

DIFFICULTIES IN THE DIAGNOSIS OF BEZOARS

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Abstract

Two cases showing the same undistinguishable picture typical for bezoars at diagnostic imaging are reported. Even case histories were typical for bezoar, as well.

Both patients required surgical intervention because of incomplete obstruction: a large trichobezoar was removed from the stomach in one patient, and in the other one the finding was scibala originated from the stomal part of the small bowel.

The authors state that diagnosis of obstruction in the presence of a palpable tumor and a shadow-giving mass in the plain film is easy. However the identification of the material of the mass is complicated.

Key words: Bezoar, motility disorders, diagnosis, childhood.

Bezoars are large conglomerates of vegetable fibers (phytobezoar), hairs (trichobezoar) or concretions of various substances, most frequently located in the gastrointestinal tract of humans. They are most commonly found in the stomach, but they have been reported in the esophagus, small intestine and biliary tract as well [1,2,3,6,7,12].

The diagnosis of bezoars is in most of the cases easy, but there are some unusual forms (e.g. Rapunzel's syndrome, bezoars in the Meckel's diverticula, in gastric ulcer etc.), which can cause some difficulties.

We report two cases, in which the diagnostic methods showed very similar or the same pictures typical of bezoar, what was proved to be a bezoar in one, but none in the other patient.

Case reports

Case 1.

A 12 years old girl had been suffering from abdominal colic for weeks. She lost appetite for 2-3 months, following which she became weak, lost 3-4 kg and felt dizzy. One week before her admittance she had fever, diarrhoea and episodes of vomiting. In the first hospital she was admitted

to, upper gastrointestinal contrast study was carried out. Because of its result and the patient's history, the suspicion of an abdominal tumor arose, so she was sent to our department.

At physical examination a hard abdominal mass, as big as a fist was palpated in the left side of the abdomen (Fig. 1,2).



Fig. 1: Plain film shows a big mass filling the stomach.

(Remaining contrast material in the large bowel] from the previous barium study.)



Fig. 2: US revealed a solid mass in the projection on the stomach with calcification in its wall and a wide hypoechoic shadow.



Fig. 3: Surgical finding: the trichobezoar consists of dark hair and trapped food particles, taking the shape of the stomach.

The plain film showed a big mass filling the stomach. Ultrasound examination revealed a solid mass in the projection on the stomach with calcification in its wall. CT affirmed the suspicion of bezoar. The patient's condition deteriorated, blood test revealed severe anaemia (Hb: 74 gll, Hct: 24 %). After stabilization of her condition, the girl underwent laparotomy.

Trichobezoar filling out the stomach was removed by gastrostomy (Fig. 3.)

The postoperative course was uneventful, gastric passage was normal.

Detailed verbal exploration of the girl threw light on her trichotillomania. The girl was referred to a paediatric psychologist for assessment and therapy.

Case 2.

A 8 months old baby girl was admitted to our department because of exsiccosis and enteritis. The patient's history included sigmoideostomy because of cloacal malformation and cutaneo-ureterostomy because of ureterovesical stenosis in the right solitary kidney.

Physical examination revealed symptoms of exsiccosis. Blood tests showed acidosis (pH: 7,27; pCO₂: 22,4 Hgmm; actHCO₃: 9,4 mmol/l; BE: -15,6 mmol/l; pO₂: 63,9 Hgmm; O₂ SAT: 88,4 %) and acetonuria was present (Fig. 4,5.).



Fig. 4: Plain film shows a mottled shadow in projection of sigmoideostoma.

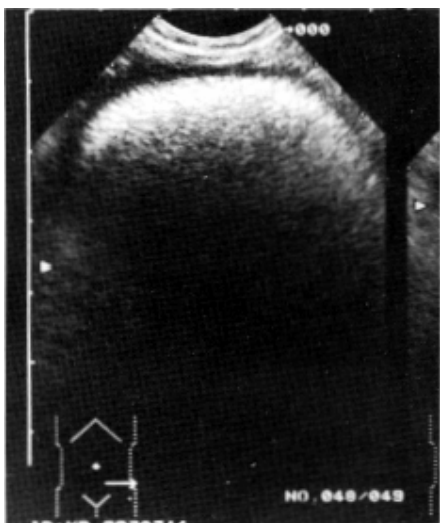


Fig. 5: A solid mass with strong first-interface reflection of sound was seen by US.

In the plain film some dilated bowel loops and a soft-tissue lesion of 5 cm in diameter in projection on the sigmoidostomy were seen. Contrast enema showed the same findings. Ultrasound revealed a solid mass with hyperechogenic calcified surface with acoustic shadowing.

At the surgical revision of the stoma and removal of the mass which led to bowel obstruction the diagnosis of a scibalum was made. Follow-ups indicate that the baby is doing well.

Discussion

Predisposing factors for formation of gastrointestinal bezoars include all the situations with decreased bowel motility, e.g. operations on the stomach or small intestine, psychotic problems, etc. [1,2, 10]. Trichobezoars are most commonly seen in the stomach of young girls. Phytobezoars

generally develop after gastrointestinal operations, in case of motility disturbances with decreased peristalsis and in presence of undigested materials, as medicaments, vegetable fibres, cellulose, chewing gum, etc. [5,7,12].

Gastrointestinal bezoars clinically manifest in complete or incomplete obstruction in most of the cases.

The diagnosis of obstruction is easy, but identifying the material causing the obstruction is almost always impossible.

Diagnosis of a bezoar may be suspected at physical examination at palpation, in plain films and on ultrasonography [10]. CT and MR may provide help in difficult cases (e.g. Rapulzen's syndrome), and reveal possible complications [3,9,11].

The therapy of bezoars includes removal of the material and prevention of recurrence. Generally surgical removal of the bezoar is used [10], but nonsurgical procedures have also been reported. Small gastric bezoars can be solved by enzymatic therapy (chymopapain, cellulase, acetylsteyne) [6] or may be removed by endoscopy [4,12]. Nasogastric lavage can be effective in the cases of smaller gastric and intestinal bezoars [12]. Endoscopic fragmentation in the stomach may be successful, but close observation is required because fragments may drop into the small bowel and lead to obstruction [4,12].

In cases of complete obstruction the only way for solving the problem is surgery. Laparotomy is required in the cases of large bezoars and complications [8,9]

Prognosis after the surgery is excellent. However some cases of residual and recurrent bezoars have been reported. Remains of some parts of the bezoar may be prevented by thorough checking of the intestine and stomach during operation.

Psychiatric evaluation and therapy is the best method in preventing recurrence of trichobezoars. In preventing the recurrence of phytobezoars high fiber diet has to be avoided, correction of impaired teeth and use of prokinetic agents may also be of help. Longstanding obstruction may lead to dilatation of a part of the bowel, which may cause repeated bezoar formation. Ellaway suggest reducing the size of the dilated bowel by infolding plication [1]. Both of our patients underwent surgical intervention because of incomplete obstruction. There was no difficulty in diagnosing obstruction itself. In the patient's history in both of the cases predisposing factors for bezoar-formation were present (trichotillomania, bowel operation with narrowed stoma). The mass causing obstruction gave the same picture in both cases on ultrasonography and in the plain film. However, in the second patient there was no bezoar formation present.

On the basis of morphology it can not always be decided what the cause of the obstruction is. In presence of an incomplete obstruction knowledge of the material content of the obstructing mass would be of great help in making a choice for a possible nonsurgical removal (e.g. a bezoar formed around a piece of chewing gum can not be solved enzymatically, and possibly active substances in pharmacobezoars should be considered as well).

References

1. Ellaway C, Beasley SW: Bezoar formation and malabsorption secondary to persistent dilatation and dysmotility of the duodenum after repair of proximal jejuna) atresia. *Pediatr Surg Int* 12:190-191, 1997.
2. Escamilla C, Robles CR, Parrilla PP, Lujan MJ, Liron RR, Torralba-Martinet JA: Intestinal obstruction and bezoars. *J Am Coll Surg* 179(3), 285-8, 1994.
3. Frazzini VI, English WJ, Bashist B, Moore E: Small bowel) obstruction due to phytobezoar formation within Meckel diverticulum: CT findings. *J Comput Assist Tomogr* 20(3), 390-392,1996.
4. Manbeck MA, Walter MH, Chen YK: Gastric bezoar formation in a patient with Scleroderma: Endoscopic Removal using the gallstone mechanical lithotripter, *AJG* 91, 1285, 1996.
5. Milov DE, Andres JM, Erhart NA, Bailey DJ: Chewing gum bezoars of the gastrointestinal tract. (Electronic article) *Pediatr* 102(2), e22, 1998.
6. Nomura H, Kitamura T, Takahashi Y: Small bowel] obstruction during enzymatic treatment of gastric bezoar. *Endoscopy* 29(5), 424-6, 1997.
7. Razafimahefa H, Mouterde O, Devaux AM: Esophageal bezoar in a sucralfate-treated child. *Arch Pédiatr*4:656-661, 1997.
8. Réti Gy, Pályi M, Nagy A: Giant "casting" besoir in stomach which can be removed only by surgical intervention. *Orv Hetil* 138(3), 149-151, 1997. (in Hung)
9. Siegel MJ: *Pediatric Sonography*. Raven Press Second Edition 219-221, 1994.
10. Sinzig M, Umschaden HW, Haselbach H, Illing P: Gastric trichobezoar with gastric ulcer: MR findings. *Pediatr Radio]* 28:296, 1998.
11. West WM, Duncan ND: CT appearances of the Rapunzel syndrome: an unusual form of bezoar and gastrointestinal obstruction. *Pediatr Radio)* 28:315, 1998.
12. Yin WY, Lin PW, Huang SM, Lee PC, Lee CC, Chang TW, Yang YJ: Bezoar manifested with digestive and biliary obstruction. *Hepatogastroenterology* 44:1037-45, 1997.

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