CASE REPORT

Lithobezoar, a rare cause of acute oesophageal obstruction: surgery after failure of endoscopic removal

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SUMMARY

Oesophageal lithobezoar is a very rare clinical entity, especially presenting as a case of acute dysphagia. A 54-year-old man, with long-standing psychiatric illness, presented with a recent episode of vomiting and chest pain followed by dysphagia. Chest x-ray revealed a radio opaque shadow in the posterior mediastinum. Endoscopy showed a calcified foreign body in the lower oesophagus. Endoscopic attempts to remove or fragment the foreign body were unsuccessful. Foreign body was removed successfully through oesophagotomy using left posterolateral thoracotomy. Pathology revealed oesophageal lithobezoar.

BACKGROUND

Gastrointestinal bezoars are concretion or hard masses and consist of indigestible materials, such as food particles, hairs, pills or foreign bodies. Stomach is the most common location for gastrointestinal bezoars but bezoars can be found anywhere in the gastrointestinal tract. Gastrointestinal bezoars especially oesophageal bezoars are rare and only a few have been reported in the literature.^{1 2} Oesophageal bezoars are classified as either primary or secondary. Primary oesophageal bezoars are most common owing to underlying oesophageal diseases, such as achlasia, oesophageal stricture, malignant lesions or motility disorders.¹ Secondary bezoars originate in the stomach and are regurgitated after forceful vomiting and get lodged in the oesophagus causing acute dysphagia.³ We report a case of acute dysphagia in a patient with history of psychiatric disorder, caused by oesophageal lithobezoar.

CASE PRESENTATION

A 54-year-old man with history significant for diabetes mellitus, severe depression and suicide attempts presented with chest pain and acute dysphagia after forceful vomiting at home. The patient had a history of major depressive disorder and suicidal attempt. He was under psychiatric treatment as well as had a psychological counselling by the mental health provider. At the time of surgery, he was on selective serotonin reuptake inhibitor; fluoxetine 20 mg orally once daily. The patient was seen by the psychiatrist preoperatively who advised to continue the same medication. It is not known whether this was an episode of self-harm or not. Laboratory data including complete blood count, liver function tests, renal profile and cardiac panel were within normal limits. Upper endoscopy showed solid object impacted and completely

occluding distal oesophageal lumen. Two attempts to remove, dislodge and fragment the oesophageal object failed. Endoscopic manipulations resulted in significant oesophageal mucosal ulceration and patient was referred to thoracic surgery for possible surgical removal of the impacted oesophageal object.

INVESTIGATIONS

- ▶ Chest x-ray
- ▶ Endoscopic examination
- ▶ Gastrograffin swallow

DIFFERENTIAL DIAGNOSIS

- ▶ Lithobezoar
- ▶ Foreign body
- ▶ Motility disorder

TREATMENT

The chest was entered through sixth intercostals space using left poster lateral thoracotomy to approach lower oesophagus. A longitudinal 4 cm oesophagotomy was performed and a 4×5 cm spiky stony hard foreign body was identified in the distal oesophagus, it was carefully dislodged and removed manually with sponge holding forceps (figure 1A–C).

The oesophagus was repaired with 4/0 polydiox-one (PDS) in two layers. Nasogastric tube was placed and as well as a 32 Fr chest drain in the left pleural cavity. Feeding jejunostomy tube was placed too. On second postoperative day, patient complained of left-sided chest pain. A change in colour of the left chest drainage from serous to turbid was noted. On questioning patient reported eating apple and chicken soap, against medical advice. There was concern about disruption of oesophagotomy site. Barium swallow confirmed an oesophageal leak at the oesophagotomy site (figure 2A). The patient underwent exploratory left thoracotomy through previous surgical incision. Pieces of apple and turbid liquid, likely chicken soup, were removed from left pleural cavity. Left pleural cavity was washed with normal saline. The oesophagus was repaired with 4/0 PDS in layers again and a patch of diaphragm was used to strengthen the site of repair (figure 2B). The patient was transferred to intensive care for close observation and after 24 h jejunostomy tube feeding was resumed.

Pathological and chemical analysis of the foreign body revealed a stone composed of calcium carbonate covered by concretions of vegetable and plant fibres. Two weeks later, repeat barium swallow showed free flow of barium to the stomach without any oesophageal leak or stricture (figure 2C).

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Figure 1 (A) Left lateral view of x-ray of the chest showing a radiopaque foreign body in oesophagus. (B) Preoperative endoscopy showing impacted lithobezoar with oesophageal ulceration; (C) showing a spiky lithobezoar and (D) oesophageal repair reinforced with diaphragmatic patch.

Patient was started on soft diet and subsequently he resumed his normal diet. Eight weeks later upper endoscopy revealed no abnormality. Oesophageal motility studies revealed normal oesophageal motility.

OUTCOME AND FOLLOW-UP

After the failure of endoscopic removal the lithobezoar was successfully removed through the lower oesophagectomy. Owing to psychiatric history the patient did not follow the postoperative instructions and as the next morning the patient took apple and soup, resulting in a postoperative oesophageal leak, which was successfully repaired with a diaphragm patch with excellent recovery and patient resumed back to his normal diet without any dysphagia.

DISCUSSION

Bezoars are abnormal concretion or hard masses consisting of indigestible material which accumulates in gastrointestinal tract. Gastrointestinal bezoars usually occur as complications in clinical conditions that cause stasis within the gastrointestinal tract, such as motility disorders and mechanical obstruction.¹⁻³ Gastrointestinal bezoars have also been reported in patients without motility disorder or mechanical obstruction, but these patients usually have underlying psychiatric disorder, as in our patient, or have history of pica. Gastrointestinal bezoars are uncommon and oesophageal bezoars are especially a rare but distinct clinical entity.³ Oesophageal bezoars can be classified as primary or secondary or based on their composition. Primary oesophageal bezoars are formed in the oesophagus and can cause obstructive symptoms. Secondary oesophageal bezoars are

Figure 2 (A) Second day postoperative barium swallow showing oesophageal leak. (B) Two weeks postoperative barium swallow featuring normal oesophagogram.

formed in the stomach or are even distally and migrate or regurgitate into the oesophagus, and this is most likely happened in our patient. Based on their composition, bezoars can be classified into pharmacobezoars (pills), phytobezoar (vegetable, fruit fibres, organic material), lactobezoar, (milk, milk product), plasticobezoar (plastic), trichobezoar (hairs) or lithobezoar (stone). Among these, trichobezoar is the most commonly and lithobezoar is the least commonly reported.

Gastrointestinal lithobezoars are formed owing to ingestion of clay, mud or stones, mostly in patients with psychiatric disorders or history of pica. Ingested organic material or undigested vegetable fibres conglomerate on top of the calcium carbonate core to form lithobezoar. Oesophageal bezoars may occur in clinical conditions that are associated with oesophageal motility disorders or mechanical obstruction. Various oesophageal motility disorders associated with the development of bezoars include achalasia, diffuse oesophageal spasm, Guillain-Barre syndrome, myasthenia gravis and progressive systemic sclerosis.¹⁻⁴ Conditions associated with mechanical oesophageal obstruction which predisposes to the development of bezoars include oesophageal benign or malignant tumour and gastro-oesophageal surgery.

Presenting symptoms in patients with various types of oesophageal bezoars are similar and dysphagia is the prime presenting symptom.¹⁻⁴ A chest radiograph, CT scan and barium swallow can be used as diagnostic work up. Upper endoscopy will confirm the presence and location of lithobezoar.

The treatment modalities for upper gastrointestinal bezoars include endoscopic removal, enzymatic or chemical dissolution and surgical removal. Various chemical compounds have been used to dissolve the bezoars including carbonated drinks, cellulase, acetylcysteine and enzymatic compound.⁵ Success rate for gastric bezoar dissolution with carbonated drinks is 23%.⁵ This treatment option does not seem to be appropriate for oesophageal bezoars, presenting as a case of acute obstruction. Endoscopic intervention is the mainstay of the gastrointestinal bezoars treatment.¹⁻³ Depending on size of the bezoar, fragmentation of bezoars may be necessary prior to its removal. Laparoscopic surgical techniques have been used for removal of gastrointestinal bezoars particularly gastric bezoars.

Treatment of a very rare case of impacted lithobezoar with obstructive symptoms, as in our patient requires urgent surgical intervention owing to failure of endoscopic removal or fragmentation. We used diaphragmatic patch to secure the postoperative oesophageal leak successfully.

Learning points

- ▶ Most of the foreign bodies in the oesophagus can be removed endoscopically.
- ▶ Failure of endoscopic removal of lithobezoar needs a surgical intervention.
- ▶ In these patients it is pertinent to have close postoperative follow-up as resumption of oral feeding may lead to oesophageal leak.
- ▶ Early detection of postoperative oesophageal leak is very important since delayed diagnosis carries high mortality.
- ▶ Use of diaphragm patch to reinforce the oesophageal leak is a successful technique.

Contributors IC is the main author, AA and RK surgical team looked after the patient and IK wrote the part of discussion.

Competing interests None.

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