

Small bowel obstruction secondary to crab shell bezoar: A case report

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SUMMARY

Small bowel obstruction is a common surgical condition that needs surgical intervention if conservative measures fail. Bezoar is a rare aetiology of small bowel obstruction with incidence of 4.5%. The bezoars can be grouped, according to the content, into four common types: phytobezoars, trichobezoars, pharmacobezoars, and lactobezoars. However, unusual bezoars like plastic bezoars and metal bezoars have been reported too. Herein, we report a case of an elderly lady who was treated for small bowel obstruction due to crab shell bezoar. This is the first case reported in literature. Ingestion of large intact pieces of crab shell should be avoided due to the potential of causing small bowel obstruction.

INTRODUCTION

Small bowel obstruction (SBO) is a common condition encountered in surgical units, of which adhesion is the most common aetiology (60%–80%).¹ Bezoar impaction causing SBO is a rare entity with a frequency of 4.5%. The definition of bezoar is an accumulation of indigestible exogenous matter in the gastrointestinal tract. Herein, we report a case of a 67-year-old lady of Asian descent who had SBO due to crab shell bezoar.

CASE REPORT

A 67-year-old lady with comorbidity of diabetes mellitus and euthyroid multinodular goitre presented with abdominal pain for a week, associated with obstipation and anorexia. Apart from abdominal distension, other physical examination was unremarkable. Her investigations revealed acute kidney injury and hyponatremia. Abdominal X-ray showed dilated small bowels.

Due to diagnostic dilemma, an urgent contrast-enhanced computed tomography (CECT) of abdomen was performed, which showed a lesion having mottled appearance and air bubbles within, measuring about 2.5 cm × 4.8 cm at the mid segment of the small bowel, causing SBO (Figure 1). The patient underwent an exploratory laparotomy, and a hard intraluminal mass at 170 cm from terminal ileum was found intraoperatively. Enterotomy was done at the mass region and revealed a few pieces of large intact crab shells forming a bezoar (Figure 2). A double barrel ileostomy was created at the site of enterotomy in view of grossly dilated proximal bowel.

After the operation, the patient admitted to ingesting crab shells one month prior to her presentation but refused to disclose the reason. Her formal psychiatric evaluation showed no abnormality. The patient's condition improved after a few days, and she was discharged from the hospital well.

DISCUSSION

Bezoars are the result of ingestion of poorly digestible or indigestible food or substance. They can be categorised, according to their content, into four common groups.²

1. Phytobezoars – formed by non-digestible fibres such as cellulose, hemicellulose, and fruit tannins. It can be associated with previous abdominal surgery particularly gastrectomy, bilateral truncal vagotomy plus pyloroplasty, and bariatric surgery. These surgeries cause reduced gastric motility, loss of pyloric function, and hypoacidity, which precede the formation of phytobezoar.³
2. Trichobezoars – formed by gastric concretion of hair fibres, usually present in patients with history of psychiatric issues and in children with mental retardation. Vaughan et al. described this condition and coined the term Rapunzel syndrome in 1968.⁴
3. Pharmacobezoars – formed by medication with tablet coating that is composed of indigestible semi-permeable cellulose acetate. Examples are cholestyramine, verapamil, nifedipine, and antacids.
4. Lactobezoars – compact mass of undigested milk concretions. It happens when highly concentrated formula is fed to low-birth-weight neonates.⁵

In addition, ingestion of unusual substances can cause formation of bezoar as well, for example, metal bezoar, plastic bezoar, and sand bezoar.⁶ Understanding and classifying the components of bezoars can help to tailor the management necessary for removal and prevention of recurrence.

Crabs are a type of decapod crustacean, which have an exoskeleton to protect themselves against environment and predators. The exoskeleton is made up of γ α -chitin, proteins and carotenoid pigments, and an inorganic fraction where calcium carbonate is the main constituent.⁷ It has been reported that crab shell ingestion can cause perforation of the oesophagus.⁸

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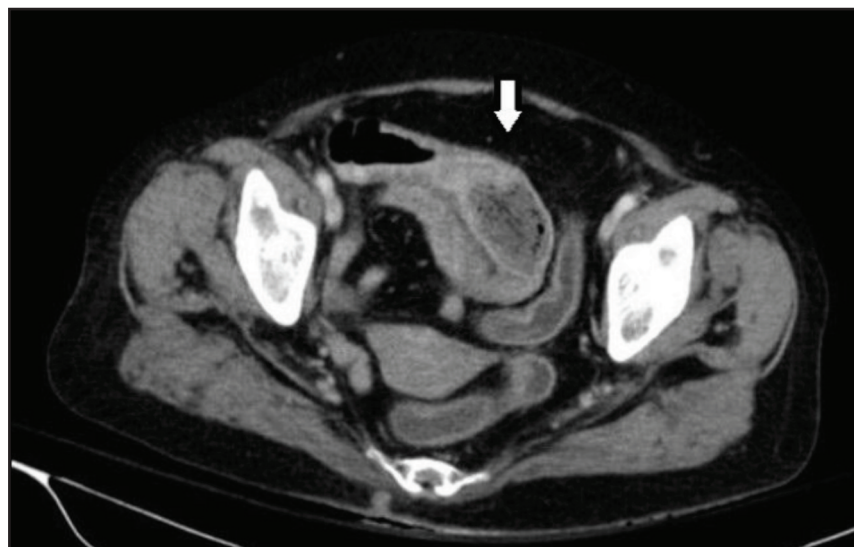


Fig. 1: Axial view of CT abdomen showing a lesion having mottled appearance and air bubbles within in the lumen of the small bowel (white arrow).



Fig. 2: Gross specimen of intra-operative crab shell bezoar (white arrow).

These bezoars are often formed in the stomach but as they undergo fragmentation, they can migrate to the small bowel and cause mechanical obstruction. Presenting features of SBO due to bezoars are often nonspecific; hence, diagnosis should be supported with imaging. Plain abdominal radiography can show signs of intestinal obstruction, but the characteristic mottled gas pattern of bezoar is only visible in 18% of cases. Barium enema is another imaging choice. It can demonstrate mobile intraluminal filling defect. Usefulness of ultrasound to diagnose bezoar is rarely described as faecal material can simulate the image of a bezoar and an intestinal tumour cannot be excluded.⁹ CECT scan is the preferable choice of investigation, and its use has become more frequent. Classically, a 'small bowel faeces' sign

(a mixture of particulate feculent material mixed with gas bubbles within a dilated small bowel) is suggestive of a small bowel bezoar. In a newer study, a floating fat-density debris sign (well-defined mass mottled with gas bubbles associated with an encapsulating wall) is found to be more typical of a small bowel bezoar.¹⁰ In case of patients not suitable for CECT, non-contrasted CT can be carried out as it has higher sensitivity and specificity compared to other imaging techniques.⁹

Treatment of gastric bezoar is conservative at first, with endoscopic extraction and/or enzymatic dissolution. Extraction through gastrotomy is attempted after the above treatment fails. In contrast, small bowel bezoars are almost

always treated surgically, either milking the bezoars into the caecum or performing an enterotomy if the milking method is not possible. Laparoscopy was performed for some patients, which showed good results such as shorter operative time and shorter hospital stay, but it requires proficiency due to dilated intestinal bowels.

CONCLUSION

This is the first case of crab shell bezoar causing SBO reported in the literature. Due to the potential of oesophageal perforation and bezoar formation causing intestinal obstruction, ingestion of large intact pieces of crab shells should be avoided.

Although bezoar is a rare cause of SBO, one should always keep it in mind as one of the differential diagnoses. A thorough history taking should be taken to include previous surgery, diet history, history of taking abnormal objects, and any behavioural changes. Due to the challenges in making a clinical diagnosis, early radiological investigation with CT scan needs to be carried out so that a timely surgical treatment can be implemented.

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