Gastrointestinal obstruction by 3 phytobezoars, 40 years after pyloroplasty

Clinical History:

A 77 year old male with history of pyloroplasty due to gastroduodenal ulcer presented to the emergency room with epigastric pain radiating to the back after a fat-rich meal. Chest and abdominal radiographs were normal, ultrasound findings were equivocal, while gastrografin study and CT examination were diagnostic.

Imaging Findings:

The patient presented to our hospital with nausea and epigastric pain radiating to the back. The pain initiated after a fat rich meal. The patient had a history of gastroduodenal ulcer and pyloroplasty 40 years ago and omeprazol intake. During clinical examination his abdomen was found soft with right upper abdominal tenderness and diminished bowel sounds. WBCs were normal, CRP 6.83, lipase 315 and cholethrin 1.47. The plain radiograph of the abdomen showed no fluid-fluid levels or distention of the small bowel. At ultrasound examination, sludge was found in the gallbladder and an intaluminal mass in the stomach with hyperechoic archlike surface and marked posterior acoustic shadow. Gastrografin was used per os to complete this finding and revealed the distention of the small bowel and 3 intraluminal filling defects in the stomach, duodenum and jejunum. On abdominal CT examination distention of the stomach and the small bowel was found together with 3 intraluminal masses situated in the stomach, duodenum and proximal jejunum. The images were characteristic of bezoars. Endoscopic removal failed because bezoars proved to be large and stiff and enterotomy had to be performed.

Discussion:

Bezoars are intestinal foreign bodies that are classified according to their composition. There are phytobezoars (accumulation of indigestible food), trichobezoars (accumulation composed mostly of hair, usually to persons with trichotillomania) and the Rapunzel syndrome (a variant of trichobezoars; there is formation of a long-tailed trichobezoar due to compulsive hair-chewing). Furthermore, lactobezoar (accumulation of milk curds especially to low-birth weight neonates, fed with highly concentrated formula regimens), mixed medication bezoars (nifedipine, cholestyramine, kayexylate or antacids), lithobezoars (consisting of stones, usually to persons with history of pica) and others (consisting of nuts, glue, cement, shellac).

The main risk factor responsible for the development of bezoars is previous gastric surgery (80%), a factor responsible for delayed gastric emptying. However, patients who had undergone vagotomy and pyloroplasty have no delayed gastric emptying but develop bezoars as well. 40% of patients mention excessive intake of vegetable fibres, while 24% have alterations at mastication and dentition. Hypoacidity, due to medication, gastrointestinal dysmotility due to enteric nervous system developmental delay as in Noonan syndrome, diabetic gastroparesis and diseases like mixed connective tissue disease and hypothyroidism have also been mentioned. Trichobezoars are prevalent among patients, usually children and adolescence, with mental retardation.

Bezoars are most commonly found in the small bowel (80%) or the stomach (20%), though lithobezoar in the
rectum has also been stated. The interval between gastric operation and bezoar detection ranges from 9 months to 30 years, while in our case 40 years passed before the three bezoars became apparent. Depending on the location, clinical manifestations vary from no symptoms to acute abdominal pain. The patient may present with epigastric distress, vomiting, nausea, constipation (symptoms of small bowel obstruction), or feeling of fullness, dysphagia, anorexia or gastrointestinal hemorrhage. Small bowel obstruction resulting from bezoar is usually due to migration of gastric bezoar, however the obstruction could also be caused by primary bezoars formed in the small bowel in association with underlying diseases such as diverticulum, stricture or tumour.

Plain radiography may show evidence of small bowel obstruction with dilated intestinal loops and air-fluid levels, or may be normal. Ultrasonographic examination reveals an intraluminal mass with hyperechoic arch-like surface and marked posterior acoustic shadow. Barium studies show intraluminal filling defects that do not appear to be fixed to the bowel wall, and dilated segments of small bowel proximally. CT is diagnostic by revealing dilated bowel loops and a well-defined ovoid heterogeneous intraluminal mass with a mottled gas pattern at the site of obstruction; the bowel wall outlines the mass and these signs are pathognomonic.

The most common complication of bezoars is small bowel obstruction. Though gastritis, gastric ulcer, bowel perforation and intussusception are less common they should be kept in a clinician's mind. Therapeutically, endoscopic or surgical removal, by the means of enterotomy, can be applied. There are many studies that mention oral use of coca-cola for dissolution of gastric bezoars. Nevertheless, fragmentation and distal migration of the daughter fragments may also cause small bowel obstruction.

**Differential Diagnosis List:** Small bowel obstruction secondary to phytobezoars

**Final Diagnosis:** Small bowel obstruction secondary to phytobezoars

**References:**


Figure 1

**Description:** Ultrasound examination showing an intaluminal mass in the stomach with hyperechoic archlike surface and marked posterior acoustic shadow **Origin:**
Description: Distention of the small bowel and 2 intraluminal filling defects, one in the stomach and another one in the duodenum. Origin:
**Description:** Distention of the small bowel and 2 intraluminal filling defects, one in the duodenum and another one in the jejunum. **Origin:**
Figure 3

Description: CT examination demonstrating an intraluminal mass situated in the stomach. Origin:
Description: CT examination showing the second intraluminal mass situated in the duodenum. Origin:
Description: CT examination showing the third intraluminal mass situated in the jejunum. Origin: