

Unusual association of diseases/symptoms

Bizarre behaviour, bizarre intruder and bizarre bowel obstruction

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Summary

An 82-year-old woman, with previous history of hiatal hernia, cholecystectomy and depression, has been admitted for worsening diffuse abdominal pain with constipation and vomiting for 4 days. She lived alone, without signs of dementia or cognitive impairment. The abdomen was distended and tender in middle quadrants. Abdominal x-ray revealed concentric distension of bowel loops. CT scan confirmed mechanical small bowel obstruction with a transition point in the right iliac fossa. At laparotomy, the obstruction was caused by an intraluminal mass. After enterotomy, a 5.5 cm large phytobezoar was extracted; immediately after, a small live insect jumped out from the vegetable mass crawling onto the surgical area. The specimen was sent for parasitology and identified as a crustacean isopod, terrestrial arthropod, classified in the phylum Arthropoda, subphylum Crustacea and order Isopoda. They usually live in humid, moist conditions, obtaining their nourishment from decomposing vegetable matter. They often colonise in greenhouse pot plants. No cases of parasitisation in vertebrate species have been reported to date.

BACKGROUND

Intestinal obstruction is the most common surgical diagnosis in the emergency departments and a common cause of acute abdominal pain. Small bowel obstruction (SBO) in adults occurs in 75% of the cases related to postoperative adhesions, followed by hernias and neoplasm.¹ The rest of the cases are usually caused by tumours, volvulus, hernias, presence of foreign bodies such as gallstones, ingested foreign materials or bezoars. Volvulus occurs most often in elderly adults and psychiatrically disturbed patients. Intussusception in adults is usually associated with tumours in the bowel whether benign or malignant. Acute intraluminal occlusion of the small bowel is uncommon. Among the intraluminal causes of SBO are gallstones, foreign bodies, retained meconium, bezoars and tangles of ascarides (*Ascaris lumbricoides*) or helminthic nematodes infection (*Strongyloides stercoralis*).² Obstruction by bezoars, especially by undigested food, is rare and mainly seen in children, elderly and patients with mental disorders.^{1–4}

CASE PRESENTATION

An 82-year-old woman with unremarkable previous medical history, except hypertension and mild depression, hiatal hernia and open cholecystectomy performed 25 years before, was admitted from casualty with worsening diffuse abdominal pain, signs and symptoms of bowel obstruction with nausea, vomiting and constipation for 4 days. She was living alone and did not show clear signs of dementia or cognitive impairment. She was on antihypertensive medications and escitalopram (selective serotonin reuptake inhibitor antidepressant 10 mg daily). The physical examination revealed the abdomen distended and tender in the middle quadrants.

INVESTIGATIONS

The laboratory results showed leucocytosis (white blood cell count 15.100/mm³). The plain abdominal x-ray (AXR) revealed concentric distension of the bowel loops and multiple gas-fluid levels (figure 1). Abdominal CT scan confirmed mechanical SBO with a transition zone between dilated and collapsed bowel loops in the right iliac fossa (figures 2 and 3).

DIFFERENTIAL DIAGNOSIS

Although AXR is usually sufficient for the diagnosis of intestinal obstruction, differentiating between a bezoar and the more common postoperative adhesions via this modality is impossible. However, intestinal obstruction may be determined, via abdominal ultrasonography with a sensitivity and specificity of 93% in patients with intestinal bezoars.⁵ Abdominal ultrasonography is able to visualise intestinal luminal enlargement and the thin intestinal wall typical of intestinal bezoars. In a large case series, intraluminal bezoars were identified via ultrasonography in 88% of the patients.⁵ Intraluminal bezoars can also be diagnosed via preoperative CT in patients with SBO.

Other causes of SBO that need to be considered in the differential diagnosis include tumours originating from the small intestinal wall, ingested foreign materials and gallstones entering the intestinal tract via biliary-intestinal fistulas.

TREATMENT

During the laparotomy, obstruction of the distal ileal loops was discovered to be caused by an intraluminal mass. After enterotomy was performed a 5.5 cm large phytobezoar was extracted (figure 4). While retrieving the vegetable mass, a



Figure 1 Initial plain Abdominal x-ray.

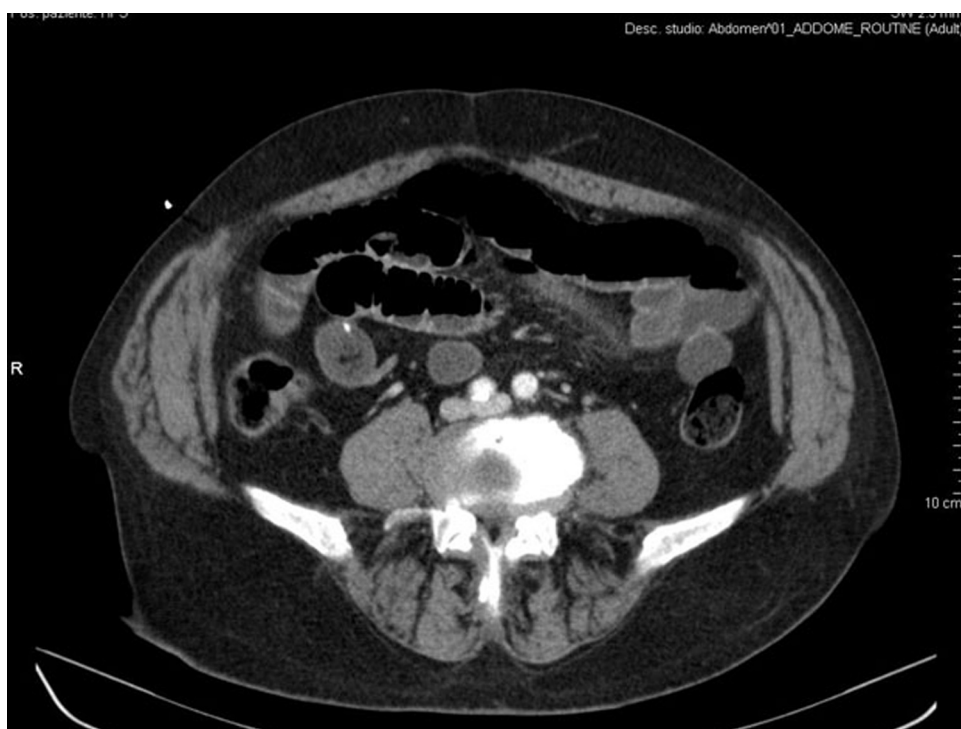


Figure 2 Abdominal CT scan.

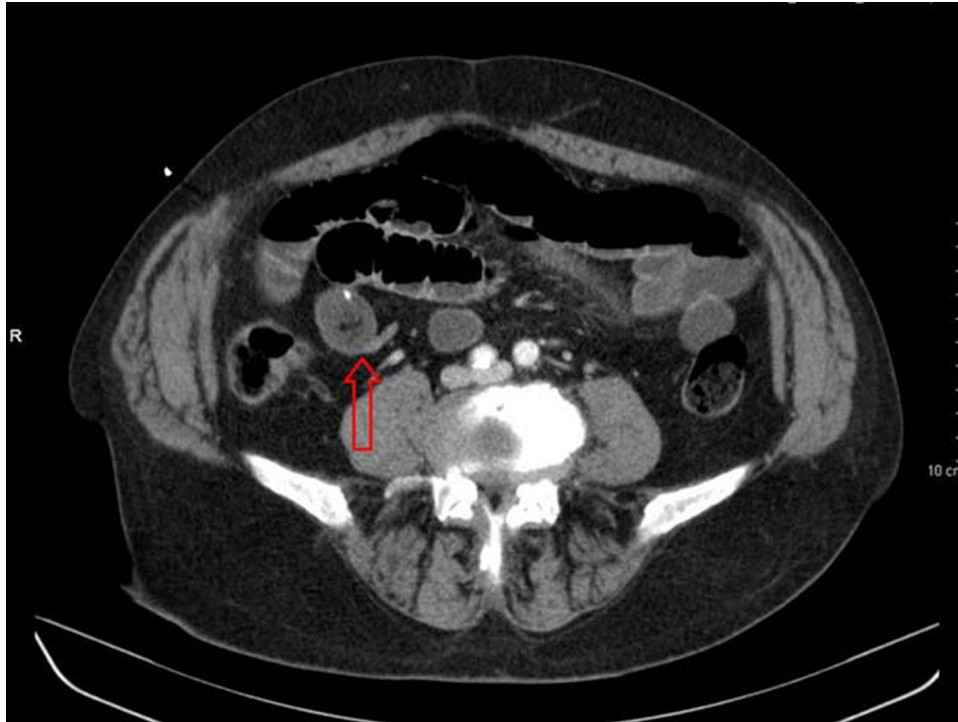


Figure 3 CT scan with red arrow showing the intraluminal mass and transition zone between dilated and collapsed bowel loops.

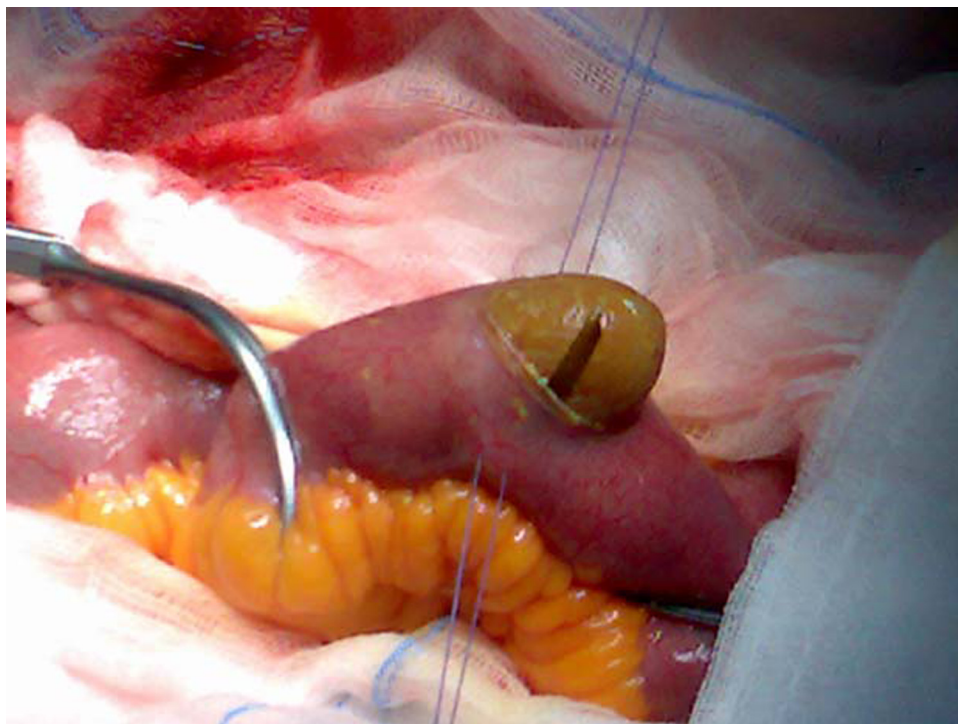


Figure 4 After enterotomy was performed, a 5.5 cm large phytobezoar was extracted.



Figure 5 The insect jumping out from the vegetable mass, crawling on the sterile surgical drapes.



Figure 6 Abdominal x-ray, CT scan with red arrow showing the intraluminal mass and transition zone, intraoperative findings, in the right lower corner the Crustacean Isopod.

small live insect immediately jumped out from the vegetable mass crawling onto the sterile surgical drapes (figure 5).

OUTCOME AND FOLLOW-UP

The specimen was sent for parasitology. The report revealed it was a crustacean isopod, a terrestrial arthropod,



Figure 7 Microphotograph of the Crustacean Isopod, dorsal view.



Figure 8 Microphotograph of the Crustacean Isopod, ventral view.

classified in the phylum Arthropoda, subphylum Crustacea and order Isopoda (figures 6, 7 and 8). They usually live in humid, moist, conditions and obtain their nourishment from decomposing vegetable matter. They often colonise in greenhouse pot plants. No cases of parasitisation in humans or any vertebrate species have been reported to date. Six months later the patient developed adhesive SBO and underwent further laparotomy for lysis of adhesions. At 18 months follow-up the patient is still alive and living in a retirement house.

DISCUSSION

In this case showing an unusual association of diseases and conditions, we have hypothesised that the patient, being depressed with a latent form of mental illness associated with behavioural disorders, caused by poor concentration, loss of interest and so forth (typical of depression according to International Classification of Disease 10 criteria), may have ingested crude, moist, unwashed vegetables or plants, which amazingly harboured a Crustacean Isopod.

The patient presented with signs and symptoms of intestinal obstruction. The usual sequence of investigations for

the diagnostic assessment of bowel obstruction starts with plain AXR. If the plain AXR shows air fluid levels and grossly distended bowel loops, the level and possible site of obstruction must be assessed (ie, small bowel or large bowel) and the further diagnostic work-up proceeds accordingly. When in doubt, or when the clinical and radiological findings are not clear enough to suggest the best further diagnostic steps, abdominal CT scan may be helpful with the eventual adjunct of triple contrast (intravenous, oral and/or rectal).⁶

The CT scan showed in our patient a mechanical SBO with a transition zone and intraluminal mass suspected to be a bezoar.

A bezoar is a mass of undigested food, hair or other material, which becomes lodged and impacted in the gastrointestinal tract. They are classified according to their content as phytobezoars, trichobezoars, lactobezoars, mixed medication bezoars or bolus food bezoars.⁷

Phytobezoars are constituted by concretion of poorly digested fibres from vegetables and fruits. They are an uncommon cause of mechanical gastrointestinal obstruction. They are often found in the stomach and are usually a consequence of gastric surgery (such as gastric resection or partial gastrectomy or truncal vagotomy). Previous gastric surgery interferes with the stomach motility and, therefore, predisposing to bezoars formation; other factors include high fibre dietary intake, poor mastication, diminished gastric secretion and motility, hypothyroidism, autonomic diabetic neuropathy and myotonic dystrophy. The phytobezoars rarely may pass through the pylorus into the small bowel. Primary small bowel bezoars are particularly rare⁸ and are mainly seen related to underlying diseases such as diverticula, strictures or tumours. Stagnation within a dilated bowel segment, such as in Crohn's disease, may also facilitate their occurrence. However, phytobezoars occurring in an intact gastrointestinal tract are exceptionally rare.^{9–10} It raises the suspicion for other possible pathophysiological mechanisms together with predisposing factors such as dietary and eating habits.

The gastrointestinal tract is a commonly primary involvement site for parasites during their life cycle. The common intestinal parasitic diseases include amebiasis, ascariasis, anisakiasis, strongyloidiasis, ancylostomiasis, trichuriasis and tapeworm disease.

Isopods are the most diverse in form and the most species-rich crustaceans belonging to the same subclass as lobsters and crayfish. They are distantly related to trilobites; extinct Arthropods appeared in the early Cambrian period and throughout the lower Paleozoic era. Both trilobites and isopods are in the class Arthropoda ('jointed legs'), but trilobites are distinguished by the three lengthwise sections of the body. Modern isopods are common inhabitants of nearly all environments. The isopoda range in length from 0.5–500 mm. Phylogenetic analysis and the fossil record suggest that the group dates to at least the Carboniferous period of the Paleozoic approximately 300 million years ago. Isopods live most abundantly on the sea bottom from the abyss to the intertidal zone. The group has also successfully colonised freshwater and marine habitats.

Some isopods are parasitic living on other crustaceans or in the mouths or on the gills of fish. Terrestrial isopods are successful colonisers of land but are poorly adapted to it and

usually confined to microhabitats where temperatures are moderate and damp surfaces are available as already described by Spencer and Edney in 1954¹¹ and Hadley in 1994.¹² They emerge primarily at night or whenever the temperature drops and the relative humidity of the air increases to forage for food.¹³

Learning points

- ▶ SBO is mainly secondary to postoperative adhesions (60–75% of the cases); however, the unusual cases, such as the intraluminal obstructing causes (eg, gallstones, bezoars, parasitic/helminthic infection, foreign bodies), should not be neglected since they account for perhaps 1 in 20 cases of such a common condition.
- ▶ Phytobezoars should be considered in the differential diagnosis of intestinal obstruction in patients over the age of 50 years, especially if they are presenting mental disorders, medical history of gastric surgery, have poor dentition and eat fibre-rich food.
- ▶ In the diagnostic work-up, plain abdominal film allows the diagnosis of intestinal obstruction and the involvement of the small bowel; however, CT scan of the abdomen is useful for both confirming the diagnosis of obstruction, the location and the cause (especially if intraluminal identifying the concretion of vegetable fibres) and for the decision to perform emergency surgery as well. Ultrasound might also be useful in the identification of intraluminal bezoars or foreign bodies.
- ▶ The treatment may be medical non-operative in selected patients with partial obstruction. However, particularly in the presence of a bezoar, early surgical treatment is recommended to prevent strangulation.
- ▶ Whenever possible, the bezoar should be manually fragmented and milked through the caecum. Laparoscopic fragmentation maybe useful in such cases. If this is not feasible, the bezoar should be extracted via enterotomy or, if it is difficult due to the large size of the bezoar or in presence of bowel ischaemia, bowel resection and anastomosis is warranted. Finally, a thorough examination of the entire intestinal and gastric segments should be performed to exclude the presence of any other bezoars.

Acknowledgements The authors thank Professor Piero Cravedi from the Department of Entomology and Plant Pathology of the Catholic University, Piacenza, Italy, for the parasitology investigation.

Competing interests None.

Patient consent Obtained.

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Please cite this article as follows (you will need to access the article online to obtain the date of publication).

Di Saverio S, Catena F, Coccolini F, Gazzotti F, Filicori F, Ansaloni L. Bizarre behaviour, bizarre intruder and bizarre bowel obstruction. *BMJ Case Reports* 2010; 10.1136/bcr.11.2009.2486, date of publication

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