

## KLINIKINIS ATVEJIS

### An unusual case of bleeding from stomach due to a giant diospyrobezoar

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**Key words:** gastric bezoars; diospyrobezoar; pressure ulcer.

**Summary.** Gastric bezoars may be formed in the stomach as a result of foreign body accumulation with inability to pass through the pylorus. Usually bezoars are found in patients with a history of previous gastric surgery. Phytobezoars are the most common type of bezoars. Major complications of bezoars include intestinal obstruction, gastric ulcer, gastric perforation, and bleeding. We present the case of a 51-year-old woman with the features of gastrointestinal bleeding due to a giant diospyrobezoar in the stomach. During endoscopy besides the bezoar, a giant acute ulcer was found. Histological examination of biopsy specimens from ulcer area revealed changes typical of superficial ischemic damage due to prolonged bezoar compression. The patient had undergone a vagotomy and pyloroplasty 13 years ago, and she used to eat two or three persimmons per week during the last six months. The bezoar was fragmented during two endoscopies, and the fragments drifted away through the intestine. We conclude that delayed gastric emptying due to previous gastric surgery and regular eating of persimmons caused the formation of a giant bezoar with ischemic ulcer of gastric mucosa and bleeding. Such pathology potentially could be prevented by dietary advice.

#### Introduction

Bezoars consist of ingested foreign bodies that accumulate within the gastrointestinal tract. Bezoars usually form in the stomach and cannot pass into the small bowel where they occasionally cause obstruction (1). They can be classified into four main types according to constituents: phytobezoars, trichobezoars, lactobezoars, and pharmacobezoars (2). Phytobezoars are the most common type and are formed of food material indigestible by humans: cellulose, hemicellulose, lignin, and fruit tannins (3). Bezoars of persimmons were named diospyrobezoars, and they are referable to special type of phytobezoars. A high concentration of fruit tannins in acidic environment may form a coagulum triggering diospyrobezoar formation (4, 5). The most common factors predisposing bezoars formation are previous gastric surgery, poor mastication, and overindulgence of food with high fiber contents, diabetes mellitus complicated by gastroparesis, coexisting diseases affecting gastrointestinal motility (2).

Clinical manifestations vary depending on the

bezoar location – from asymptomatic to acute abdominal syndrome. Gastric bezoars cause small bowel obstruction frequently and occasionally are associated with gastric ulcer formation (5). Treatment goal is to remove bezoar and prevent repeated bezoar formation. There is no universal evacuation method of gastric phytobezoars. They can be treated with gastric lavage using various fluids, enzymatic dissolution, endoscopic disruption, conventional and video laparoscopic surgery (6, 7).

#### Case report

A 51-year-old woman with abdominal pain, nausea, and hematemesis was admitted to the emergency room of our University Hospital. These symptoms appeared 12 hours before the admission. In addition, she had mentioned fullness in the stomach, a complaint lasting for about two months. Past medical history reported peptic ulcer disease with gastric ulcer perforation and surgical ulcer treatment with vagotomy 13 years before the admission. Gastric ulcer with *Helico-*

*bacter pylori* infection was detected again 6 years ago. *Helicobacter pylori* eradication was performed, and the patient had no complaints related to the digestive system for the last years.

Physical examination after the admission revealed gastrointestinal (GI) bleeding indicating melena. Abdomen was not tight, but painful at the epigastrium. Blood analysis showed mild anemia with a hemoglobin concentration of 114 g/L. Upper GI endoscopy showed a foreign body (dimensions, 12×6×4 cm) positioned longitudinally in the stomach; moreover, a huge ulcer up to 11 cm in diameter and 20–30 mL of old blood were found.

Histological examination of biopsy specimens from ulcer and its adjacent area revealed a typical ulcer caused by pressure of bezoar (Fig.). Defect of mucosal integrity was coated with eosinophilic homogenous acellular debris. Changes were typical of superficial ischemic damage, likely due to prolonged bezoar compression. Mucosa samples were of low cellularity, and leukocytic infiltration was not pronounced. Epithelium hyperplasia showed an active regeneration process.

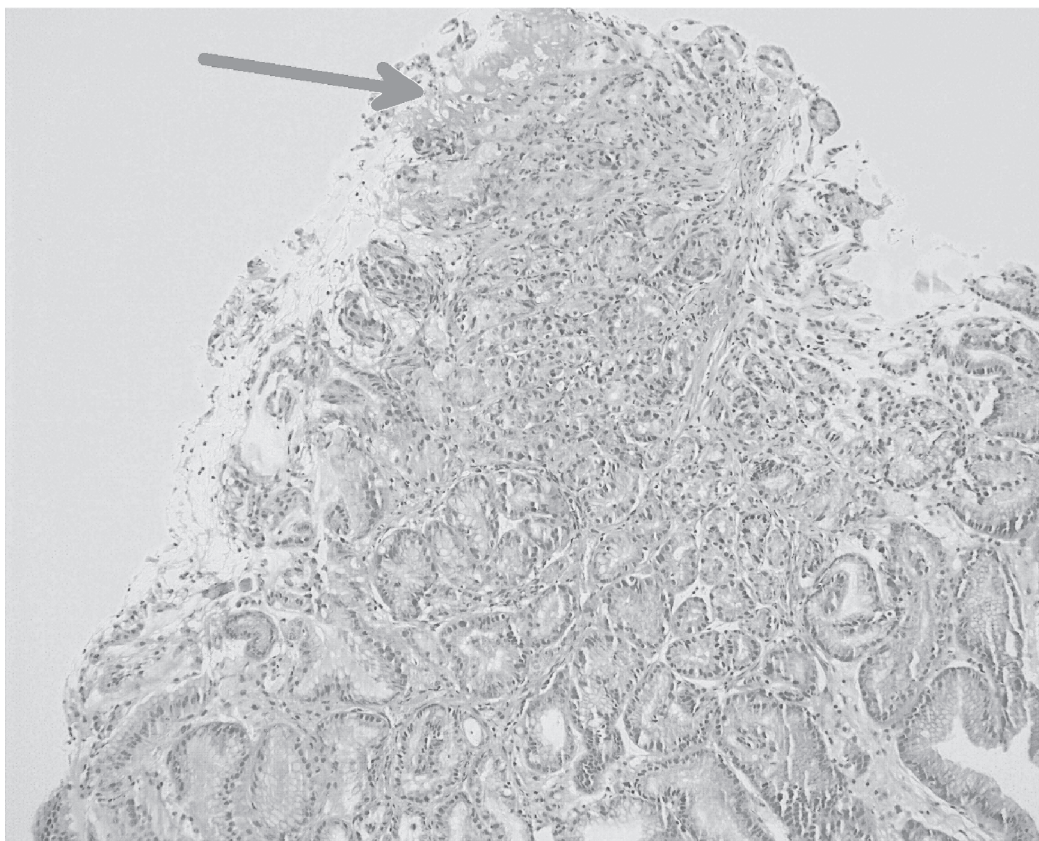
During detailed questioning about dietary habits, the patient reported us that she used to eat two or three

persimmons per week during the last six months. The bezoar was fragile, typical of its plant origin. This diospyrobezoar was fragmented during two endoscopies with a large polypectomy snare. All pieces drifted away to the intestine. Omeprazole at a dose of 20 mg per day was prescribed. Upper GI tract endoscopy was performed repeatedly two weeks later, but no more bezoars were found. The ulcer was reduced to 7 cm in diameter. Next endoscopic examination was performed two months later and revealed no pathological findings.

### Discussion

Bezoars have been described in patients with normal gastrointestinal anatomy and physiology; however, the majority of gastric bezoars occur as a complication of previous gastric surgery because surgical intervention may reduce gastric motor activity (6). Loss of pyloric function, gastric motility, and hypoacidity play important roles in bezoar formation. The incidence of bezoar formation after gastrectomy ranged from 5% to 12% (8).

Phytobezoars are the most common type of bezoars. Bolus intakes of indigestible vegetable foods due to either dental problems or chewing habits are



**Fig.** Ischemic necrosis (arrow) caused by prolonged mucosa compression with bezoar

also predisposing factors. In 1986, Krausz with colleagues reported that 91.2% of 113 patients with phytobezoars had a history of persimmon intake (9). Unripe persimmons contain chemical “shibuol” that forms a glue-like coagulum after contact with dilute acid in the stomach (10).

Many patients with bezoars are asymptomatic. Clinical manifestations depend on the location of the bezoar. Gastric bezoars cause mostly nonspecific symptoms: epigastric pain, dyspepsia, occasional vomiting, and fullness. In our presented case, the patient had only a feeling of fullness of the stomach for about two months.

Major complications of bezoars include intestinal obstruction, gastric ulcer, gastritis, gastric perforation, and gastrointestinal bleeding (11). Small bowel obstruction is the most common complication and requires surgery. It has been reported that 60% of phytobezoars cause small bowel obstruction (12). In our case, diospyrobezoar in the stomach caused pressure ulcer and chronic gastrointestinal bleeding with consequent mild anemia.

The choice of therapy depends on the type of bezoar and the presence of underlying risk factors. Large gastric bezoars, if pylorus is normal, usually are treated by endoscopy. The bezoar fragmentation

can be performed with a large polypectomy snare, electrosurgical knife, lithotripter, drilling, endoscopic laser destruction, and Dormia basket or conventional surgery can be chosen (6). Also a patient can be treated by combination of L-cysteine, cellulose and metoclopramide, cellulose and papain, hydrochloride acid, sodium bicarbonate, pancreatin, 1–2% zinc chloride, pancreatic lipase with ascorbic acid (6, 12). The most wondering reports on the treatment of gastric phytobezoars were about a successful effect of Coca-Cola lavage (13, 14).

### Conclusion

Large bezoars may be a cause of gastric ulcer and chronic gastrointestinal bleeding. Large gastric bezoars resulting from ingestion of persimmons have commonly been described, but complications such as ulcer caused by pressure of foreign body and gastrointestinal bleeding are especially rare. Patients with previous gastric surgery should be warned about this preventable complication, and dietary advice should be given for them.

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## Retas kraujavimo iš skrandžio atvejis dėl gigantiško diospirobezoaro

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**Raktažodžiai:** skrandžio bezoarai, diospyrobezoarai, pragula.

**Santrauka.** Skrandžio bezoarai gali susiformuoti iš nesuvirškinto maisto ir kitų medžiagų. Dažniausiai jie susidaro ligoniams, kuriems buvo atliktos virškinamojo trakto operacijos. Pagal sudėtį dauguma bezoarų yra augalinės kilmės – fitobezoarai. Dažniausiai pasitaikančios bezoarų komplikacijos – tai virškinamojo trakto obstrukcija, opos, perforacija ir kraujavimas. Mes pateikiame klinikinį atvejį, kai 51 metų moteriai dėl dažno persimonų vartojimo susiformavo gigantiškas (12×6×4 cm) diospirobezoaras. Persimonai yra gana dažna bezoarų susidarymo priežastis, ypač pacientams po virškinamojo trakto operacijų. Bezoaras sąlygojo pragulą, iš kurios gausiai kraujavo, dėl šios priežasties moteris pateko į ligoninę. Kelis mėnesius ligonė jautė sunkumą epigastriume. Prasidėjus pykinimui bei vėmimui su krauju, hospitalizuota į KMUK. Pacientei prieš 13 metų buvo atlikta vagotomija ir piloroplastika. Pastaruosius šešis mėnesius ji suvalgydavo 2–3 persimonus per savaitę. Atlikus EGDS, skandyje diagnozuotas gigantiškas bezoaras bei pragula, iš kurios kraujavo. Tiriant morfologiškai, skrandžio pažeidimo bei gleivinės biopsijų vaizdas atitiko pragulai būdingą išeminio pobūdžio pažeidimą. Dviem etapais atliktos endoskopijos metu bezoaras buvo susmulkintas ir išslinko į žarnyną. Du mėnesius ligonė gydyta omeprazoliu. Po gydymo atlikta kontrolinė EGDS, skrandyje pokyčių nerasta.

Mūsų nuomone, gigantiškas bezoaras susidarė sulėtėjus skrandžio išsituštinimui po atliktos skrandžio operacijos ir dėl dažno persimonų valgymo. Norint išvengti panašių komplikacijų, būtina šią ligonių grupę stebėti ir sureguliuoti jų mitybą.

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## References

1. Ripolles T, Garcia-Aguayo J, Martinez MJ, Gil P. Gastrointestinal bezoars: sonographic and CT characteristics. *Am J Roentgenol* 2001;177:65-9.
2. Pfau P, Ginsberg G. Foreign bodies and bezoars. In: Feldman: Sleisenger and Fordtran's gastrointestinal and liver diseases. 7th ed. Philadelphia: W.B. Saunders Company; 2002. p. 395-7.
3. Holloway WD, Lee SP, Nicholson GI. The composition and dissolution of phytobezoars. *Arch Pathol Lab Med* 1980;104:159-61.
4. Matsuo T, Ito S. The chemical structure of kaki-tannin from immature fruit of persimmon. *Agric Biol Chem* 1978;126:421-4.
5. Sanders MK. Bezoars: from mystical charms to medical and nutritional management. *Pract Gastroenterol* 2004;13:37-50.
6. Gaya J, Barranco L, Llompert A, Reyes J, Obrador A. Persimmon bezoars: a successful combined therapy. *Gastrointestinal Endoscopy* 2002;55:581-3.
7. Robles R, Lujan AJ, Parrilla P, Torralba JA, Escamilla C. Laparoscopic surgery in the treatment small bowel obstruction by bezoar. *Br J Surg* 1995;82:518-20.
8. Bowden TA, Hooks VH, Mansberger AR. The stomach after surgery: an endoscopic perspective. *Ann Surg* 1983;197:637-44.
9. Krausz MM, Moriel EZ, Ayalon A, Pode D, Durst AL. Surgical aspects of gastrointestinal persimmon phytobezoar treatment. *Am J Surg* 1986;152:526-30.
10. Kaushik NK, Sharma YP, Negi A, Jaswa A. Gastric trichobezoar. *Ind J Radiol Imag* 1999;9:3:137-9.
11. Robles R, Parrilla P, Escamilla C, Lujan JA, Torralba JA, Liron R, et al. Gastrointestinal bezoars. *Br J Surg* 1994;81:1000-1.
12. Saeed ZA, Rabassa AA, Anand BS. An endoscopic method for removal of duodenal phytobezoars. *Gastrointest Endosc* 1995;41:106-8.
13. Ladas SD, Triantafyllou K, Thathas C, Tassios P, Rokkas T, Raptis SA. Gastric phytobezoars may be treated by nasogastric Coca-Cola lavage. *Eur J Gastroenterol Hepatol* 2002;14:801-3.
14. Chung YW, Han DS, Park YK, Son BK, Paik CH, Jeon YC, et al. Huge gastric diospyrobezoars successfully treated by oral intake and endoscopic injection of Coca-Cola. *Dig Liver Dis* 2006;38(7):515-7.

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