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Clinical Case of a Patient with Small Bowel Obstruction and Multiple Diospyrobezoars of the Gastrointestinal Tract

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ABSTRACT Small bowel obstruction (SBO) is 3-4% of all abdominal acute diseases. Small bowel obstruction due to bezoars is rare (2-4%), and is detected mainly in patients with predisposing risk factors: gastrointestinal motility disorders, psychiatric diseases, enzymatic insufficiency, previous bariatric surgery, diabetes mellitus and hypothyroidism complicated by gastroparesis. The leading role in the verification of small bowel obstruction in patients without surgical interventions on the abdominal organs should be given to computed tomography. According to the literature, the mortality from SBO due to bezoar may reach 30%. We present an unusual clinical case of recurrent small bowel obstruction with severe intestinal disease and septic shock induced by multiple phytobezoars and complicated with severe pseudomembranous colitis. Moreover, in our opinion, laparoscopic access can be used both for diagnostic and therapeutic purposes in patients with acute small bowel obstruction.

Keywords: bezoar, diospyrobezoar, laparoscopy, obturation intestinal obstruction, pseudomembranous colitis, intestinal failure

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AIO – acute intestinal obstruction
BP – blood pressure
CRB-C – reactive protein
CT – computed tomography
GIT – gastro-intestinal tract
IAP – intra-abdominal pressure
INR – international normalized ratio
RICU – resuscitation and intensive care unit
WSRS – water-soluble radiopaque substance

INTRODUCTION

Acute intestinal obstruction (AIO) accounts for 3-4% of all urgent diseases of the abdominal organs and occurs in 33-42% of patients who have undergone surgery on the abdominal organs. The most common etiological causes of its development are adhesive disease (64%), as well as strangulation (29%) and obstructive (7%) forms of intestinal obstruction. Among the cases of the latter form, acute small bowel obstruction caused by bezoars of the digestive tract is quite rare (2–4%) and is detected mainly in patients with predisposing risk factors: disorders of gastrointestinal tract (GIT) motility, psychiatric diseases, enzymatic

insufficiency, diabetes mellitus and hypothyroidism, complicated by gastroparesis, bariatric surgery in history [1, 2]. There are four types of bezoars that cause AIO: phytobezoars, trichobezoars, pharmacobezoars, and lactobesoars. Among phytobezoars in the literature, the most often reported are diospyrobezoars formed from persimmon, which contains a large amount of resinous substances (shibuols) that undergo coagulation under the influence of gastric juice and contribute to the adhesion of persimmon parts into a dense mass. Phytobezoars consist mainly of plant material and indigestible fiber of vegetables or fruits, especially persimmons, in which the content of cellulose, lignin and tannin is increased - a monomer that polymerizes in the presence of stomach acid and then acts as a "nucleus" to create a bezoar [3– five]. The rate of bezoar formation depends on their organic nature and, according to many authors, varies from 1–5 days to several years [6–9]. The clinical picture of AIO that has developed as a result of intestinal bezoar is characterized by an intermittent course, which can be explained by changes in the shape and position of the bezoar as it moves through the small intestine. It also depends on the nature, size, weight, localization, age of the bezoar formation and the neuropsychic state of the patient [10]. When collecting anamnesis and clinical examination, small bowel obstruction caused by bezoar is characterized by both general and relatively pathognomonic symptoms of intestinal obstruction, which occur with the following frequency: anamnestic data on the ingestion of persimmons, hawthorn, marmalade - 82.9%, previous operations in the gastroduodenal zone - 54.3%, other surgical interventions on the abdominal organs - 8.6%, accidental swallowing of dentures or teeth - 74.3%, abdominal pain - 65.7%, bloating - 100%, nausea and vomiting - 42.9%, absence of gas and stool discharge - 34.3%, fever - 20%, palpation of a tumor-like formation in the abdominal cavity - 25.7%, symptoms of peritoneal irritation - 25.7% [11].

The leading method of instrumental diagnostics of AIO caused by bezoars is X-ray, including the use of X-ray contrast agents. In particular, according to the literature, a barium is used to determine the number and size of foreign bodies in the stomach and small intestine. X-ray of the stomach reveals a filling defect of a round or oval shape. Most bezoars of various shapes and sizes shift when the patient's body position changes. In some cases, if the bezoar is tightly attached to the mucous membrane and does not move, a differential diagnosis with a stomach tumor is required. In case of bezoars displaced into the intestine and causing AIO, a violation of the passage, a radiopaque substance is determined, and filling defects in the intestinal lumen of an oval shape, which more often have a reticular structure, are detected [12-14]. In 18% of patients with phytobezoars, a typical picture of the formation with clear contours and the presence of variegated inclusions of gas due to the presence of trapped air inside it is determined by conventional radiography of the abdominal cavity [15].

In the literature, there are rare publications on the usefulness of the routine use of ultrasound in the diagnosis of intestinal bezoar, since it is possible to visualize images characteristic of other pathological conditions. Coprolite in the intestine on ultrasound can simulate an image of a bezoar, but on computed tomography (CT) it corresponds to gas bubbles in solid particles arranged in an elongated shape of greater length and less compact nature than bezoars. A typical picture of a bezoar according to ultrasound data is an oval-shaped intraluminal hypoechoic structure surrounded by a hyperechoic border with a pronounced acoustic shadow [16–18].

In a number of publications for the diagnosis of gastrointestinal bezoars in the presence of small bowel obstruction without previous surgical interventions on the abdominal organs, the use of the CT method is presented. At the same time, it is possible to visualize the bezoar as an intraluminal mass in the obturated segment of the intestine. The mass can also look "mottled" due to the presence of air inside it. A characteristic feature of bezoars is also dense inclusions of indigestible fiber (plant seeds). This method can detect several bezoars, their boundaries. Computed tomography allows visualization of the degree of obstruction and accurately identifies existing ischemia of the bowel wall, the state of arterial blood flow, or possible alternative bowel disease. The sensitivity and specificity of the method, according to various data, are 73–95% and 65–100%, respectively [12, 13, 19–20].

Many different treatment options for bezoar AIO have been described in the literature. To reduce the size of phytobezoars, preparations of cellulase and papain enzymes are used [12]. Researchers in Japan claim that carbonated drinks like Coca-Cola are 91.3% effective in dissolving phytobezoars. Other treatment options include the use of pharmacological drugs: parenteral administration of metoclopramide and N-acetylcysteine. Endoscopic methods are effectively used for bezoars located in the stomach and duodenum. To facilitate extraction, the bezoar is fragmented into smaller pieces using a mechanical lithotripter or endoplastic loop. When the bezoar is located in the small intestine, the surgical method of treatment (including minimally invasive one) is effective in 98.3% of cases. Also, the surgical method has no alternative in case of symptoms of AIO or bowel perforation [3, 21–26]. Laparoscopic approach in case of bezoar obstruction is accompanied by all the well-known advantages of the method in comparison with open surgery [27].

With long-term presence of bezoar in the gastrointestinal tract, various rather severe complications may occur. The most common of these is bleeding from the ulcerated gastric mucosa. Rare complications are: migration of the bezoar into the intestine with obstruction of the small intestine and the development of AIO, necrosis and perforation of the wall of the stomach or intestine with the development of peritonitis. Recurrences of AIO are characteristic of trichobezoars and are found mainly in individuals with certain mental disorders; they are practically not described in the literature [19].

According to the literature mortality in AIO caused by bezoar can reach 30% [28, 29]. We report an unusual clinical case of recurrent small bowel obstruction with severe intestinal insufficiency and outcome in septic shock caused by multiple phytobezoars and aggravated by severe pseudomembranous colitis.

The aim of study: to analyze the modern possibilities of diagnosis and differential diagnosis of small bowel obstruction caused by phytobezoar on the basis of a comprehensive analysis of clinical observation.

Clinical case

Patient G., 27 years old, was admitted to the N.V. Sklifosovsky Research Institute, 34 hours after the onset of the disease with complaints of delayed stool and gas discharge, bloating, cramping pain in all parts of the abdomen, a feeling of nausea, and increasing general weakness. The day before, for several days, the patient ate only persimmons (the patient is a fruitarian, consumes up to 15 persimmons per day). However, after admission to the emergency department and hospitalization in the surgical department, the patient categorically denied eating potentially hazardous foods. The history was clarified only after surgery, when the same question was asked again, which was an important anamnestic fact. The patient has not previously undergone surgical interventions on the abdominal organs. She denied inpatient treatment or follow-up by outpatient specialists. When examined in the emergency department, the patient's condition was moderate. Tongue dry, coated with white bloom. Pulse - 82 beats / min, blood pressure (BP) - 120/70 mm Hg. The abdomen was distended, tense, painful on palpation in the mesogastric and hypogastric regions, more on the left. Peritoneal symptoms were negative. Peristaltic noises were heard, single, attenuated. There was "splash noise" (a positive symptom of Sklyarov). Rectal examination: sphincter tone was preserved, no pathology was detected at the

height of the finger, the rectal ampulla was empty. Laboratory indicators upon admission: leukocytosis - 15.4 10^9 / l, hemoglobin - 132 g / l, hematocrit - 41.2%, platelets - 156 10^9 / l; total protein - 72.13 g / l, albumin - 42.87 g / l, creatinine - 71.46 μmol / l; urea - 5.91 mmol / l, total bilirubin - 11.20 mmol / l, glucose - 4.86 mmol / l; coagulogram: international normalized ratio (INR) - 1.01, prothrombin index according to Quick - 98.0%. X-ray examination of the chest in the lungs did not reveal any pathology. On the x-ray of the abdominal cavity free gas was not detected; the stomachwas swollen, with a horizontal level of fluid; the loops of the small intestine were pneumatized, mainly on the right and left in the mesogastrium - with the presence of horizontal levels of fluid in the lumen and the formation of bowls and gentle arches, the intestinal loops were dilated in diameter up to 4 cm; there was a small amount of content in the right sections of the colon. Conclusion: signs of small bowel obstruction. Ultrasound examination of the abdominal cavity: the presence of interstitial fluid, free fluid in the abdominal cavity - up to 0.6-0.7 cm, the contents were anechoic; signs of small bowel obstruction (the loops of the small intestine in all sections were 3.0 cm, the wall was 0.5 cm with visualization of Kerkring's folds, peristalsis was not observed, pendulum movement of intestinal contents was determined; a moderate amount of heterogeneous contents in the stomach) (Fig. 1)

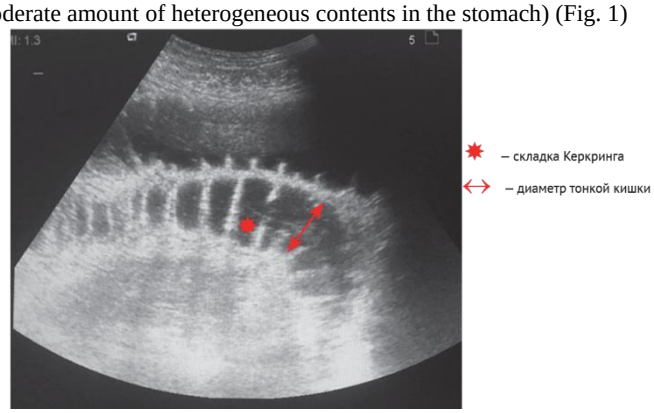

Fig. 1. Ultrasonogram of the abdominal cavity of patient G. Conclusion: signs of small bowel obstruction

Considering the clinical, instrumental and laboratory data upon admission, we could not exclude acute small bowel obstruction. The patient was admitted to the surgical department for follow-up and conservative treatment - nasogastric intubation for gastric lavage and decompression, infusion and spasmolytic therapy. A cleansing enema was performed - without a positive effect. After 2 hours from the start of treatment, the patient's condition worsened - there was an increase in pain syndrome, an increase in the phenomena of intoxication. A control X-ray study was performed - the signs of small bowel obstruction remained without significant dynamics. It was decided to perform a study of the passage of a water-soluble X-ray contrast substance - WSCS (omnipack) in the gastrointestinal tract according to the method adopted at the Institute. X-ray examination after 4 hours from the beginning of the passage: the bulk of the contrast remains in the stomach; loops of the small intestine with fluid levels, the contrast agent has advanced to the level of the sacroiliac joint on the right. The diameter of the small intestine loops is up to 3.6 cm. Retrospective assessment of radiographs (after analysis of the initial picture at the time of hospitalization) revealed the presence of foreign bodies in the stomach on primary radiographic images that were not properly interpreted (Fig. 2)

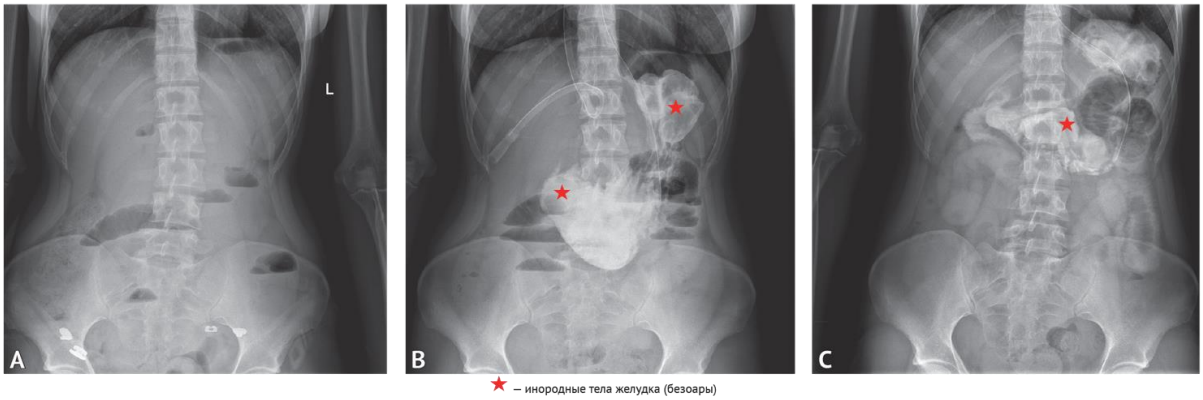

Fig. 2. Plan X-ray image of the abdominal organs (A); B — the beginning of the study of the passage of a water-soluble X-ray contrast agent along the gastrointestinal tract; C — 4 hours after the beginning of the study

Laboratory indicators in dynamics after 6 hours: leukocytosis - 14.15 · 10^9 / l with a shift in the leukocyte formula to myelocytes - 1%; lymphocytes - 7%, platelets - 272.0 10^9 / l, hemoglobin - 135 g / l, hematocrit - 39.0%. Taking into account the negative clinical picture and violation of the timing of the passage of the WSCS in the gastrointestinal tract, indications for emergency surgery were established. Diagnostic laparoscopy was performed. During revision, the stomach was moderately stretched with contents; at a distance of 2.5 m proximal to the ileocecal junction, an intraluminal formation of soft elastic consistency was visualized, obstructing the lumen of the small intestine, partially displaced during instrumental traction, which was verified as bezoar. Distal to the area of the obstacle, the small intestine is in a collapsed state, proximally, it is expanded to 4 cm in diameter, the intestinal wall is edematous, hyperemic, multiple lymph nodes are determined at the root of the mesentery, enlarged to 1.5 cm in diameter. Inter-loop moderate amount of serous effusion, the parietal peritoneum is not changed. A laparoscopic stomach revision was performed for the presence of multiple bezoars - no convincing evidence for their presence was obtained. An attempt was made to laparoscopically lower the bezoar into the large intestine, without effect: swelling of the walls of the small intestine, contact bleeding, and high density of the bezoar posed a high risk of iatrogenic damage. In view of the low displacement of the bezoar, it was decided to perform an oblique variable mini-laparotomic approach in the right ileal region, 8.0 cm long. From the

latter, the small intestine was extraperitonized, revised, the bezoar was manually fragmented and lowered into the large intestine. The abdominal cavity was drained. The wounds were sutured. The postoperative period was uneventful: after surgery, the patient was transferred to the surgical department, where she was activated in the first 2 hours. Normothermia was observed, the patient lost gas, had a single stool. The patient was discharged home in satisfactory condition on the 2nd day after surgery. Two days after the discharge from the hospital and 4 days after surgery, the patient was admitted to the N.V. Sklifosovsky Research Institute for Emergency Medicine again less than 24 hours after the onset of new symptoms. She complained of cramping pains in all parts of the abdomen, nausea, bloating and general weakness. These symptoms appeared 12-24 hours after discharge from the hospital after taking a minimum amount of liquid food. Later, there was liquid stool, gases left. However, due to the deterioration of the general condition, the persistence of the pain syndrome, she independently turned to the emergency department for help. On admission, the condition was moderate. BP - 90/60 mm Hg, heart rate - 116 beats / min. Tongue dry, coated with a whitish bloom. Body temperature - 38.5 ° C. The abdomen was swollen, soft, painful on palpation in all parts. Symptoms of peritoneal irritation were negative. Peristaltic noises were heard, single, sluggish. The "splash noise" was determined. There was loose stool 2 hours before treatment. X-ray examination of the abdominal cavity revealed no free gas in the abdominal cavity. The stomach was moderately distended. Pneumatic loops of the small intestine on the left in the mesogastrium with horizontal fluid levels with the formation of bowls and arches up to 4 cm in diameter with slight swelling of the mucous folds. In the colon, gas and contents were absent. Conclusion: X-ray signs of acute small bowel obstruction. Ultrasound examination of the abdominal cavity: separation of the layers of the peritoneum under the liver - up to 5 mm, interlocking - up to 6 mm and in the pelvic cavity up to 15 mm; the loops of the small intestine are expanded to 4 cm, the wall thickness is 0.3–0.4 cm, the peristalsis was pendulum, the contents were heterogeneous, and there was free fluid in the abdominal cavity. Conclusion: signs of small bowel obstruction (Fig. 3)

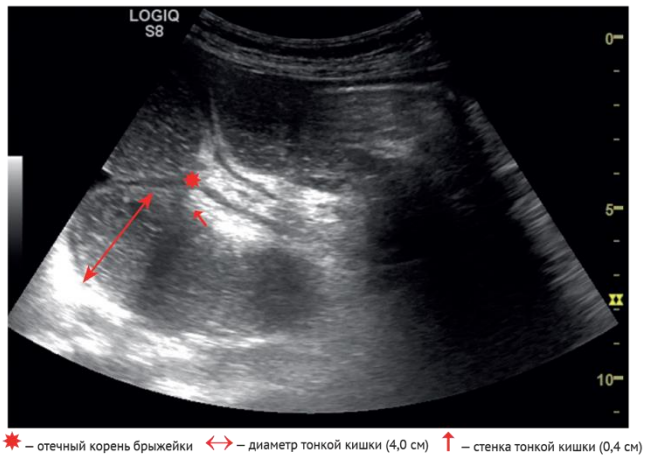

Fig. 3. Ultrasonogram of patient G. with small bowel obstruction upon repeated admission

Laboratory indicators upon admission: leukocytosis 19.9 10^9 / l, hemoglobin - 134 g / l, hematocrit - 39.8%, platelets - 241.0 10^9 / l; total protein - 46.0 g / l, albumin - 20.8 g / l, creatinine - 94.84 μmol / l; urea - 5.3 mmol / l, total bilirubin - 15.9 mmol / l; coagulogram: INR - 2.75, prothrombin index according to Quick - 35.9%, activated partial thromboplastin time and prothrombin time - no coagulation. After excluding the indications for emergency surgery, the patient was admitted to the surgical department, where she underwent conservative treatment with simultaneous examination of the passage of the WSCS (urografin) along the gastrointestinal tract. During treatment, the clinical picture without significant improvement. After 8 hours from the start of therapy, X-ray control showed signs of small bowel obstruction without significant dynamics compared to previous radiographs, there were multiple pneumatized loops of the small intestine, more on the right, up to 3.0 cm in diameter, with multiple horizontal fluid levels in the lumen, with the formation of small bowel arches and bowls, more on the right, with swelling of the folds of the mucous membrane, with a decrease in the tone of the loops. The large intestine practically did not contain gas (Fig. 4).

Fig. 4. Plan X-ray of the abdominal organs (A); B — at the beginning of the study of the passage of a water-soluble contrast agent along the gastrointestinal tract; C — 4 hours after the start of the study

Laboratory indicators in dynamics: leukocytosis - 12.97 x10^9 / l with a shift to myelocytes - 1% and metamyelocytes - 2%, stab neutrophils - 28%, segmented neutrophils - 62%; lymphocytes - 2%, hemoglobin - 152 g / l, hematocrit - 43.0%, platelets - 342.010^9 / l. Given the lack of clinical effect of treatment and the negative instrumental picture, indications for emergency surgery were established. Diagnostic laparoscopy was performed. During revision in the abdominal cavity, serous effusion between the loops

and in the pelvic region, the visceroparietal peritoneum was not hyperemic. The loops of the small intestine are moderately and evenly widened throughout their length up to 4 cm in diameter, hyperemic, edematous, infiltrated, which made it difficult to revise the small intestine (contact bleeding, desserosis during traction). At the root of the mesentery of the small intestine, multiple enlarged hyperemic lymph nodes - up to 1.5 cm in diameter were detected. During revision at a distance of 1 m from the ileocecal junction, a bezoar is determined that completely obstructs the lumen of the small intestine. Distal to this site the small intestine was collapsed. Further examination revealed two more bezoars located at a distance of 50 cm and 1 m, respectively, proximal to the obturation zone. Given the high risk of iatrogenic complications, a mini-laparotomic approach was performed in the right iliac region at the site of the earlier incision. The bezoars were manually fragmented and brought down into the large intestine. Intraoperatively endoscopically, a silicone two-channel non-absorbable nasointestinal probe with a diameter of 25 mm was inserted into the small intestine, which was inserted at a distance of 40 cm behind the duodenojejunal junction. About 1 liter of intestinal contents and gas were evacuated through the probe. The abdominal cavity is drained. The wounds were sutured in layers. After the operation, the patient in serious condition was transferred to the intensive care unit (RICU), upon admission to which the severity of the patient's condition was 9 points on the APACHE II scale. In the RICU, antibiotic therapy was continued (perioperatively, 2.0 ceftriaxone and 500 mg of metronidazole were administered intravenously), intensive infusion and antispasmodic therapy was started. In the early postoperative period, the patient's condition with negative dynamics: hyperthermia up to 38.5 ° C, an increase in lactate level up to 7.1 mmol / L, unstable hemodynamics was maintained by the introduction of norepinephrine at a rate of 1.2–1.5 μg / kg / min. Echocardiography revealed signs of a decrease in the total contractility of the left ventricular myocardium, impaired contractility of the anterior wall, interventricular septum, ejection fraction 35-37 Tx-, revealed dissociation of pericardial sheets in diastole to 0.7-0.8 cm. troponin level up to 2.2 μg / l by the 3rd postoperative day. The electrocardiogram showed a slight single rise of the ST segment in leads I, II, aVL, V2 – V6. She was consulted by a cardiologist - no convincing data for acute myocardial infarction were obtained, the clinical picture is due to acute myocarditis with the formation of systolic dysfunction of the left ventricle. From the first postoperative day, the patient had abundant repeated stools. Violations of water and electrolyte balance with a decrease in serum levels of potassium and ionized calcium. The patient underwent sessions of selective sorption of lipopolysaccharides - 5 hours and prolonged veno-venous hemofiltration lasting 11 hours. Substitutional immunotherapy was added to the therapy - human immunoglobulin 100 ml every other day - 2 days. Dopamine was added to vasopressor support - 8–10 mcg / kg / min. Against the background of the therapy, an increase in intoxication syndrome was noted: leukocytosis increased to 19.9 x 10^9 / L with a shift to young forms of stab neutrophils - 46%, segmented neutrophils - 32%, procalcitonin - 10.5 ng / ml, C-reactive protein (CRP) - 255 mg / l, lactate - 10.4 mmol / l, lymphopenia - up to 2%. The dynamics of all described laboratory parameters is shown in Fig. 5.

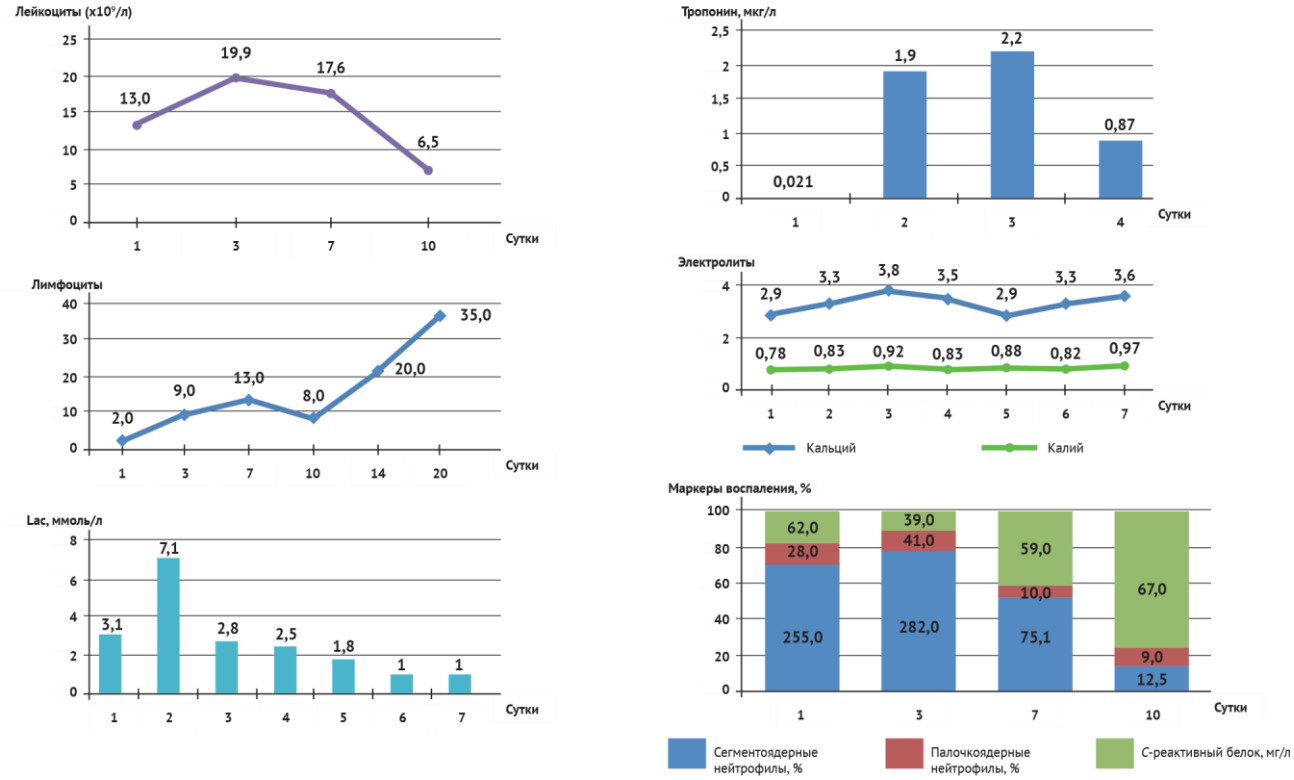

Fig. 5. The dynamics of the main laboratory parameters of patient G. in the postoperative period in the intensive care unit

The severity of the patient's condition on the APACHE II scale was 10 points, on the SOFA scale - 1 point. Against the background of the treatment, positive dynamics was noted, the content of CRP in dynamics decreased to 141 mg / l on the 3rd day, to 75.1 mg / l on the 5th day and to 12.5 mg / l on the 7th day after surgery. X-ray examination of the abdominal cavity in dynamics revealed multiple pneumatized loops of the small intestine, more on the right, up to 3.0 cm in diameter, with multiple horizontal fluid levels in the lumen, with the formation of small bowel arches and bowls, more on the right, with swelling of the folds of the mucous membrane, with a decrease the tone of the loops. The large intestine practically did not contain gas (Fig. 6, 7)

Fig. 6. Plan X-ray of the abdominal cavity of patient G. — signs of small bowel obstruction

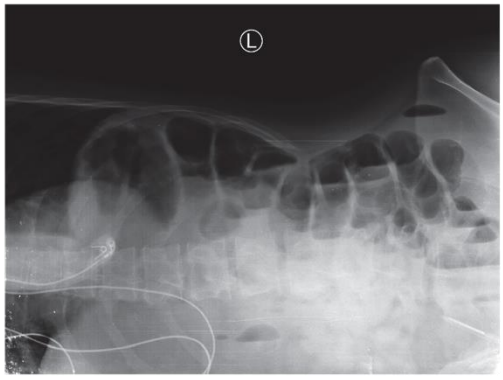

Fig. 7. Lateral X-ray of the abdominal cavity of patient G. — signs of small bowel obstruction

Ultrasound showed in dynamics the loops of the small intestine in the right abdominal cavity with a diameter of 2.4–2.7 cm, the thickness of the intestinal wall was 4–5 mm, the mucous membrane was thickened, increased echogenicity, hypoechoic fluid content in the lumen, no active peristalsis was noted. On the left, the loop of the small intestine is 2.5–3.0 cm in diameter, the wall thickness is 3-4 mm, the folds were high, in the lumen there was a liquid content and gas with a pendulum movement of intestinal contents. The colon was enlarged in the right sections, 4.5 cm in diameter, wall thickness - 3 mm, increased echogenicity, in the lumen there was a heterogeneous liquid and dense contents. The descending section with a diameter of 2.5-3.5 cm with liquid content, the sigmoid colon and rectosigmoid section were dilated - uneven expansion of the lumen from 2.5 to 5.5 cm of the wall, 3 mm in the lumen of the liquid content (Fig. 8).

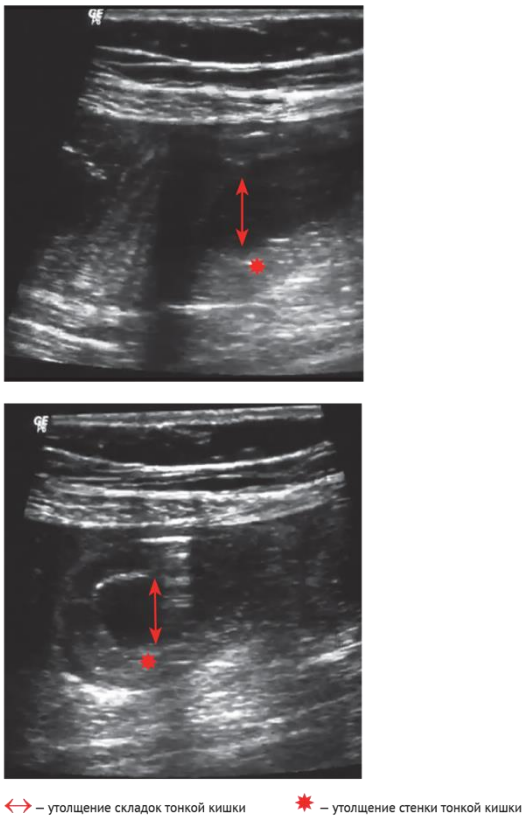

Fig. 8. Ultrasonogram of the abdominal cavity of patient G. — signs of small bowel obstruction

Deterioration of the general condition, instability of hemodynamics, water-electrolyte disturbances and an increase in symptoms of intoxication were caused by the progressive syndrome of intestinal insufficiency, which developed against the background of small bowel obstruction. Violation of motility and evacuation function of the intestine, inhibition of absorption led to the accumulation of fluid and gas in the lumen of the intestine. All these factors caused the stretching of the loops of the small intestine, which was confirmed by instrumental methods. The progressive stretching of the bowel loops led to an increase in intra-abdominal pressure (IAP). On the 2nd day of the postoperative period, the patient had IAP 19 mm Hg, which corresponds to the II degree of intra-abdominal hypertension according to the scale proposed by the World Society for the Study of Intra-abdominal Hypertension. To restore the motor-evacuation function of the intestine and to relieve the syndrome of intestinal insufficiency, the introduction of saline electrolyte solution into the nasointestinal probe in a volume of 500 to 1500 ml per day at a rate of 6-10 ml / min and an intestinal solution in a volume of 500 ml with 1 and for 3 days inclusive. On the 3rd day, a study of the passage of the WSCS through the gastrointestinal tract was carried out, the passage was traced to the colon. After that, the nasointestinal probe was removed. From 4 to 8 days after the operation, the patient received the bactericidal pectin enterosorbent "Pektovit", one sachet 3 times a day. Despite the ongoing intensive therapy, there was no positive dynamics in the stabilization of blood pressure, on the basis of which the patient was consulted by an endocrinologist, a septic lesion of the adrenal glands with the development of relative acute adrenal insufficiency was revealed. After that, the drug "Kortineff" was prescribed at a dosage of 0.1 mg once a day in the morning. Three days later no stabilization of blood pressure was observed, and therefore the dosage of the drug was increased to 0.2 mg. On the 8^{th} day from the beginning of the substitution therapy, it was possible to cancel the administration of norepinephrine, by the 10^{th} day, the restoration of stable hemodynamics was noted. Subsequently, under the supervision of an endocrinologist, the therapy was corrected until the complete cancellation of Kortineff 1 month after discharge. On the 5^{th} day after the operation, the patient showed signs of severe pseudomembranous colitis: frequent loose stools - up to 10-12 times a day, leukocytosis - 20.9 x 10^9 / l, hyperthermia - up to 39 ° C. With ultrasound of the abdominal cavity: free fluid in the abdominal cavity (dissociation of the peritoneal layers under the liver - 1.5-4.0 cm, in the right lateral canal - 0.8-1.4 cm, in the small pelvis - 2.5-5, 0 cm, on the left in the lateral canal - 2.7 cm in the form of anechoic zones), impaired motor-evacuation function of the gastrointestinal tract, stagnant gallbladder, inflammatory changes in the walls of the colon (the colon in the right sections with a diameter of 3.7 cm, a wall up to 1 cm, increased echogenicity, heterogeneous liquid content in the lumen. The transverse colon is pneumatized, the descending and rectosigmoid sections with edematous walls, in the rectosigmoid section of the wall 1.0 cm thick, in the lumen there is liquid heterogeneous content). According to CT scan of the abdominal organs with intravenous bolus enhancement and oral preparation: signs of free fluid in the abdominal cavity under the diaphragm on both sides, around the liver and spleen, along the lateral canals and between the loops of the small intestine, spreading into the small pelvis; diffuse thickening of the walls of the colon to liquid values was determined, the walls of the colon are uneven, the lumen was unevenly expanded; pronounced pneumatization of the loops of the large and small intestine with the formation of fluid levels, the loops of the small intestine are unevenly expanded. Conclusion: signs of ascites, colitis, paracolitis on both sides in the area of the ascending and descending colon (Fig. 9).

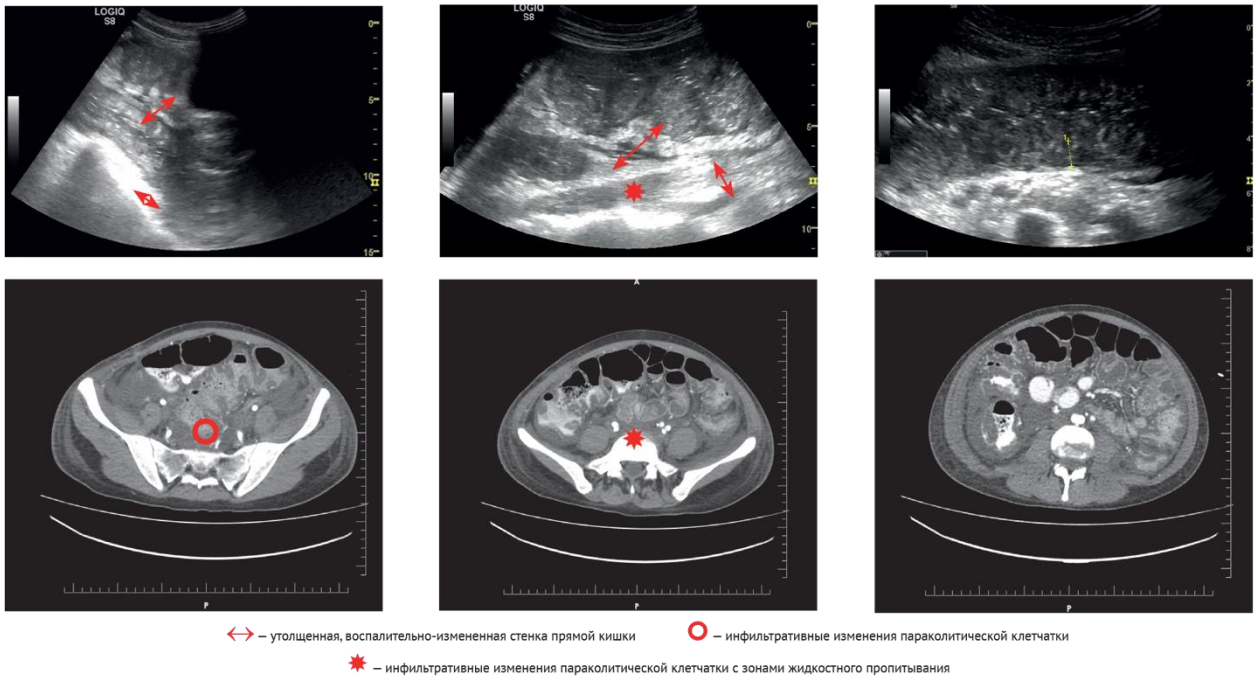

Fig. 9. Ultrasonograms and CT images of abdominal organs of patient G. — signs of severe pseudomembranous colitis

The feces were analyzed for C. Difficile toxins - positive toxins A and B were determined. Etiotropic antibacterial therapy with vancomycin was started at a dosage of 500 mg 4 times a day orally for 10 days. Sorbents based on dioctahedral smectite were also used for 3 days, and to replenish protein losses - intravenous administration of a 20% albumin solution, 50 ml 2 times a day for 3 days. At the same time, there was a decrease in the level of total protein to 45.0 g / l and albumin to 20.6 g / l, as well as an increase in ascites, bilateral hydrothorax, edema and pastiness of the extremities, anterior abdominal wall. Adequate replenishment of protein and electrolyte losses made it possible to conservatively eliminate hydrothorax, and early activation of the patient, physiotherapy sessions, alkaline inhalations and postural drainage prevented the development of nosocomial bilateral pneumonia against the background of hypoventilation. On the 12th day after the operation and stabilization of the condition, the patient was transferred to the hospital department, where she continued conservative treatment. The patient was discharged on the 24th day after surgery in a satisfactory condition.

CONCLUSION

Having analyzed this clinical case, we believe that for the differential diagnosis of small bowel obstruction caused by phytobezoar, a complex examination with X-ray, ultrasound, endoscopic research methods, as well as computed tomography, is necessary. According to the literature, in the verification of small bowel obstruction in patients without surgical interventions on the abdominal organs, denying the history of the use of potentially dangerous products, computed tomography of the abdominal organs is preferable. The literature describes cases of verification of small intestine bezoars according to ultrasonography data, but it is noteworthy that in our observation, according to its results, only nonspecific signs of intestinal obstruction were revealed. Also, ultrasound is used for dynamic monitoring of the state of the small and large intestine against the background of therapy in the postoperative period. X-ray examination with a contrast agent allows to identify a filling defect and to suspect the presence of foreign bodies in the gastrointestinal tract. We consider it necessary to routinely perform esophagogastroduodenoscopy in the presence of a history of the use of potentially dangerous products and / or the presence of aggravating factors for the formation of bezoar. This is due to the fact that the presence of proximal unformed phytobezoars is possible, which in the early postoperative period can cause recurrence of small bowel obstruction. The laparoscopic approach can be used both for diagnostic and therapeutic purposes in patients with acute bezoar small bowel obstruction.

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