Phytobezoar: A Rare Cause Of Intestinal Obstruction And Perforation

Nadeem-ul-Nazeer, M Mohsin, G Singh, S Khursheed

Citation

Nadeem-ul-Nazeer, M Mohsin, G Singh, S Khursheed. *Phytobezoar: A Rare Cause Of Intestinal Obstruction And Perforation*. The Internet Journal of Surgery. 2008 Volume 18 Number 1.

Abstract

Intestinal obstruction by a phytobezoar is a rare entity reported in the literature. Small bowel phytobezoars are almost always obstructive, causing mechanical obstruction of bowel. Small-bowel perforation secondary to phytobezoars is even a rarer clinical entity, which is not well documented in the literature. A case of intestinal obstruction and perforation in a 7-year-old girl induced by phytobezoar impaction is reported. Confirmatory preoperative diagnosis was not possible. The case was diagnosed at laparotomy and postoperatively, after specific questioning. History suggestive of chronic ingestion of a local wild fruit “amlook” was obtained from the parents.

CASE REPORT

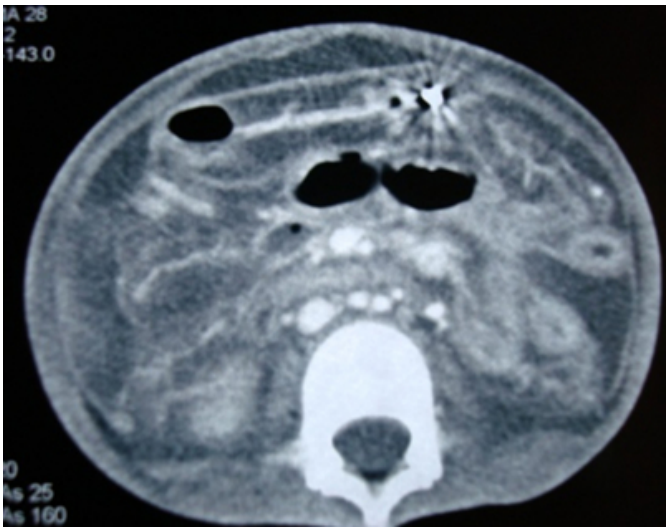
A 7-year-old girl was referred to our centre from a peripheral hospital for management of recurrent bilious vomiting, weight loss of 2 months duration and abdominal distention with absolute constipation for the last 5 days. Her past surgical history revealed appendicectomy performed 2 months back for right iliac fossa pain. Interestingly, her symptoms also dated back to the same time period.

On admission, the girl was grossly emaciated, weighed only 13kg, had a pulse rate of 120 beats per minute and her temperature was 100°F. She had gross pallor and oedema of the dependent parts. Abdominal examination revealed distention, diffuse tenderness and a mobile vague mass palpable in the left lumbar region. Bowel sounds were sluggish and per-rectal examination revealed an empty rectum with no palpable mass. Her hernial orifices were normal.

Her blood investigations were unremarkable except for a total leukocyte count (TLC) of 17.06×10^{6} . Her serum amylase level was normal. Plain X-ray of the abdomen showed gas under the right dome of the diaphragm. Ultrasonography (USG) of the abdomen showed free peritoneal fluid with dilated bowel loops. Computed Tomography (CT) scan done showed free fluid within the peritoneal cavity around liver, spleen and in the paracolic gutters with free intraperitoneal air anterior to the liver and just under the anterior abdominal wall with a mixed-attenuation mass-like lesion with predominant air density in it, in relation to gut in the left lumbar region.

Figure 1

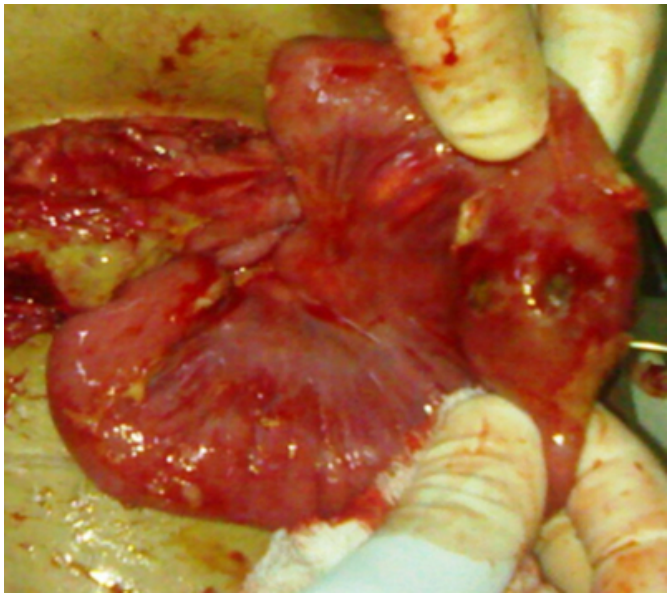
Figure 1: CT scan showing a mixed-attenuation mass-like lesion with predominant air density in it, in relation to gut in the left lumbar/iliac fossa region.



An emergent exploratory laparotomy was performed. At laparotomy, about one litre of foul smelling fluid was drained from the peritoneal cavity. The stomach was dilated and white flakes were seen covering the serosa of the stomach and the entire small bowel. On inspection of the small bowel, a compact palpable mass (about 4x5cm) was present about 25cm from the duodeno-jejunal junction with 4 perforations in the wall around the mass.

Figure 2

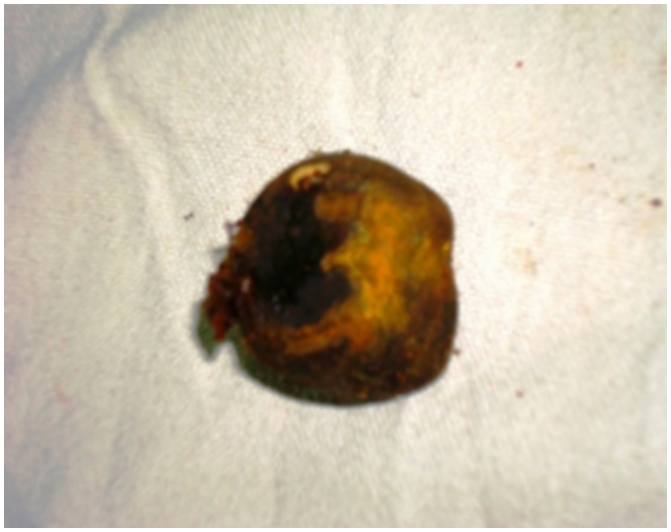
Figure 2: Intraoperative photograph showing an impacted phytobezoar 25cm from duodeno-jejunal junction with perforations of bowel around it.



The area of the perforated bowel containing the calcified mass was resected and the bowel was anastomosed in an end-to-end manner. On opening the specimen, the appearance of the density was consistent with a phytobezoar, a suspicion confirmed on final pathologic examination.

Figure 3

Figure 3: The phytobezoar



Retrospective questioning of the parents revealed history of chronic ingestion of a local wild fruit named “amlook”. The postoperative period was uneventful; she was started on nourishing fluid and soft diet. The patient became symptom-free and gained weight and was discharged on the 15 th postoperative day. At 2½ month follow-up, she is free of any symptom and thriving well.

DISCUSSION

Small-bowel obstruction accounts for about 20% of hospital admissions ($_{7}$) . Common causes are adhesions, strangulated hernias, malignancy, volvulus and inflammatory bowel diseases. Phytobezoars are rare, accounting for only 0.3-6% of all intestinal obstructions ($_{8}$) . There are 4 types of bezoars. Most common are phytobezoars which are concretions of vegetable matter such as celery, pumpkin, grape skin, prune and simmons which contain large amounts of non-digestable material such as cellulose, lignin, hemicellulose and tannium. Persimmons are the commonest cause of phytobezoar formation reported in the literature. Trichobezoars are gastric concretions of hair fibres present usually in patients of psychiatric predisposition. Pharmacobezoars are usually medication bezoars; when taken in bulk, various substances such as antacids, cavafate or cholestyramine may result in pharmacobezoars. Another type of bezoars is the lactobezoar seen during the first week of life ($_{5}$) in low birth weight neonates who are fed on concentrated milk formula.

Phytobezoars usually form in the stomach. They may remain there, or part or all of the mass may leave the stomach, become impacted in the small bowel and cause obstruction. In our patient, the bezoar was impacted at 25cm from the DJ junction. Phytobezoars usually occur sporadically, but in the winter of 1981, a new variety of persimmon was developed in Israel, which caused an epidemic of small-bowel phytobezoars ($_{5}$) . Previous gastric surgery and vagotomy are amongst the risk factors for the development of phytobezoars. Other risk factors include eating of vegetarian diet, and poor mastication. The mechanism by which phytobezoars are formed after vagotomy is thought to be an alteration in gastric emptying caused by vagotomy. Gastric surgeries which predispose to phytobezoar formation include pyloroplasty and gastroenterostomy which allow passage of a large bolus through an enlarged gastric outlet.

Radiological studies for detection of phytobezoars include plain abdominal X-ray, barium study, USG and CT scans. Plain X-ray of the abdomen may reveal a mottled gas collection and dilated proximal bowel with or without air fluid levels. In barium studies, a phytobezoar may appear as an intraluminal filling defect of variable size that does not appear to be fixed to the bowel wall; however, it is very difficult to differentiate these filling defects from

intraluminal tumours. USG may show bezoars as intraluminal masses with a hyperechoic, arc-like surface and prominent posterior acoustic shadowing. The USG appearance of bezoars may, however, be confused with gall stones and other calcifying masses. CT is a useful and powerful tool in the detection of small-bowel bezoars. Characteristically bezoars are observed as intraluminal masses with a mottled pattern. Orally given contrast medium outlines the mass in the small bowel ([6]) . CT can also demonstrate the presence of additional bezoars and can also differentiate bezoars from other intraluminal masses, as well as provide information about associated complications such as perforation and obstruction. In our patient, CT showed a mixed-attenuation mass-like lesion with predominant air density in it, in relation to gut in the left lumbar/iliac fossa region.

UGI endoscopy can definitely diagnose phytobezoars. Some gastric phytobezoars can be removed under endoscopic vision. Small-bowel phytobezoars usually require laparotomy with fragmentation of the phytobezoar by finger fracture technique and milking of the bezoar into the caecum. Recently, some authors have performed a laparoscopic approach successfully. Phytobezoar-induced perforation by pressure necrosis may need resection of the bowel and anastomosis, as was required in our patient.

Lastly, it is emphasized that such an atypical case presentation may keep the surgeon in a diagnostic dilemma. The surgeon should keep the possibility of a phytobezoar in his mind, particularly in developing countries, where children have a habit of eating everything, almost everything.

CORRESPONDENCE TO

Dr Nadeem Kawoosa, Post Graduate, Department of General Surgery,Sher-i-Kashmir-Institute-of-Medical-Sciences (SKIMS), Srinagar, Kashmir, INDIA. Mob. No. 09419516738 . Res. 0194-2425042. EMail: nadeem_kawoosa@yahoo.co.in

References

1. DeBakey M, Ochsner A. Bezoars and concretion, comprehensive review of literature with analysis of 303 collected cases and presentation of 8 additional cases. Surgery 1938;4:934-63.
2. Storch A, Rothschild JE, Ochsner A. Intestinal obstruction due to intraluminal foreign bodies. Ann Surg 1939;109:844-61.
3. Davies DGL, Lewis RH. Food obstruction of the small intestine: A review of 15 cases. Br Med J 1959;2:545-48.
4. Andrus CH, Ponsky JL. Bezoars: Classification, pathophysiology and treatment. Ann J Gastroenterol 1988;83:476-8.
5. Anthony G. Verstanding, Baruch Klein, et al. Small bowel phytobezoars: Detection with radiography. Radiology 1989;172:705-707.
6. Kim JH, Ha HK, Sohn MJ, et al. CT findings of phytobezoar associated with small bowel obstruction. Eur Radiol 2003;13:299-304.
7. Teng HC, Nawawi O, Ng KL, Yik YI. Phytobezoar: An unusual cause of intestinal obstruction. BMJ 2005;I/e4.
8. Singh N, Digray NC, et al. Phytobezoar-induced ileal obstruction in children - Report of two cases. JK Science 2006;8(2):103-105.

Author Information

Nadeem-ul-Nazeer, MS
Department of Paediatric Surgery, Sher-i-Kashmir Institute of Medical Sciences, University of SKIMS

Mir Mohsin, MS
Department of Plastic Surgery, Sher-i-Kashmir Institute of Medical Sciences, University of SKIMS

Gobinder Singh, MS
Department of Paediatric Surgery, Sher-i-Kashmir Institute of Medical Sciences, University of SKIMS

Sheikh Khursheed, MS
Department of Paediatric Surgery, Sher-i-Kashmir Institute of Medical Sciences, University of SKIMS