

CASE REPORT

Small bowel obstruction attributable to phytobezoar

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Abstract

Small bowel obstruction (SBO) is a common condition encountered in surgical practice. Literature shows diverse and many different etiologies for intestinal obstruction. However, bezoars are rarely reported as an etiological factor. A bezoar happens most commonly in patients with impaired gastrointestinal motility. There are four types of bezoars: phytobezoars, trichobezoars, pharmacobezoars and lactobezoars. The most common type is phytobezoars, which are composed of undigested fiber from vegetables or fruits especially persimmons. They are mostly composed of cellulose, tannin and lignin. The commonest phytobezoar reported worldwide is related to the persimmon fruit ingestion. The most common symptom of bezoar-induced SBO is abdominal pain (96–100%). Other common symptoms include nausea and vomiting. Primary small bowel phytobezoars almost always present as SBO. We present an unusual case of SBO caused by a phytobezoar in a 35-year-old patient. Many types of bezoar can be removed endoscopically, but some will require operative intervention.

INTRODUCTION

Small bowel obstruction (SBO) is a common surgical state. The most frequent causes of SBO are adhesion (73.8%) and hernia (18.5%). SBO caused by bezoars is uncommon and approximately accounts for only 2–4% [1]. A bezoar is a concretion of indigestible material found in the alimentary tract, which usually forms in the stomach and passes down into the small bowel, where it can cause SBO, especially in the terminal ileum [2]. There are four types of bezoars: phytobezoars, trichobezoars, pharmacobezoars and lactobezoars. The most common type is phytobezoars, which are composed of undigested fiber from vegetables or fruits especially persimmons [3]. Persimmon derivate bezoars commonly take the form in the gastrointestinal (GI) tract of patients without history of GI surgery [4]. Persimmon have a high concentration of tannin, a monomer

that polymerizes in the presence of gastric acid. Then, the polymerized tannin acts as a nucleus for bezoar creation. Patients with an intestinal bezoar usually remain asymptomatic for many years and develop symptoms insidiously; however, if a bezoar occurs in the post pyloric region, it may be referred as an emergency condition. Here, we reported a case with SBO that caused by persimmon phytobezoar.

CASE REPORT

A 35-year-old Iranian man presented to our emergency department acutely because of severe epigastric pain. The patient had 2-week history of mild colicky epigastric pain. The pain worsened at the day of admission. At the day of admission, his pain was colicky in nature and associated with

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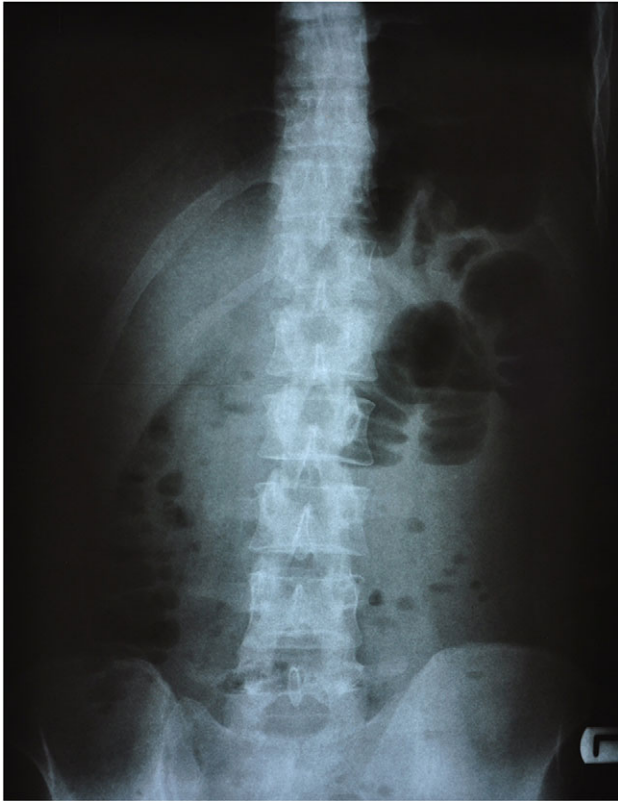


Figure 1: Plain abdominal X-ray: Demonstrated distended central bowel loops.

nausea and three episodes of massive non-bloody bilious vomiting. The pain did not radiate to any particular area. His gas passing and defecation was negative in admission time. He denies any alteration in appetite, weight, bowel habits and fever. He did not have a history of any comorbidity or any previous surgery.

His vital signs upon admission were stable. He had a blood pressure at 90/60 mmHg and a pulse rate 100 beats/min. On physical examination, the patient looked unwell; his abdomen was not tender and distended. No guarding or rigidity was present and bowel sounds were normal. Rectal examination revealed an empty rectum with no palpable mass.

Routine blood investigations and supine abdominal X-ray were obtained. His biochemistry and cell panel were within normal ranges except the level of amylase enzyme which was higher than normal range (379 mg/dl).

The initial abdominal film showed distended central bowel loops that indicated SBO (Fig. 1). A contrast-enhanced computed tomography (CT) scan was done and it revealed small bowel dilatation (Fig. 2). With consideration of all previous evidence, the clinical diagnosis of SBO was ensued. Nasogastric tube was inserted and gastric juice drained. We consulted our general surgeon and upon his diagnosis, the patient prepared for explorative laparotomy. At laparotomy, a hard obstructing bezoar in ileocecal valve was palpated. The bezoar was squeezed into pieces and then was milked to the colon and then drained from rectum. Postoperative recovery was without any problem. After surgery, his clinical condition was improved and his amylase level returned to normal range. After surgery, we took a history

from our patient to reveal the origin of this bezoar. He ate 3 kg of persimmon at a once time 2 weeks ago, he said.

DISCUSSION

SBO is a common condition encountered in surgical practice. Literature shows diverse and many different etiologies for intestinal obstruction. However, phytobezoars are rarely reported as an etiological factor. Phytobezoars are concretions of poorly digested fruit and vegetable fibers that are found in GI tract. They are mostly composed of cellulose, tannin and lignin [5]. The commonest phytobezoar reported worldwide is related to the persimmon fruit ingestion. There are several predisposing factors that can contribute to the formation of phytobezoars. These factors consist of: prior gastric surgery, poor mastication, bolus intakes of indigestible vegetable foods, loss of gastric motility, peptic ulcer, hypothyroidism and diabetes mellitus gastroparesis [6]. The most common symptom of bezoar-induced SBO is abdominal pain (96–100%). Other common symptoms include nausea and vomiting [7]. Primary small bowel phytobezoars almost always present as SBO. They usually are impacted in the narrowest part of the intestine especially in the terminal ileum and ileocecal valve as was found in our patient. It is interesting to note that more than half of reported cases with phytobezoars had a history of gastric surgery. Our patient denies any previous GI-related surgery.

Plain supine X-ray typically shows a classic obstructive pattern of SBO but rarely to detect bezoars. Occasionally, the outline of bezoar can be made out, which is difficult to differentiate from abscess or feces in the colon. The only evidence that we found in plain X-ray of our patient was mild small bowel loop dilatation (Fig. 1). The cause of SBO can be diagnosed by CT in 73–95% of patients [8]. The SBO caused by bezoar in CT shows intraluminal mass with mottled gas appearance associated with dilated small bowel proximal to the obstruction. The diagnostic accuracy of CT scan to diagnose bezoar-induced SBO is ~65–100% [9]. CT findings of our patient were also consistent with the bezoar-induced SBO (Fig. 2).

The treatment of choice for SBO due to phytobezoar is surgery. The surgical management is easily performed by fragmenting the bezoar and milking it down to the cecum without enterotomy [6]. In a retrospective study fragmenting and milking bezoar was successful in 24 cases (53%). Postoperative nutritional counseling is important in regard to preventing recurrence of bezoar formation. Guidelines include proper chewing of food, plenty of liquids with meals and avoidance of a high fiber diet [10]. Our patient was consulted by a dietitian at the time of discharge.

Our case report showed an uncommon case of SBO caused by secondary phytobezoar that passed the pylorus without digestion.

In conclusion, phytobezoar-induced SBO is a very rare entity and often overlooked. There should be high index of suspicion in patients with symptoms of SBO to diagnose bezoar-induced SBO although factors such as easy management, early recognition with typical symptom and imaging findings play important roles in minimizing the morbidity and mortality. Surgery is the treatment of choice in this condition. Finally, it is important to note that the best way to management of bezoar-induced SBO is prevention and in this manner diet modification is the best way.

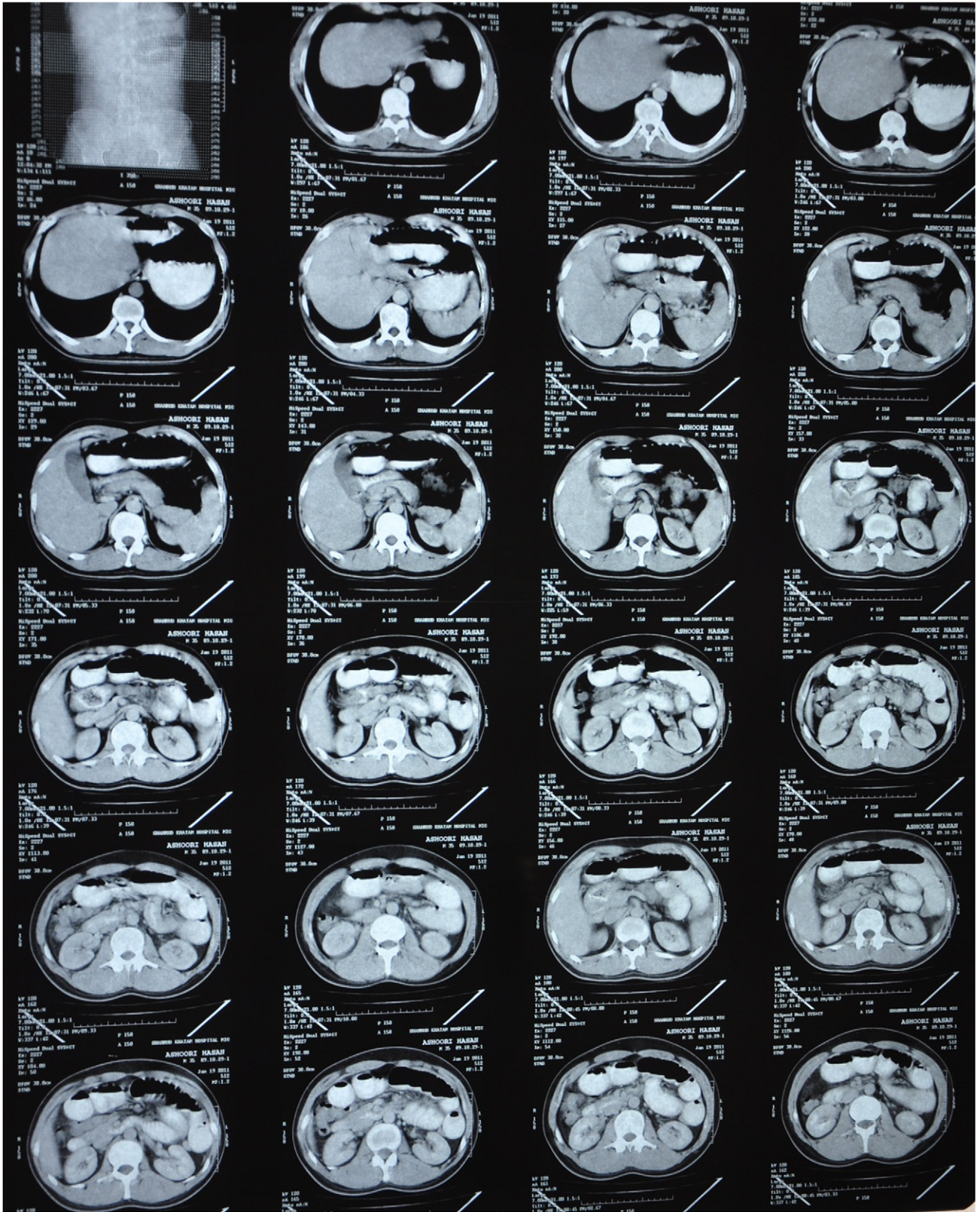


Figure 2: Contrast-enhanced CT scan of abdomen revealed small bowel dilation.

ACKNOWLEDGEMENT

We acknowledge the patient who providing us complete information about his condition.

CONFLICT OF INTEREST STATEMENT

The authors have declared that no competing interest exists in this case report.

FUNDING

The authors have declared that no supporting grant exists in this report.

ETHICAL APPROVAL

This case was evaluated and confirmed by the ethical committee of Medical University of Shahroud.

CONSENT

Informed consent form signed by the patient and we will bring it in the following section.

GUARANTOR

The authors have declared that no guarantor exists in this work.

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