

# An unusual etiology of epigastric mass

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## ABSTRACT

Bezoar is described as presence of indigested or poorly digested material forming a mass in the gastrointestinal lumen. Patients may present with abdominal pain, dyspeptic complaints, gastrointestinal obstruction, perforation or bleeding, as well as, incidental abdominal mass in asymptomatic patients. We report a 30-year-old female patient with no history of previous illness who was presented to the emergency ward with complaints of epigastric pain and abdominal bloating. The diagnostic features and treatment of bezoar are presented.

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**B**ezoar is described as presence of indigested or poorly digested material forming a mass in gastrointestinal lumen. Bezoars are classified according to the origin of this material, which can be fruit or vegetable fibers, hair, drugs or any organic or inorganic material. Patients may present with abdominal pain, dyspeptic complaints, gastrointestinal obstruction, perforation or bleeding, as well as, abdominal mass in asymptomatic patients. Misdiagnosed patients may lead to the progression of the disease, which may result to complications. Early diagnosis, when bezoar is restricted in the esophagus or stomach and no complications arises, is important since conservative treatment with enzymatic destruction and endoscopy can be performed, whereas surgery is needed in intestinal bezoars and in complicated cases. Diagnostic tests include erect and direct abdominal x-ray, abdominal ultrasound (US), gastrointestinal (GI) tract barium studies and abdominal computed tomography (CT).

**Case Report.** A 30-year-old female patient was presented to the emergency ward with complaints of epigastric pain and abdominal bloating. The patient described pain in epigastric

region particularly in left upper quadrant that is accompanied with abdominal bloating for 2 days. Bloating sensation was disappearing in supine position but increased especially when she stood up. Her indigestion complaint started 3 days ago, when she ate a local meal cooked with a plant named "hodan" during her visit to a village. She have eaten potato crisps and dried fruits in order to relieve her indigestion. However, her complaints of pain persisted in the epigastric region. She also had nausea, but never vomited and sometimes has constipation. She was prescribed with deuterium ( $H_2$ ) receptor antagonists with diagnosis of gastritis in another hospital, which did not resolve her symptoms. She was presented to our emergency ward due to her ongoing complaints. Physical examination revealed her generally good status, she was cooperative and oriented. Her vital signs were: blood pressure 110/70 mm Hg, heart rate 72 beats/min, respiratory rate 20/min, body temperature 36°C. Systemic examination revealed no pathological signs except for a mild epigastric pain on deep palpation. A firm mass of 6 x 7 cm extending from epigastrium to the left upper quadrant was palpated when abdominal examination is repeated in erect position. No pathological

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findings were found on patient's laboratory tests. Erect abdominal plain x-ray showed a mass with soft tissue and air opacity filling gastric cavity in epigastric region. There was no air-fluid level (**Figure 1**). Abdominal ultrasoundography was reported normal. Abdominal CT with oral and intravenous contrast agent was performed. There was a hyperdense mass filling in the gastric cavity independent from the walls of stomach, in concordance with a bezoar. Rest of the gastrointestinal system and other intraabdominal structures were reported normal (**Figure 2**). Endoscopy was performed to patient for diagnostic and therapeutic purposes, which confirmed that the mass determined clinically and radiologically was a bezoar. Bezoar was removed by fragmentation, but the mass was too firm for dividing into pieces. Besides, a superficial gastric ulcer with visible vessel was found. Samples from the bezoar and ulcer were taken and the process was ended (**Figure 3**). Patient was prescribed with pancreatin and dimethylpolysiloxilane for bezoar, and proton pump inhibitor for gastric ulcer. She was told to come back one week later for control endoscopy and was discharged home. The patient used her medication regularly for one week. She was followed-up by phone calls everyday whether the bezoar caused any complication in the gastrointestinal system. On her next visit one week later she told that her complaints resolved completely. Her control endoscopy showed that the bezoar disappeared completely and healing process in her gastric ulcer was observed.

**Discussion.** The term bezoar is derived from the Arabic "badzehr" or from the Persian "padzahr" both means "to expel potion" or antidote. In ancient times, bezoars from goats and antelopes were ground up and ingested as remedies for many diseases and antidotes for poison.<sup>1</sup> Most of the bezoars presented in the literature include the presence of indigestible or poorly digested material in the gastrointestinal lumen. Stomach is the most common place for formation of a bezoar.

Bezoars can be classified according to their origin: trichobezoars (composed of hair), phytobezoars (composed of fruit or vegetable fibers), diospyrobezoars (made up of persimmon fibers), or pharmacobezoars (tablets, drugs). These materials are retained by secretions and become enmeshed creating a mass in the gastric lumen, which may become fragmented, migrate distally and cause obstruction along the gastrointestinal tract, mostly in small intestines. Reverse migration have also been reported in few cases where esophageal obstruction is caused by a gastric bezoar. Around 400 cases of trichobezoar and a larger number of phytobezoars have been reported in literature but many go unreported.<sup>2</sup> Gastric dysmotility,



**Figure 1** - Image showing a mass filling in the gastric cavity.



**Figure 2** - Image showing a hyperdense mass filling in the gastric cavity.



**Figure 3** - Endoscopic view of phytobezoar.

particularly after gastric surgery, is one of the most important factors in bezoar formation.<sup>4</sup> Some of the pathogenic mechanisms responsible for bezoar formation in patients with vagotomy and pyloroplasty have been described as decreased secretion of hydrochloric acid, decreased gastric motility (atonic stomach), and occupational exposure.<sup>3</sup> Gastric dysmotility related with bezoar formation is also reported in patients with diabetes mellitus and hypothyroidism. Improper mastication from poorly fitting dentures is reported up to 50% in some reports, suggesting that food entering the stomach in large boluses is another risk factor for bezoar formation.<sup>3</sup> Certain other substances can also encourage stickiness and concretion formation within the gastric lumen as well.

Bezoars mostly originate in the stomach causing non-specific symptoms such as epigastric pain or discomfort, dyspepsia, postprandial fullness, or can be discovered incidentally on physical examination as firm, non tender, palpable epigastric mass in an asymptomatic patient. Patients may also present with gastrointestinal bleeding (6%) or intestinal obstruction or perforation (10%).<sup>2</sup> Bezoars have been reported between ages of 1-56 years, with a peak at 15-20 years. More than 90% of patients are female. Mental retardation or psychiatric disturbances accompany nearly 10% of cases.<sup>5</sup>

Imaging techniques are helpful in diagnosis of bezoars. Plain x-rays of abdomen may show a prominent gastric outline with an intragastric mottled mass outlined by gas. The majority of gastric bezoars can be diagnosed by an upper GI barium study. The upper part of a large bezoar may be visible as a mass with a convex upper border projecting into the gastric air bubble. When stomach is filled with barium, a mobile intraluminal filling defect, which may show extension into the duodenum. Abdominal ultrasoundography may show a superficially located, broad band of high amplitude echoes along the anterior wall of the mass with sharp, clean posterior acoustic shadowing. Ultrasound is also helpful in differential diagnosis of other pathologies such as a splenic or renal mass, gastric duplication, gastric tumor and others. However, similar US images can be seen in teratomas, neuroblastoma or impacted feces. Plain abdominal CT usually shows a mobile intragastric mass consisting of concentric rings with a mixed density pattern due to the presence of entrapped air and food debris. Gastric wall is normal and mass is freely mobilized in gastric cavity.<sup>6</sup> With abdominal CT, differential diagnosis can also be performed and the rest of the GI tract can be explored non invasively.

Diagnosis at an early stage, when bezoar is restricted in the stomach or esophagus, is important for early treatment with conservative methods which include enzymatic destruction, fragmentation

and endoscopic extraction. Different methods have been described in the literature for enzymatic destruction of gastric bezoars such as pancreatic enzymes, cellulase, N-acetyl cysteine, water soluble contrast enema and coca-cola lavage.<sup>7</sup> Bezoar may have multiple different localization in the gastrointestinal tract or rarely may extend from stomach into the small intestines as a tail (Rapunzel Syndrome). The treatment for intestinal bezoars is removal of mass by enterotomy or bowel resection,<sup>4</sup> sometimes multiple enterotomies may be required. Bezoars causing intestinal obstruction or perforation requires emergent surgical intervention.<sup>4,8</sup> Laparoscopic approach for intestinal obstruction is also reported.<sup>9</sup> The rest of the gastrointestinal system should be explored for retained bezoars. Recurrences is reported at a rate up to 33%.<sup>8</sup> Mortality is reported as 10.4% in a study analyzing 311 cases by De Baakey and Oschner.<sup>2</sup>

Our case did not give any history of tricotillomania, pica or any other psychiatric disorder, nor any other previous gastric disorder, but our patient's history of epigastric discomfort which started just after eating a large amount of a traditional meal cooked with a plant called hodan was remarkable. Hodan (*Borago officinalis*, *Boraginaceae*) is a local plant used for its diuretic, antipyretic, antitussive and expectorant properties. It is found in natural flora of Marmara, north and west sides of Aegean regions, Turkey, grown in urban areas for its remedy and the leaves are cooked for traditional meals. It contains many vitamins and minerals as well as a large amounts of fiber and mucilage.<sup>10</sup> To our knowledge, there are no cases caused by this local food reported in the literature. We think that conservative treatment was successful as it was presented at an early stage soon as her symptoms started.

In conclusion, diagnosis of bezoar should be kept in mind in young and healthy patients presented to the emergency room with new onset of epigastric pain or mass, dyspeptic complaints, as well as intestinal obstruction, perforation. Bezoars can occur in healthy persons due to ingestions of large amount of fiber foods, diagnosis at an early stage is important for the initiation of appropriate treatment and prevention of complications such as obstruction, bleeding and perforation. A careful history should be obtained from these patients. Abdominal CT is a fast and practical method that can easily be performed in ER both for diagnosis of bezoars and differential diagnosis of abdominal masses. Upper gastrointestinal system endoscopy can be used both for diagnosis and treatment. Conservative treatment such as enzymatic destruction with pancreatin and dimethylpolysiloxilane is the treatment of choice for uncomplicated patients. Surgery may be required for complicated cases, in any way, the rest of the gastrointestinal system should be explored for any residual bezoars.

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