



## Case report

## Bezoar as a cause of jejunal afferent loop mass after pylorus preserving pancreaticoduodenectomy: A case report

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## ABSTRACT

**Introduction and importance:** Bezoars may occur in patients after undergoing gastric surgery. Most bezoars are discovered due to small intestine obstruction, causing acute abdomen.

**Case presentation:** A 44-year-old woman with a history of intraductal papillary mucinous tumor of the pancreas was initially treated with pylorus-preserving pancreaticoduodenectomy. Two years ago, she had intermittent abdominal pain with no noted abnormality on computed tomography (CT) scan and gastroscopy. During her follow-up, an abdominal CT scan revealed a 1.8-cm low-enhancing nodular tumor with minute central calcification at the afferent loop of the jejunum, later diagnosed as a jejunal tumor. Endoscopy helped determine the location and characteristics of the tumor. Endoscopic findings revealed a bezoar approximately 3 cm below the pancreaticojejunostomy and hepaticojejunostomy, at the end of the afferent loop of the jejunum. Removal using an endoscopic basket failed as the bezoar broke halfway. Residual suture material was found inside the bezoar. Since the size of the bezoar decreased, the procedure was discontinued to allow it to dislodge naturally.

**Clinical discussion:** Bezoars may be caused by gastric surgery, increased fiber diet, and psychiatric illness. As seen in this case, residual suture material caused bezoar formation. Bezoars mainly occur in the stomach and small intestines, but they can also occur in the afferent jejunal loop, as seen in this case.

**Conclusion:** Surgeons should be careful not to leave behind suture material during gastric surgery. However, bezoar formation should be considered in patients complaining of abdominal pain even if they did not undergo gastrectomy.

## 1. Introduction

Several patients experience abdominal pain following gastrointestinal surgery. Small bowel obstruction (SBO) is one of the most common causes of postoperative abdominal pain. SBO after gastrointestinal surgery results from various factors such as adhesion, malignancy, internal hernia, recurrence, and intussusception [1]. Bezoars are rare causes of SBO, especially after gastric surgery. Most bezoars occur in the stomach, while small intestine bezoars usually occur 50–70 cm above the ileocecal valve [2]. Here, we present a rare case of abdominal pain in the afferent loop of the jejunum after pancreaticoduodenectomy due to an intraductal papillary mucinous tumor of the pancreas in a 44-year-old Korean woman. This study was reported in line with the SCARE criteria [3].

## 2. Presentation of case

A 44-year-old woman presented to a hospital with abdominal pain

that had started two years prior. Seven years ago, she underwent pylorus preserving pancreaticoduodenectomy for an intraductal papillary mucinous tumor of the pancreas. Her familial medical history was not significant. She denied smoking, alcohol consumption, and psychosocial issues. There were no abnormal findings or recurrence on regular examination after the surgery. Two years ago, she experienced intermittent vague abdominal pain, and no abnormalities were detected on computed tomography (CT) scan and gastroscopy. Medications did not alleviate pain. She visited the pain clinic due to the persistence of her symptoms, but the given treatment did not improve her condition. The patient was subsequently transferred to our clinic. The history of the patient's illness led to the suspicion of dumping syndrome. There were no unusual findings on physical examination or laboratory findings. CT of the abdomen revealed a 1.8 cm low-enhancing nodular tumor with minute central calcification at the afferent loop of the jejunum (Fig. 1). Thus, her condition was diagnosed as a jejunal tumor in the afferent loop of the jejunum. Endoscopy was performed to determine the location and characteristics of the tumor by an endoscopist. Due to the previous

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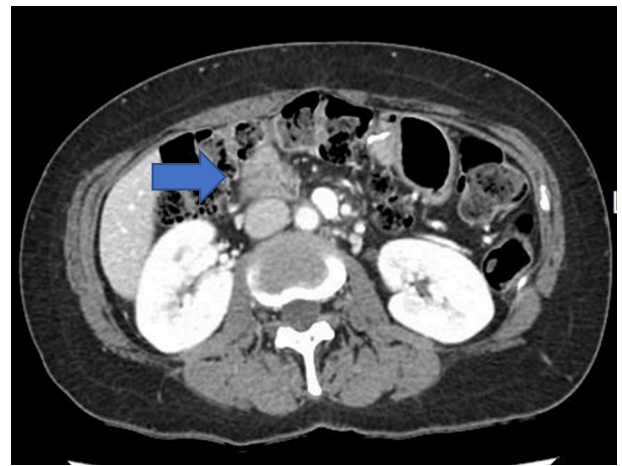
**Fig. 1.** Computed tomography (CT) scan shows a 1.8 cm low-enhanced nodular tumor with a minute central calcification on the afferent loop of jejunum in a patient who had undergone pyloric preserving pancreaticoduodenectomy seven years previously.

surgery, accessing the area using gastroscopy was difficult; subsequently, a colonoscopy was considered as its scope was thin and long. Endoscopic findings revealed a bezoar approximately 3 cm below the pancreaticojejunostomy and hepaticojejunostomy, where the afferent loop of the jejunum ended (Fig. 2A and B). However, during extraction using an endoscopic basket, the bezoar broke halfway. As the size of the bezoar decreased, the procedure was terminated to allow the bezoar to dislodge naturally (Fig. 2C–E). Suture material was found at the center of the bezoar (Fig. 2F). The post-intervention recovery was uneventful, and the patient was discharged on the 3rd day after the procedure in a stable condition. This residual suture material was considered the cause behind bezoar formation. A follow-up CT after one month revealed that the bezoar had disappeared (Fig. 3). The patient has been well with no recurrence of symptoms as of preparing this report.

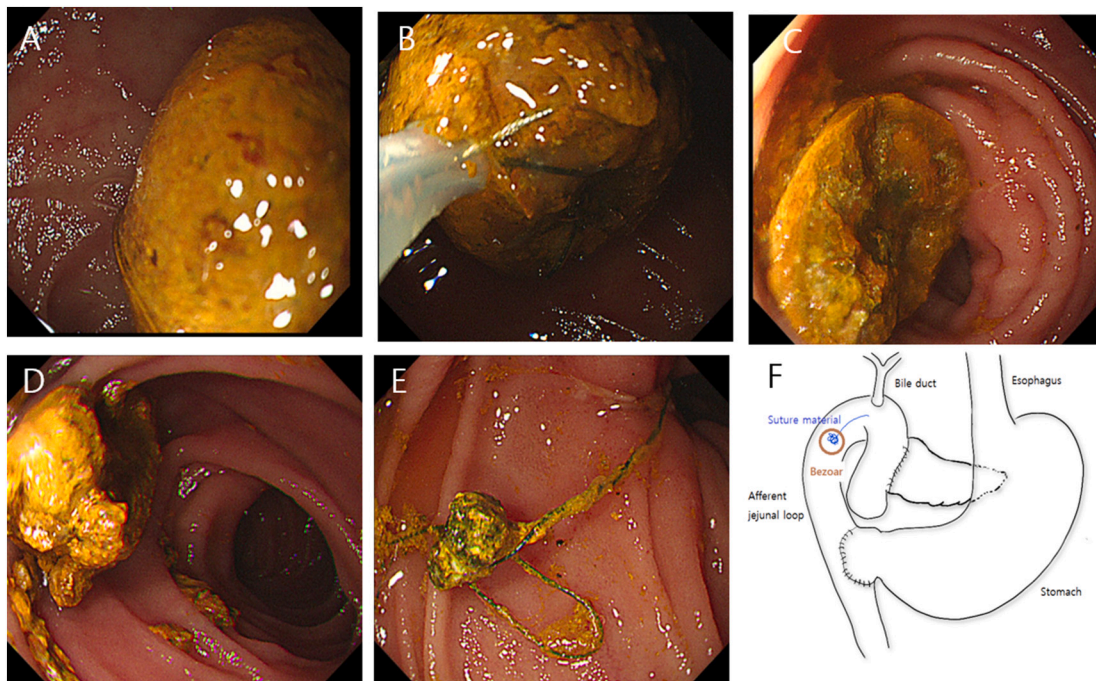
### 3. Discussion

Bezoars are collections or concretions of indigestible foreign material accumulating and coalescing in the gastrointestinal tract, usually the stomach [4]. Gastric bezoars occur after gastrectomy and can be found incidentally or upon evaluating symptoms such as indigestion. Gastric bezoars can be removed via endoscopy [5]. In this method, the gastric bezoar is crushed and removed using biopsy forceps, a snare, a laser, an argon plasma, or electrohydraulic lithotripsy [6–8]. Unlike bezoars that occur in the stomach, bezoars of the small bowel cause obstruction and lead to vague symptoms. CT scans can help diagnose bezoars and reduce complications [9]. Bezoars are reportedly known to occur 50–70 cm from the ileocecal valve. They rarely occur in the jejunum and can also present as multiple lesions in the stomach, jejunum, and ileum [2].

The most common diagnosis is small bowel bezoars, which are



**Fig. 3.** Computed tomography (CT) scan shows the absence of the previously noted enhanced nodular mass at the afferent loop of jejunum.



**Fig. 2.** (A) Endoscopic examination shows an approximately 3 cm bezoar below the pancreaticojejunostomy and hepaticojejunostomy segment, which is the end of the afferent loop of the jejunum. (B) We tried to remove it using an endoscopic basket, but it broke halfway. (C–D) Because the bezoar reduced in size, the procedure was aborted. (E and F) After the procedure, the suture material showed the afferent loop of the jejunum.

diagnosed after emergency surgery. In previous studies, 65–100% of small bowel feces cases and bezoars were diagnosed via preoperative CT scan [9].

In this case, the patient developed a small bowel bezoar after she underwent gastrointestinal surgery. It occurred in the afferent loop of the jejunum. It was initially diagnosed as a tumor on a CT scan. Since she previously underwent surgery for a pancreatic tumor, recurrence or other small bowel tumors were suspected. However, it was diagnosed as a bezoar after endoscopic biopsy, and was immediately crushed and treated using an endoscopic basket. In some reports, afferent loop syndrome, a clear symptom, is diagnosed on a CT scan and treated endoscopically or surgically [10,11].

Bezoars can be classified as phytobezoars, diospyrobezoars, trichobezoars, pharmacobezoars, lactobezoars, and foreign body bezoars. This was a rare case of abdominal pain induced by bezoar formation secondary to residual suture material. Surgeons must be careful not to leave behind surgical materials such as sutures in the gastrointestinal tract while performing gastrointestinal surgery.

#### 4. Conclusion

The development of persistent abdominal symptoms in patients with a history of gastrointestinal surgery warrants evaluation using CT scan to visualize the operative site. Performing endoscopy because of the previous operation is difficult but crucial in confirming the characteristics of the tumor. Endoscopic treatment should be considered in patients diagnosed with a bezoar. When patients report abdominal pain, a bezoar should be considered as a definitive diagnosis if they had a history of gastrointestinal surgery. Surgeons must be careful not to leave behind suture material during gastrointestinal surgery.

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#### Ethical approval

This is a case report; therefore it did not require ethical approval from ethics committee.

#### Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

#### Author contribution

Lee WY was attending doctors for the patient. Lee WY organized the report and wrote the paper.

#### Registration of research studies

Not applicable.

#### Guarantor

Woo Yong Lee.

#### Provenance and peer review

Not commissioned, externally peer-reviewed.

#### Declaration of competing interest

The authors declare that we have no conflict of interest.

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