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GASTRIC BEZOAR AND SUBSEQUENT BLEEDING IN A 73-YEAR OLD WOMAN – CASE REPORT

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ABSTRACT

Bezoar is a mass of swallowed foreign material most often composed of hair or fiber. Commonly, bezoars occur in young women with a history of psychiatric disorders, especially trichotillomania and trichophagia. Diagnostically, gastroscopy remains the gold standard. Prevalence is low, affecting up to 0.4% of the general population. Bezoars can lead to ulcer formation and hemorrhagic complications. Literature describes various treatment options, including endoscopic, laparoscopic and open surgical approaches. Psychiatric consultation and follow up are crucial for recurrence prevention.

A 73-year old woman with a history of gastric ulcers and depression was urgently admitted to general surgery ward due to fatigue, abdominal pain and a suspicion of gastrointestinal hemorrhage. Outpatient gastroscopy revealed extensive ulceration of the posterior wall of the stomach, a large bezoar and pyloric stenosis. On admission, patient was severely anemic. Endoscopic haemostasis proved unfeasible due to the large bezoar. After initial stabilization, operative treatment was recommended. Laparotomy was performed revealing thickening on the posterior wall of the stomach, stenosis of the duodenum and a large diverticulum on the anterior wall of the descending part of the duodenum. Subtotal gastrectomy and diverticulum resection was performed. Restoration of gastrointestinal continuity was carried out using the Roux-en-Y method. Examination of the specimen confirmed the presence of a four centimeter bezoar and a three centimeter gastric ulcer. Post-surgery period was complicated by pneumonia and peripheral pulmonary embolism. Patient was discharged after treatment in good general and local condition after fifteen days since admission.

Despite being rare, bezoars occur and should be taken into consideration during differential diagnosis of gastric symptoms and dyspepsia, even in the elderly population, especially with a history of psychiatric disorders. Bezoars can prevent endoscopic treatment of gastric hemorrhage and force surgeons to perform extensive surgical resections.

KEYWORDS

Bezoar, Surgical Treatment, Subsequent Bleeding, Depression, Complications

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Introduction

Bezoar is a mass of swallowed foreign bodies, most often consisting of hair or plant fibers, which accumulates in the stomach but can pass through the pylorus into the duodenum, jejunum, and even the large intestine. It is a relatively rare condition, and authors of scientific publications estimate the lifetime risk of developing a bezoar at 0.4–0.6%. [1,2,3,4,6,7] Risk factors include previous stomach surgery, including vagotomy, neurological, psychiatric, endocrine, or other disorders that lead to abnormal stomach function or impaired gastrointestinal motility, including diabetes, hypothyroidism, or stomach cancer.

The literature distinguishes several types of bezoars depending on their composition. The most common are plant bezoars, composed of plant fibers. Other types of bezoars include milk bezoars, composed of undigested dairy products and found mainly in infants, pharmacological bezoars, composed of undigested drugs and medical products or enteral nutrition preparations, and hair bezoars. [8,9] The latter condition often occurs in young women with a history of mental disorders, especially trichotillomania and trichophagia, which involve the urge to pull out and eat one's own hair, respectively. [1,2,3,4,5,6,7].

According to earlier reports, approximately 10–20% of people with trichotillomania also suffer from trichophagia. Trichophagia and trichotillomania (impulsive hair pulling) are compulsive disorders and co-occur with psychopathological symptoms: anxiety disorders, depression, obsessive-compulsive disorders, pica, and anorexia nervosa, but no study has systematically analyzed the co-occurrence of mental disorders in patients with trichobezoar. Case reports show that trichobezoar often co-occurs with psychosocial disorders and coexisting anxiety, depression, or adjustment problems. [1,2,3,4,5,6,7]

Human hair is resistant to digestion and movement by gastric peristalsis due to its smooth surface and accumulates together with mucus and food in the folds of the gastric mucosa, forming a trichobezoar. This

condition remains difficult to diagnose in its early stages due to its nonspecific symptoms and can spread to the intestine over time, creating a condition called Raspunzel syndrome. [4]

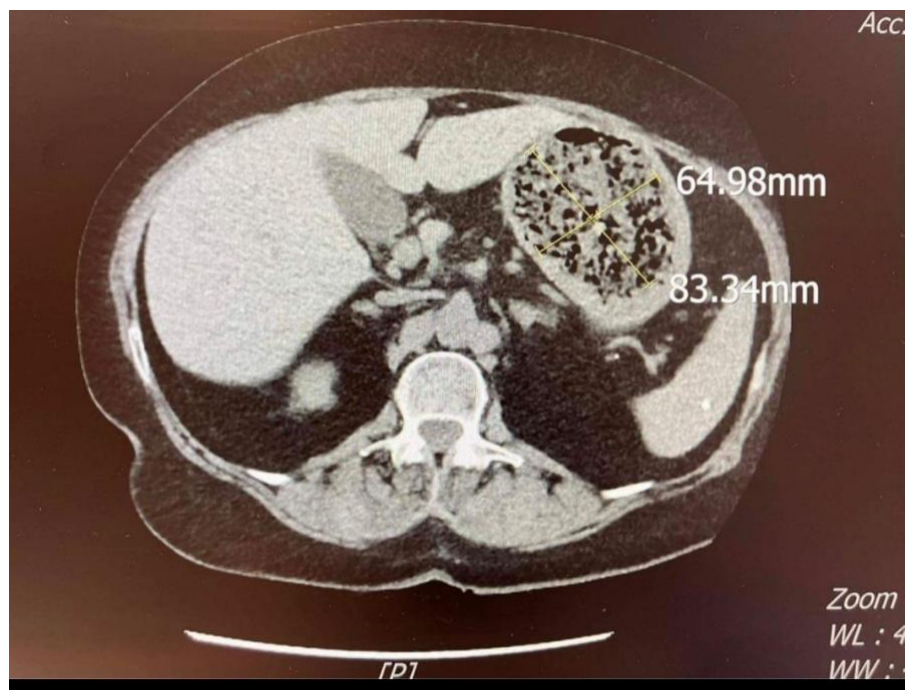
Bezoars are often asymptomatic, but they can also cause nonspecific symptoms such as abdominal pain or discomfort, nausea, vomiting, early satiety, dysphagia, anorexia, and unintentional weight loss. [1,3,5,6,7] In terms of diagnosis, gastroscopy remains the gold standard, as other imaging methods, such as abdominal computed tomography or ultrasonography, are ineffective in distinguishing bezoars from normal stomach contents. As shown in the presented study, they are often seen in diagnostic imaging as a form of tumor or foreign body. Upper gastrointestinal endoscopy can additionally detect gastric ulcers or gastrointestinal bleeding, which are among the complications of this disease. Other complications include malnutrition, intestinal obstruction, and gastrointestinal perforation. [10] There are several forms of treatment for patients suffering from bezoars, which can be divided into conservative, endoscopic, and surgical treatments. Enzymes such as cellulase or papain can be used to chemically dissolve the mass, and prokinetics can be used to treat gastric motility disorders, but conservative treatment is a form of adjunctive treatment to surgical treatment and is reserved for specific cases [3,5,6,7]. Endoscopic treatment includes fragmentation and removal of the bezoar, but also hemostasis in case of hemorrhagic complications. In some cases, laparoscopy or open surgery is necessary, mainly in patients with perforation or intestinal obstruction, but also in cases of massive hemorrhage. [10]

Psychiatric consultations and follow-up are crucial for preventing relapses in patients with underlying mental disorders. This paper presents a rare case of complications of depressive disorders in a 73-year-old female patient presenting with severe complications of untreated depression and trichotillomania, namely the presence of a gastric bezoar and related complications, which led to the need for extensive surgery. This is a unique tool for clinicians in the daily assessment of patients suffering from gastrointestinal disorders and serves as a reminder of this rare disease, which is not always easy to diagnose at first glance.

Case Report

This paper presents the case of a 73-year-old female patient who initially visited her primary care physician and was referred to the emergency department due to diffuse, severe abdominal pain. The patient's medical history revealed untreated gastric and duodenal ulcer disease and depression. Probably due to her poor mental state, the patient deliberately did not take medication to inhibit the development of peptic ulcer disease, which caused the disease to progress quite rapidly. The patient's physical examination showed no peritoneal signs, her abdomen was soft and painless, and there were no indications for urgent surgical intervention, which led to a preliminary diagnosis in the emergency department. During her stay, the patient was consulted by a surgeon and underwent imaging and laboratory diagnostics.

The patient's initial diagnosis included basic laboratory tests, which revealed anemia, reduced kidney function, and significantly elevated inflammation parameters. The patient's medical history revealed that prior to admission to the emergency department, she had undergone imaging tests, including abdominal computed tomography (due to suspected diverticulitis or exacerbation of peptic ulcer disease) and gastroscopy. The following images show a fragment of the computed tomography scan showing the condition of the patient's abdomen at that time. (Fig. 1 a, b)

*Fig.1a**Fig.1b*

The examination was performed without intravenous administration of contrast medium. The examination report shows minor diverticula of the sigmoid colon without any reactive changes in their surroundings. During the examination, attention was drawn to the presence of gastric contents filling the lumen of the stomach, which raised diagnostic concerns. Due to the incomplete diagnostic picture and the symptoms described by the patient, she was referred for upper gastrointestinal endoscopy.

The upper gastrointestinal endoscopy was performed to assess the condition of the gastric and duodenal ulcer, for which the patient had been receiving treatment for some time, and to evaluate the stomach contents and the mass filling its lumen found on CT scan (Fig. 2a, 2b). A potential exacerbation of the disease process

could correspond to the symptoms of abdominal pain described by the patient and visible during the physical examination. During the examination, fragments of the gastric mucosa were taken from the edges of the ulcer.

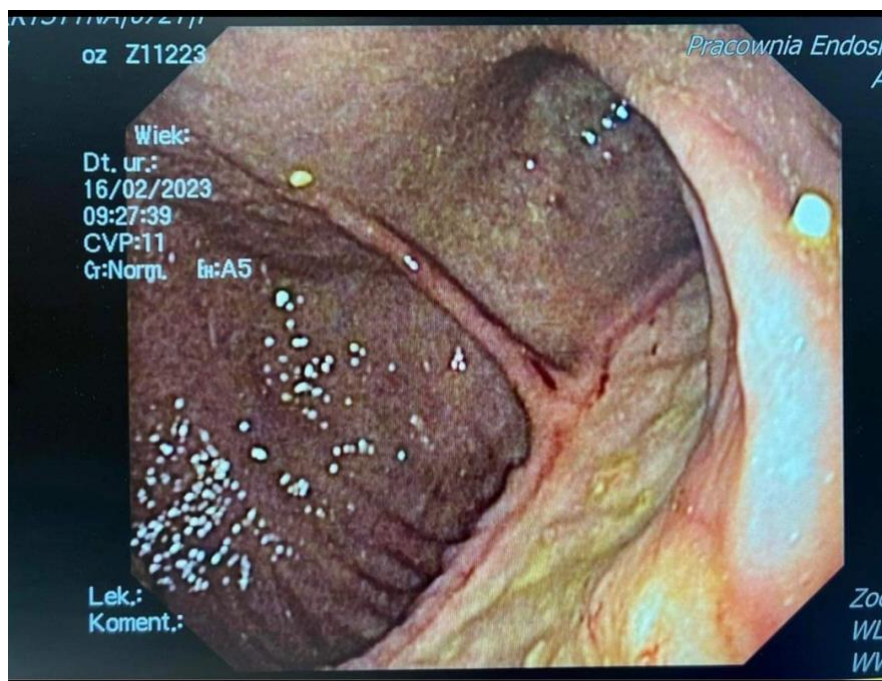


Fig.2a Extensive pyloric ulceration with pyloric oedema

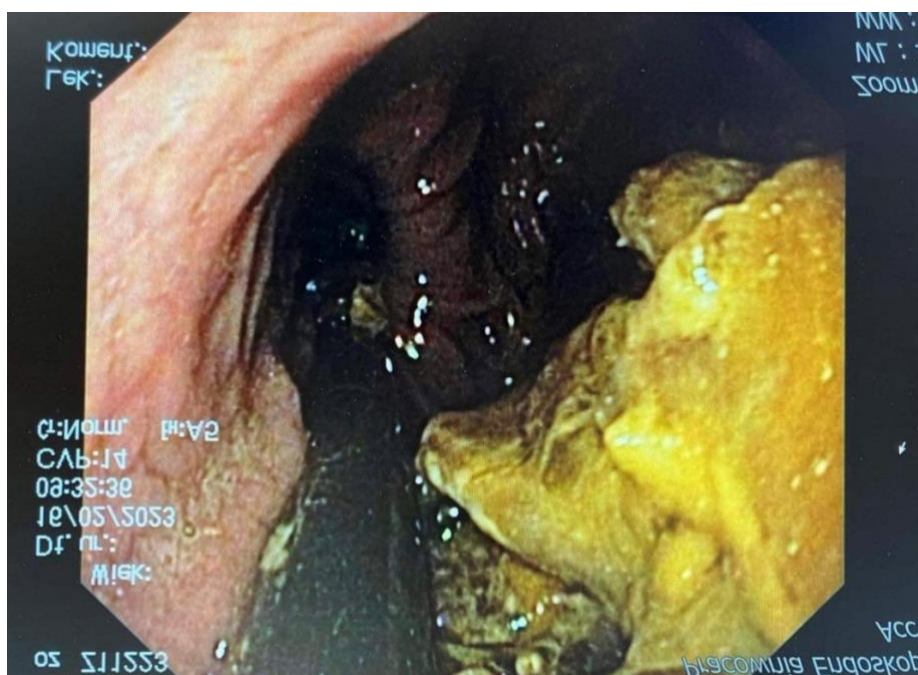




Fig.2b&c Endoscope inversion and initial bezoar image

The examination report noted the presence of a large bezoar in the stomach. A large ulcer measuring approximately 3 x 8 cm was visible on the posterior wall of the stomach, extending from the pylorus to 1/3 of the body of the stomach. (Fig. 2a) It was impossible to proceed to the duodenum and assess the body of the stomach due to the presence of a huge bezoar, which obstructed visibility and the passage of the gastroscope. (Fig. 2b&c) In addition, the examination revealed pyloric stenosis and a hiatal hernia with retention of contents. During the endoscopic examination, esophageal metaplasia (ESEM) was suspected.

The patient underwent a surgical consultation. The consultation revealed that there was no need for urgent surgical intervention due to the patient's relatively good general condition and the absence of symptoms of acute surgical conditions in the abdominal cavity. The presence of a large gastric ulcer, suspected to be cancerous, with a large bezoar detected during upper gastrointestinal endoscopy, resulted in the patient being referred to a surgical outpatient clinic at a higher referral center.

After about a week, the patient reported to the general surgery clinic of the University Clinical Hospital No. 1 in Lublin. After collecting a detailed medical history, analyzing medical records and laboratory test results, and examining the patient, a decision was made to urgently admit her to the General, Gastroenterological, and Gastrointestinal Cancer Surgery Clinic. The reason for the urgent admission was the deterioration of the patient's general condition, including severe weakness, pallor, and worsening abdominal symptoms. Analysis of the laboratory test results performed just before admission showed severe anemia, and the patient's additional clinical picture determined the urgency of her admission.

The patient was admitted to the clinic on an emergency basis, and after initial diagnosis and examination, a decision was made to qualify her for urgent surgery. Laboratory tests revealed severe anemia and elevated inflammatory parameters, which prevented the procedure from being performed on an expedited basis. The need to stabilize the patient's parameters delayed the surgery, which was ultimately performed 4 days after admission. Based on the patient's medical history and information about the discontinuation of ulcer disease-delaying medications, it can be suspected that cyclic bleeding from gastric ulcers was the cause of the patient's anemia. Before making a final decision on the type of surgery, an attempt was made to endoscopically visualize the retained contents and assess the gastric ulceration. Gastrosocopy could not be performed due to the accumulation of trichobezoar. Its considerable size prevented entry into the stomach and assessment of the extent and morphology of the gastric ulcer.

The patient's parameters were stabilized by fluid resuscitation and antihemorrhagic drugs to reduce bleeding from the ulcer. In addition, in accordance with guidelines and with the patient's consent, a decision was made to perform a blood transfusion. Following these procedures, laboratory parameters were measured

over the next few days of hospitalization. After three days of treatment, the patient's parameters normalized, which made it possible to decide to perform surgery. An attempt to remove the retained bezoar endoscopically was not possible due to its considerable size. Therefore, a decision was made to qualify the patient for open subtotal gastrectomy using the BOCHO method.

The surgery took place on the fifth day of hospitalization. The patient gave her informed consent to the surgical procedure. The reason for the operation was pyloric stenosis in the course of gastric ulcer disease, accompanied by bezoar and ulceration of the posterior wall of the stomach. Surgical access involved a midline incision in the epigastrium – laparotomy. After opening the peritoneal cavity, numerous adhesions of the greater omentum to the anterior abdominal wall and intestinal loops, as well as between intestinal loops, were found. After cutting the adhesions, the intestine was freed along its entire length. During the operation, palpable thickening of the posterior wall of the stomach in the pyloric region with ulceration, significant narrowing of the duodenal lumen just behind the pylorus, and large duodenal diverticula on the anterior wall in the descending region were found. The next stages of the procedure included cutting the gastrointestinal ligament with a Thunderbeat instrument, releasing the lesser curvature of the stomach to the level of the gastric vessels, performing a Kocher maneuver, and resecting the duodenal diverticulum with a stapler with hand-sutured PDS 4-0 material.

Distal gastric resection was performed using linear staplers. The duodenal stump and resection line on the stomach were secured with PDS 4-0 sutures. One of the findings of the macroscopic surgical examination was a gastric bezoar measuring approximately 4 cm and a peptic ulcer on the posterior wall of the stomach with a diameter of approximately 3 cm. The surgical margin during resection of the described lesions was approximately 4 cm in the upper part and 6 cm in the lower part. The Roux-en-Y method was used to restore the continuity of the gastrointestinal tract. The jejunum was cut approximately 40 cm below the Treitz ligament. The alimentary loop was passed through the mesentery of the transverse colon and sutured with a stapler to the posterior wall of the stomach. In order to further strengthen the anastomosis, it was sutured with PDS 4-0 suture material. The next stage of the operation was to perform a jejunal anastomosis approximately 40 cm below the upper anastomosis, secured manually with two layers of PDS 4-0 end-to-end suture. The final stage of the operation was to suture the mesentery of the ileum with Vicryl 2-0 suture, thoroughly rinse the peritoneum with saline solution, and carefully control hemostasis. To control postoperative bleeding, auxiliary drains were inserted: a right silicone drain into the epigastric region at the anastomosis site, a left silicone drain behind the spleen, and a Nelaton drain into the Douglas pouch.

During the procedure, microscopic specimens were taken and sent for histopathological evaluation. Shortly after waking up from anesthesia, the patient was transferred to the postoperative ward of the surgical clinic in stable condition. Postoperative histopathological examination was performed on two specimens. The first contained a 12 x 8 x 4 cm fragment of the stomach with a foreign body in the lumen, secured with staples, and a 2.5 cm ulcer 1.5 cm from the proximal incision line. The second specimen contained a duodenal diverticulum measuring 2.5 cm in diameter. Histopathological evaluation, including immunohistochemical staining, did not reveal the presence of cancer cells, which ruled out the possibility of cancer development in the patient. Examination of the first sample revealed a partially healing mucosal ulcer and, apart from the ulcer, features of chronic focal active inflammation and proliferation of mucosal crypts. In addition, lymph nodes of the lesser and greater curvature of the stomach were located, with the presence of numerous reactive lymph nodes. The second specimen was examined on sections of the duodenal wall with signs of congestion and the presence of intense inflammatory infiltration in the lamina propria, consisting of lymphocytes, plasma cells, and a small number of eosinophils. The foreign body found in the stomach was a large trichobezoar.

The patient's postoperative recovery period was complicated by pneumonia of unknown etiology. Tests were performed to detect SARS-CoV-2/influenza A+B/RSV infection, and blood cultures were taken. The test did not reveal the presence of any of the aforementioned pathogens, and the blood cultures did not show growth after 6 days in aerobic and anaerobic cultures. Due to the patient's general condition, two bedside chest X-rays were taken, the second after two days, and a decision was made to consult an internist. Abnormalities in the chest X-ray included shading of the lower fields of both lungs with slight regression of the changes in the second examination, additional shading of the lower field of the left lung, and increased vascular pattern in the upper field of the right lung. The internist's consultation resulted in the continuation of the previously prescribed antibiotic therapy (Biotum + Metronidazole) and a recommendation to proceed in accordance with the antibiogram.

After 4 days of treatment, a second consultation was conducted, during which laboratory tests showed a significant decrease in inflammatory parameters and an increase in D-dimer levels. Due to the increase in D-

dimers, tachycardia, and the onset of exertional dyspnea, pulmonary angiography was performed. The examination revealed several small systolic cavities and narrowing of the peripheral arteries in the lungs, as well as a small amount of free fluid in the left pleura with a thickness of 18-22 mm. This image could suggest peripheral pulmonary embolism. For this reason, heparin was added to the treatment. In the following days of hospitalization, a gradual improvement in the patient's condition was observed; she did not report shortness of breath, and her blood saturation without oxygen therapy was normal. The patient was discharged from the hospital in good general condition.

Two days after being discharged from the hospital, the patient visited her primary care physician, who referred her to the emergency department with suspected pneumonia. The patient's medical history and physical examination revealed cough and low-grade fever. The postoperative wound was healing properly with minor inflammatory infiltration. Physical examination and chest X-ray ruled out suspected inflammatory changes, indicating effective treatment of postoperative complications in the form of pneumonia.

Conclusions

Bezoars are a rare group of foreign bodies, consisting of an accumulation of undigested substances in the stomach, affecting approximately 0.4% of the population and statistically considered the fifth leading cause of small bowel obstruction worldwide. According to global statistics, over 90% of cases usually occur in children and young women. The uniqueness of the described case lies in the occurrence of trichobezoar in a 73-year-old female patient suffering from long-term depression. In the patient described, long-term tension and anxiety were the cause of compulsive hair pulling and swallowing, which resulted in the formation of a huge trichobezoar, which was the main cause of the patient's symptoms. Rapid diagnosis of depression, and consequently referral of the patient to a psychiatrist and appropriate treatment, can prevent serious complications and recurrence of the disease. The case described concerns a condition in the field of general surgery, but a broader view of the patient's case confirms that this is an interdisciplinary case, the complete cure of which is not possible without starting treatment for depression as the patient's underlying disease. This is an excellent example for clinicians, demonstrating the need to take a broader view of the patient and not to limit treatment to only the diseases with which the patient presents, as many of them, invisible at first glance, remain the cause of the symptoms with which the patient presents.

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