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CASE REPORT

A rare cause of gastrointestinal obstruction. Drug poisoning as a surgical disorder?

Authors' Contribution:
A – Study Design
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E – Manuscript Preparation
F – Literature Search
G – Funds Collection

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ABSTRACT: A patient had intestinal obstruction due to a rare cause. The patient presented unusual signs and symptoms. Although we performed a thorough diagnostic workup (CT, ultrasound, radiography, endoscopy), only laparotomy revealed that a bezoar caused the intestinal obstruction. The bezoar consisted of a herbal preparation, which was mentioned by the patient twice as a possible cause of his symptoms. All in all, the patient was right.

KEYWORDS: Gastrointestinal obstruction, Bezoar, Over the Counter Drugs, Peristalsis, Hypotension, Harpagophytum procumbens, Devil's claw

ABBREVIATIONS:

ASA - American Society of Anesthesiology,
BPH – Benign Prostatic Hyperplasia,
CRP – C-reactive protein,
NOAC – Novel Oral Anticoagulants,
ER – emergency room,
OTC - Over-the-Counter Drugs,
CT – Computed tomography

CASE REPORT

An 87-year-old patient reported to the family doctor due to abdominal pain, nausea, and stool retention for 4 days. He chronically used antihypertensive drugs, a statin, an α-blocker due to BPH, and a NOAC drug (at a reduced dose) due to paroxysmal cardiac arrhythmia. No other medications were noted while taking the history. The family doctor, who was also an anesthesiologist, not only referred the patient to hospital, which is often the case in family medicine, but he also gave the patient an initial treatment in the office. The patient received crystalloid fluids (1500 ml), analgesics, antispasmodics, and metoclopramide. The pain reduced considerably, but after a bolus of fluids, hypotension of 96/60 mmHg remained. Due to the lack of improvement in the patient's condition, the patient was transferred to an ER by an ambulance.

In the ER, the patient received another bolus of crystalloids (1000 ml) supplemented with magnesium sulphate and potassium chloride, as well as antispasmodics. Further diagnostic workup was ordered.

Laboratory results showed polycythemia, increased hematocrit, increased serum osmolality, hypokalemia, uremia, and a creatinine level of 2.3 mg/dL. These results suggested a hypertonic dehydration corresponding to a fluid shift to the third space Moreover, there were laboratory signs of inflammation, such as neutrophilic leukocytosis (12,000/μl) and an increased concentration of CRP (129 mg/l; normal range: 0-5 mg/l). The serum amylase concentration was also increased (366 U/I; normal range: 28-100 U/l). There were no features of metabolic acidosis on arterial blood gas analysis. On physical examination, the abdomen was soft, without peritoneal symptoms, but the peristalsis was weak. An abdominal radiography, taken with the patient standing, showed the following features (Fig.1):

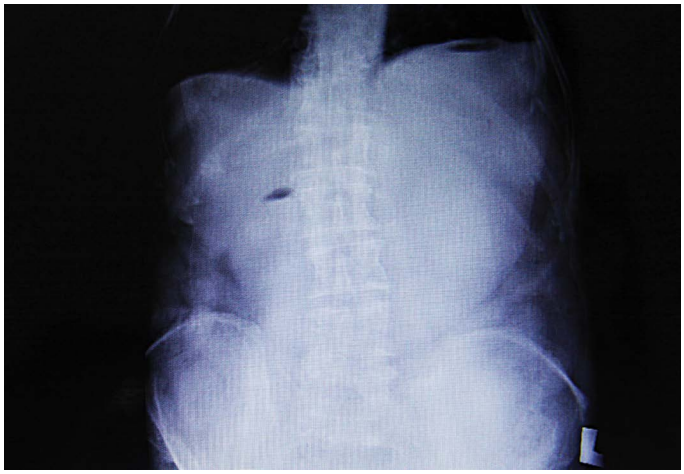

Fig. 1. Abdominal radiograph, taken with the patient standing, showing the stomach filled with fluid content.

Two fluid levels: in the bottom of the stomach and in the pylorus.

The patient's movements affected the quality of the radiograph. The abdominal radiograph showed a nearly completely filled stomach with fluid levels: in the bottom of the stomach and in the pylorus. A very small amount of intestinal gases was observed in the remaining parts of the digestive tract. We did not observe fluid levels in the intestines that would be characteristic for an intestinal obstruction. On abdominal ultrasound, there were enlarged, fluid-filled intestinal loops with no visible peristalsis. The sonographer suggested a diagnosis of intestinal obstruction.

The patient was consulted in the ER by two surgeons, within several hours apart. One surgical consultation stated: the patient associates the onset of symptoms with the use of devil's claw extract for sciatica symptoms. The abdomen was soft, without peritoneal symptoms, and the peristalsis was weak. Per rectum, there was no resistance; the stool was loose. Because surgery was not necessary at that point, the patient was admitted to the internal diseases ward, with a preliminary diagnosis of acute pancreatitis.

While taking the history, the internist also noted that the patient used analgesic herbal preparations that could have been associated with the occurrence of abdominal pain. The leukocytosis increased up to 24,000 / µl. Crystalloid fluids were given under the control of fluid balance. The patient showed fluid retention, and it was difficult to maintain diuresis greater than 0.5ml/kg/h; however, an intensive fluid resuscitation caused a decrease in serum creatinine and normalization of blood pressure in the first two days. We administered the following antibiotics: metronidazole (500 mg every 8 hours), and ceftriaxone (1 g every 12 h), and fluconazole (200 mg once daily). These antibiotics reduced the serum CRP concentration. The concentrations of procalcitonin and lactates remained raised, but they did not indicate sepsis.

The patient underwent abdominal computed tomography (CT).

On CT, the stomach, the duodenum, and the entire small intestine were filled with liquid content (Fig. 2). In the cecum, a wall thickening suggested neoplastic infiltration (Fig. 3), and the colon loops were collapsed and constricted.

During a two-day stay on the internal disease ward, surgeons consulted the patient twice.

Subsequently, the abdomen was soft, and the peristalsis was weak. One of the surgeons recommended gastric lavage. The liquid content was removed from the stomach via a gastric tube. The CT described above was performed after the gastric tube had been inserted to the stomach.

Next, gastroscopy was performed, which showed features of a hiatal hernia and a small amount of brown matter. Apart from that, the endoscopic image of the stomach and duodenum was normal.

On the third day, the patient's condition deteriorated. Blood pressure dropped to 90/60 mmHg with no improvement after giving fluids. Diuresis decreased. Because of persistent features of intestinal obstruction and the CT image, the patient was qualified for laparotomy (after giving consent). A consultation of an anesthesiologist was ordered. The patient was qualified for general anesthesia (ASA III). Two units of a group-compatible concentrate of red blood cells were ordered.

DESCRIPTION OF SURGERY

The peritoneal cavity was opened from the median incision. About 300 ml of clear liquid was aspirated. Extended loops of the small intestine were found. About 25 centimeters from the ileocecal valve, a foreign body was identified, which was a bezoar. The bezoar was removed after opening the bowel wall above it. The intestine was closed with a double-layered suture. The abdominal cavity was sutured, and a drain was left in the abdominal cavity. The surgery took 50 minutes. During the laparotomy under general anesthesia, a central catheter was inserted under ultrasound guidance in the right internal jugular vein.

After waking up from the anesthesia, the patient was in a satisfactory condition and was transferred to the surgical ward. In the postoperative period, the antibiotics ordered before surgery were continued. A proton pump inhibitor and an intravenous infusion

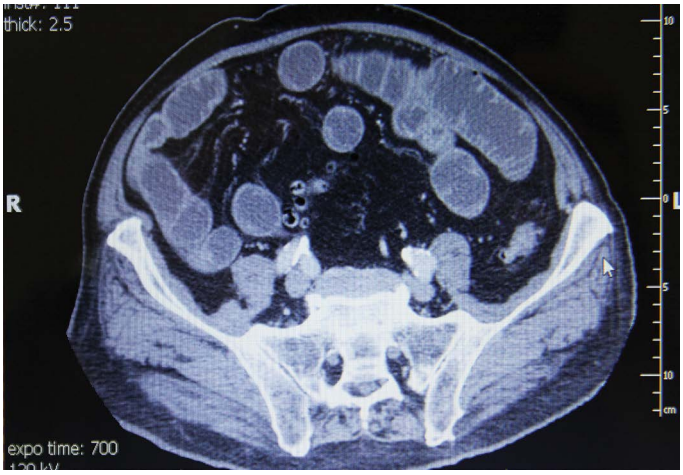

Fig. 2. Abdominal CT images showing small intestine loops completely filled with fluid content.

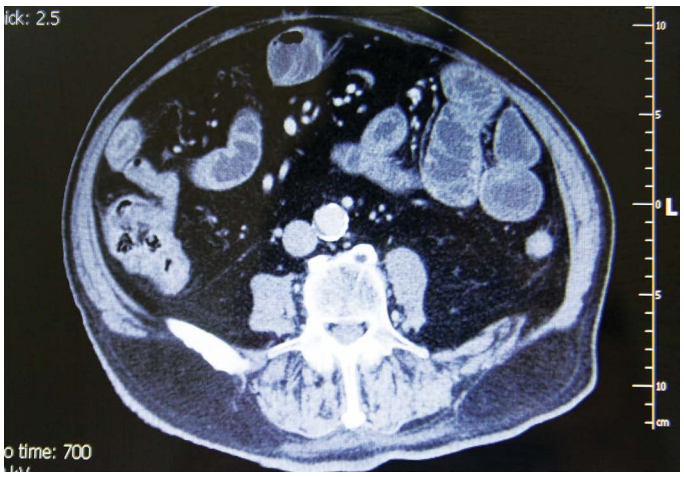

Fig. 3. An abdominal CT image showing the cecum with thickened walls and the collapsed colon.

Fig. 4. The bezoar removed from the lumen of the ileum.

of amino acids were given. The patient did not require catecholamine infusions; diuresis did not require pharmacological support. On the fourth day, when peristalsis appeared, the abdominal drain, gastric tube, and a Foley catheter were removed. The patient began to take an upright position. On the fifth day, oral fluids were given, followed by a fluid diet on the next day. On the seventh day, the patient was in a good general condition and was discharged home.

The bezoar (Fig 4), which caused the gastrointestinal obstruction in our patient, was a fragmented, mass made of the herbal preparation known as the devil's claw (Harpagophytum procumbens).

Macroscopically, we observed that the bezoar contained a rubber band (diameter, 3 mm; length, about 10 cm), which was confirmed by histology. The pathologist decided not to analyze the sample with usual histological methods. Most likely, the rubber band was accidentally swallowed with the herbal preparation.

Harpagophytum procumbens grows in South Africa. The root bulbs of Harpagophytum procumbens are widely available as OTC preparations. Manufacturers of the devil's claw preparation sell it as a substance with analgesic and anti-inflammatory properties. It is recommended for rheumatic diseases and muscle and joint pain. According to the manufacturers, the devil's claw is an antioxidant and it enhances the secretion of digestive juices. Our patient took the devil's claw preparation chronically because of pain in the lumbar spine.

CONCLUSION

Bezoars are a rare cause of gastrointestinal obstruction (1). Most commonly, bezoars are located in the stomach. Bezoars formed by tablets or other drugs are rare. In our case, because the bezoar was formed by a herbal product, it can be termed a phytobezoar (2). The bezoar contained additionally a rubber band. Bezoars formed by conglomerates of swallowed hair (trichobezoars) are most often found in patients with mental disorders and in old people with dementia.

DISCUSSION

In the present case, there were many diagnostic pitfalls and ambiguities that hindered both the diagnosis and the decision to perform laparotomy. The difficulties were as follows:

- an unusual radiographic mage: the radiograph did not show typical fluid levels in the intestinal loops (3) (4).
- an increase in amylase concentration suggested pancreatitis [an increased amylase concentration might be caused by obstruction at the level of the small intestine (5)].
- there were no peritoneal symptoms, the abdomen was soft, and the peristalsis was preserved throughout the period preceding the laparotomy.

Of note, the patient reported using preparations containing the devil's claw at least twice. As it turned out, he was right that the devil's claw caused his symptoms. Thus, our case proves that adequate medical history is the basis for both the diagnosis and treatment. Moreover, our case illustrates how important it is to pay attention to everything that the patients tell us about possible causes of their symptoms, because such information, seemingly unimportant, might be the key to the diagnosis.

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