

Case Report

Acute pancreatitis caused by duodenal bezoar and treated with endoscopic procedures

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Background: Acute pancreatitis triggered by causative agents, including alcohol consumption, gallstones, dyslipidemia, drugs, and infection, is frequently addressed. However, reports of acute pancreatitis caused by duodenal bezoars are limited.

Case Presentation: A 75-year-old man experiencing abdominal pain and frequent vomiting was transferred to our hospital. His medical records presented history of diabetes, hypertension, dyslipidemia, and gastric cancer surgery. Computed tomography of the abdomen indicated duodenal dilatation, enlarged pancreas, and fluid retention, with no bile duct stones present. Minor bleeding and duodenal bezoar were endoscopically detected with esophagogastroduodenoscopy (EGD). He was diagnosed with severe acute pancreatitis caused by a bezoar and admitted to the intensive care unit. The duodenal bezoar was dissected and removed with three repetitions of EGD, and the patient was discharged without any complications.

Conclusion: Herein, we report a case showing that endoscopic procedures could be effective treatment options in severe pancreatitis caused by duodenal bezoars.

Key words: Acute pancreatitis, computed tomography, critical care, duodenal bezoar, esophagogastroduodenoscopy

INTRODUCTION

ACUTE PANCREATITIS IS a condition where pancreas inflammation is suddenly triggered for a short period of time. Although the etiology of acute pancreatitis is induced by various agents, the most common causes of the disease include alcohol consumption and gallstones. Dyslipidemia, drugs, trauma, and infection are additional contributing factors to the pathogenesis of acute pancreatitis.¹ Duodenal bezoars are an uncommon cause of acute pancreatitis and only a few cases have been reported.^{2–8} The etiology of bezoar development is based on trichophagia, diseases that cause prolonged retention such as diabetes and hypothyroidism, and postoperative gastric surgery.⁹ We

herein report a rare case of acute pancreatitis caused by a duodenal bezoar.

CASE PRESENTATION

A 75-year-old man was transferred to our emergency department for examination of abdominal pain and frequent vomiting. His medical history records reported hypertension, diabetes, mild dyslipidemia, and gastric cancer that was managed with a distal gastrectomy procedure 2 years prior to his admission to our hospital. Reconstruction by Billroth I anastomosis was performed on the stomach. The patient's vital signs were as follows: Glasgow Coma Scale score, E4V5M6; temperature, 36.6°C; blood pressure, 139/103 mmHg; heart rate, 108 b.p.m.; respiratory rate, 25 breaths/min; and oxygen saturation, 94%.

The physical examination revealed that his abdomen was flat and soft, with sensitivity in the midline but no recurrent pain. His symptoms included nausea, regurgitation, and hematemesis, while jaundice and pallor were not detected.

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Complete blood count revealed the following: white blood cells, $14.4 \times 10^9/L$; hemoglobin, 193 g/L; and platelets, $161 \times 10^9/L$. The serum laboratory tests were all within the normal range except: total amylase, 1,363 IU/L; blood urea nitrogen, 44.9 mg/dL; creatinine, 2.25 mg/dL; glucose, 453 mg/dL; hemoglobin A1c, 7.6%; and C-reactive protein, 3.13 mg/dL. Total cholesterol, low-density lipoprotein cholesterol, triglycerides, and total bilirubin levels were also normal.

Abdominal computed tomography (CT) indicated enlarged pancreas with fluid retention and a bezoar with air component in the duodenum, with the absence of stones in the gallbladder and common bile duct (Fig. 1). Following the physical inspection, we undertook esophagogastroduodenoscopy (EGD) to identify the cause of frequent vomiting, hematemesis, and duodenal obstruction. We detected only mild bleeding caused by reflux esophagitis and a bezoar that had obstructed the duodenum.

The patient's consumption of alcohol was low with no evidence of trauma, infections, or medications. Therefore, we concluded that the bezoar was the main cause of acute pancreatitis.

In the absence of elevated bilirubin levels, we decided to follow a conservative treatment strategy, assuming that the common bile duct was impartially obstructed. The patient was admitted to the intensive care unit (ICU) where intravenous fluids were administered, and his urine output was monitored. It was difficult to maintain urine output, and he was started on ventilatory management because he developed respiratory failure on day 3 of hospitalization. The patient had gone into shock, which persisted. Vasopressors were administered. Antimicrobials were started because bilirubin levels were elevated, which can result in

complications like acute cholangitis. Despite supportive care, his symptoms did not improve, and bilirubin levels continued to increase. Abdominal contrast-enhanced CT carried out on day 3 revealed the presence of residual duodenal bezoar and obstruction of the common bile duct (Fig. 2). He had been admitted with acute pancreatitis due to papillary obstruction, but the bilirubin level was speculated to have risen over time. We reconsidered the papillary obstruction as the cause of the acute pancreatitis. We decided to remove the bezoar and open papillae. He presented with coagulopathy and poor clinical condition, and surgery was considered an unsafe treatment option. Therefore, we attempted to dissect the bezoar by undertaking EGD; forceps were used to crush the bezoar and attempt maximum removal. However, the bezoar was large and hard, and could not be removed in a single EGD. The procedure was repeated three times, on days 6, 7, and 9, to dissect and remove the bezoars (Fig. 3). In a previous case,⁴ duodenal diverticulum had been noted as a cause of the bezoar, but no diverticulum was found in this case. Duodenal papillae unlogged and the bilirubin levels declined. Chemical analysis of the stone revealed that the bezoars mainly consisted of calcium oxalate (>98%).

Following the bezoars' removal, the patient's clinical condition gradually improved, and he was extubated on day 7. On day 8 the patient left the ICU and on day 31 he was discharged from the hospital with no complications. A 6-month follow-up revealed no recurrence of the symptoms.

DISCUSSION

THIS CASE REPORT accounts for one of the few reports of a patient with acute pancreatitis caused by

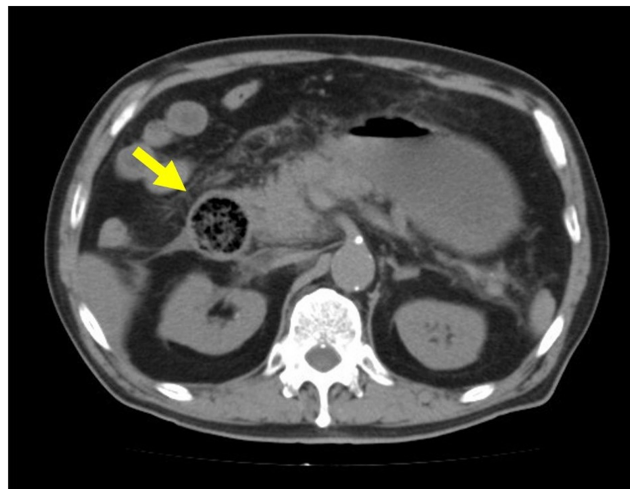


Fig. 1. Abdominal computed tomography of a 75-year-old man demonstrates enlarged pancreas, peripancreatic fat stranding, effusion, and a mass with air components in the duodenum (arrow).



Fig. 2. Abdominal contrast-enhanced computed tomography of a 75-year-old man demonstrates residual duodenal bezoar (arrow) and dilated common bile duct.

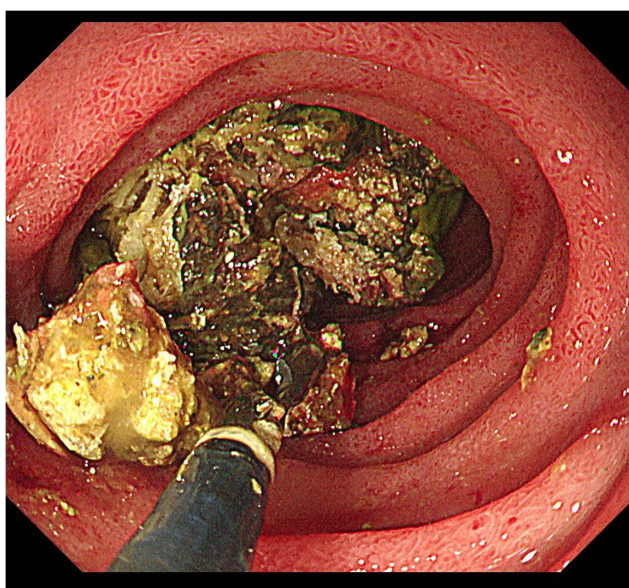


Fig. 3. Esophagogastroduodenoscopy demonstrates bezoar retrieval with forceps in a 75-year-old man.

duodenal bezoars that were removed with EGD. Previous reports have described conservative management for pancreatitis cases caused by alcohol consumption. We found no history of excessive alcohol consumption and the CT did not show any common bile duct stones or gallstones. Therefore, the obstruction of the duodenal papillae by the bezoar was the apparent cause of pancreatitis. It was hypothesized that pancreatitis develops when a bezoar obstructs the papillae like common bile duct stones. We assume that the formation of the duodenal bezoar could be attributed to the

gastrectomy surgery, as it was noted in the patient's medical records.

Choosing the most appropriate treatment option is invariably dependent on the leading cause of pancreatitis. Conservative management is less invasive and preferred in pancreatitis cases caused by alcohol consumption, whereas endoscopic retrograde cholangiopancreatography is considered in the incidence of common bile duct stones.⁹

A standard treatment pipeline for pancreatitis caused by duodenal bezoars has not been established yet. In previous

case reports of pancreatitis caused by bezoars (six cases), five cases were managed with diagnostic EGD²⁻⁶ and one case without EGD as the CT findings suggested possible complications with the EGD.⁷ Three out of the five cases treated with EGD required surgical intervention. The present case report shows that EGD could be useful in patients with coagulopathy and poor clinical condition.

Endoscopic treatment was effective in this case. However, crushing the bezoar on the first day of admission might have prevented deteriorating conditions such as septic shock and respiratory failure.

CONCLUSION

THIS CASE REPORT highlights the importance of using EGD to diagnose and treat rare cases of acute pancreatitis caused by duodenal bezoars. In particular, examination of the causative agents of acute pancreatitis could lead to the establishment of a treatment strategy for each cause.

DISCLOSURE

APPROVAL OF THE research protocol: N/A.

Informed consent: Informed consent was obtained from the patient.

Registry and the registration no. of the study/trial: N/A.

Animal studies: N/A.

Conflict of interest: None.

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