout the world. Hand held metal detector (HHMD) has been found to be radiation free, cost effective and on accurate method in diagnosing and localizing coins ingested by children.

Introduction

Most ingested foreign bodies can pass through G.I. Tract without any problem.

They can also simulate the appearance of medical device. It is important that

all US, CT, Nuclear Medicine and MR images be interpreted in light of radiographs of the same region. Elongated or sharp objects like needles can be impacted at the site of intestinal narrowing or bending e.g. duodenal loop, duodenojejunal flexure, terminal ileum or area of bowel stricture. Metallic objects except aluminium, most animal bones except fish bones and glass foreign bodies are opaque on radiographs, whereas plastic and wooden foreign bodies are not opaque. (1)

Oesophageal foreign bodies require prompt diagnosis and treatment. Proper description of type of ingested object, time passed since ingestion, location of object and associated complications should be noted. Patients who have symptoms of complete oesophageal occlusion and those who have ingested sharp and pointed objects need urgent treatment to avoid complications. Button batteries are specially injurious in the oesophagus and should be removed promptly. Ingested coins may be observed for sometime if in distal oesophagus as they may pass spontaneously, otherwise they should also be removed. Flexible endoscopy is modality of choice for management of oesophageal foreign bodies. (2)

PRESENTATION OF CASE

Case 1

An adult male developed severe pain in retrosternal region when he was eating mangoes. There was difficulty in swallowing, excessive salivation and choking. Plain radiograph of chest was normal. Barium swallow showed a 'hold up' due to large oval filling defect with a well defined concavity at the extremity of the contrast column. A thin streak of contrast was seen at the margin of the object. A diagnosis of foreign body oesophagus was made and mango seed (Gutli) was removed on endoscopy.

Case- 2

A six year old female child after eating fruits, suddenly developed pain in chest, dysphagia, excessive salivation and choking X-Ray chest revealed no abnormality. An oesophagram was done with barium. A round filling defect was noted along with deviation of the stream of barium as it passed over the object. A well defined concavity was noted at the end of the contrast column. A diagnosis of foreign body oesophagus was made which was removed on endoscopy.

Discussion

EKIM published a report on management of oesophageal foreign bodies in 26 patients (20 Children, 6 adults). Age of the patients varied between 6 months to 70 years. Main symptoms due to oesophageal foreign bodies were dysphagia, acute onset of pain, excessive salivation and choking. Plain

radiographs postero-anterior view of oropharynx, neck, chest and abdomen and lateral neck were done in routine. Foreign bodies were most commonly seen in cervical oesophagus, usually below cricopharyngeous (16 Children), midesophagus 6 (4 children, 2 adults) and distal oesophagus 4 (all adults) Foreign bodies were extracted under general anaesthesia with the help of rigid esophagoscope which was considered safe method for foreign body removal.

(3)

In majority of patients, plain radiographs of cervical and chest region done in posteroanterior and lateral view are helpful in the diagnosis of ingested foreign bodies. But if radiographs fail to locate a foreign body, then an esophagogram with barium or gastrograffin should not be done due to risk of aspiration. In patients with history of foreign body ingestion and negative radiological findings, computed tomography (CT) should be performed. CT has been found very sensitive in diagnosing foreign bodies and also in localizing complications like perforation, vascular-oesophageal fistulas. (4)

WATANABE et al published an article describing the usefulness of computed tomography in the diagnosis of impacted fish bones in the oesophagus. In 25 cases, in which fish bones were actually removed by direct oesophagoscopy, foreign bodies could not be demonstrated clearly in 14 cases (56%) by plain X-rays. CT was done in 11 cases prior to oesophagoscopy examination and fish

bones were clearly seen in all patients. In addition CT showed secondarily induced inflammatory changes in the surrounding structures. CT provided a superior image of fine fish bones in comparison with plain X-Ray in a simulation model study and provided very useful information for the management of impacted fish bones in the oesophagus. (5)

Foreign bodies such as fish and chicken bones occur commonly in hypopharynx and cervical oesophagus and need radiological studies to demonstrate them. Plain radiograph of neck in antero-posterior and lateral views followed by if needed, a barium swallow are the standard. When these studies do not show the foreign body, non contrast CT can show these small calcified foreign structures in the oesophagus, CT is readily available, rapid and gives less radiation to the patient than a barium swallow. (6)

Foreign body ingestion by children is common worldwide and metal coin is most commonly ingested. Complications of unidentified coins in the oesophagus consist of perforation, mediastinitis, tracheo-oesophageal fistula and sudden death. Absence of symptoms does not exclude the presence of an impacted coin and radiological investigation often done to detect them. The use of a metal detector as an alternative to standard radiographs to detect presence of absence of metal foreign bodies has been advocated for more than 30 years. Lee et al did a systemic review of prospective studies performed

to assess the ability of handheld metal detector (HHMD) to diagnose the presence or absence of ingested coin in children (17 Years or younger). Review was done to assess whether use of a HHMD could safely reduce the number of radiographs done in cases of coins ingested by children. Accuracy of coin localization on metal detector screening was confirmed by chest radiographs and serial radiographs till coin was located or excluded. Over all Sensitivity of HHMD in detecting presence of coins was 99.4% and accuracy at localisation was 99.8%. Authors found use of HHMD an accurate, radiation free and cost effective method for diagnosing and localising coins ingested by children. (7)

Conclusions

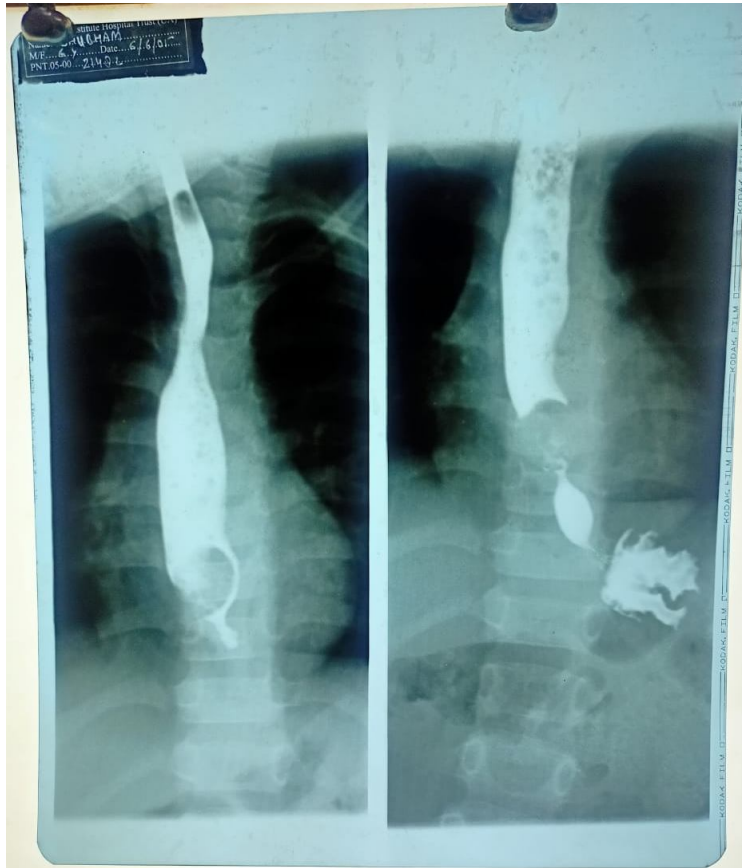
Most ingested foreign bodies pass through G. I. tract without any problem. They can also simulate medical devices. If plain X-ray fail to demonstrate ingested foreign bodies, then barium studies should not be done due to risk of aspiration. Computed tomography should be performed in these cases as in addition to diagnosing foreign bodies, it also localize their complications. CT is readily available, rapid and gives less radiation to the patient than a barium swallow. Children most commonly ingest metal coins worldwide. Hand held metal detector (HHMD) has been found to be an accurate, radiation free and cost effective method in diagnosing and localizing coins ingested by children.

References

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Case 1 :



Case 2 :

UNDER PEER REVIEW