Extremely rare case of extrahepatic duct phytobezoar treated with intraoperative transenteral endoscopy

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INTRODUCTION

Bezoar stones are concrete masses of indigestible material. The phytobezoar is a common type of bezoar. It is composed of indigestible vegetable-like material. The incidence has been reported as 0.4% in the general population [1]. Phytobezoars are commonly reported in patients who have had previous gastric surgery [2,3]. Most commonly, bezoars produce mechanical obstructive symptoms but when they cause gastrointestinal bleeding or perforation, bezoars are associated with high mortality [4]. Therefore, it is very important to remove a bezoar to prevent mortality and morbidity. The treatment of bezoar is endoscopy or surgery.

We recently experienced a 79-year-old woman diagnosed with extrahepatic duct phytobezoar. Although biliary phytobezoar is extremely rare, a few cases of extrahepatic duct phytobezoar have been reported previously [5,6]. We successfully treated this case with intraoperative transenteral endoscopic removal.

This report concerns an extremely rare case of extrahepatic duct phytobezoar and intraoperative transenteral endoscopic treatment including imaging and review of the literature.

CASE REPORT

A 79-year-old woman came to the Emergency Department due to severe cramping abdominal pain and vomit for 2 days. She had a 40-year history of repeated hepatobiliary operation because of cholecystitis and postoperative complication. She had a history of intestinal obstruction 6 months prior and was treated conservatively.

All vital signs, including body temperature, pulse, and blood pressure, were within normal limits. Laboratory findings in Emergency Department were unremarkable. Chest and abdomen radiographs were also unremarkable. The patient underwent abdomen-pelvic CT scan to evaluate the cause of abdominal pain. The CT scan revealed dilatation...
and a large stone of the extrahepatic duct with air-biliary gram, parenchymal atrophy of the left hepatic lobe and no remarkable findings in the right hepatic lobe (Fig. 1). An endoscopic retrograde cholagio-pancreatography (ERCP) was then performed to evaluate the biliary tract. There was nothing found in the common bile duct on ERCP (Fig. 2).

Our results lead us to consider extrahepatic duct stone with obstruction and change of biliary drainage system due to the previous hepatobiliary operation. Surgical procedure was indicated and exploration was performed thereafter. There was severe fibrous adhesion between diaphragm, liver, stomach, small bowel, transverse colon and peritoneum, especially in the right upper quadrant area. There was jejuno-jejunalostomy between the jejunal limb from the duodenum and jejunal limb from hepatico-jejunalostomy 15 cm distally from the Treitz ligament (Fig. 3). There was a hepatico-jejunalostomy site in the porta hepatis area. Small enterotomy was performed below the jejuno-jejunalostomy site (Fig. 3). Intraoperative endoscopy was performed by transenterotomy using a 15-mm Xcel trocar (Ethicon Inc., Somerville, NJ, USA) (Fig. 4). There were hepatico-jejunalostomy sites and concrete materials in the extrahepatic duct just above the stoma (Fig. 5). Endoscopic fragmentation, removal and saline irrigation were performed successfully. The removed mass-like material was not stone but phytobezoar composed of indigestible vegetable and food-like materials (Fig. 6). The patient’s postoperative course was uneventful and she is doing well following surgery.
Phytobezoar is a common type of bezoar. It composed of indigestible vegetable-like material. The incidence has been reported as 0.4% in the general population [1]. Common site of phytobezoar are the stomach and small bowel. Phytobezoars are commonly reported in patients who have had previous gastric surgery [2,3]. However, our patient had not had gastric surgery but cholecystectomy and hepatico-jejunostomy due to postcholecystectomy complication.

Phytobezoar in the biliary tract is very rare and few cases of extrahepatic duct phytobezoar are reported in the literature [5,6]. That seems to be related to increased intestinal luminal pressure which allows reflux of indigestible vegetable and diverse food materials from the distal small bowel when especially, intestinal obstruction is developed [5].

Therefore, there is the possibility of formation of phytobezoar in the intra- or extrahepatic biliary tract in cases of new entry formation from the hollow viscus to the biliary tract such as choledoco-jejunostomy, cholecysto-duodenostomy, sphincteroplasty, etc.

Most commonly, the phytobezoar is a rare cause of gastrointestinal tract obstruction. Maybe, the cause of pain was intrahepatic duct obstruction in our patient. In other clinical manifestations, when they cause gastrointestinal bleeding or perforation, bezoars are associated with a high mortality [4]. Therefore, it is very important to remove a bezoar to prevent mortality and morbidity.

Gastroscopy is a useful diagnostic tool of gastric phytobezoars and CT scan is the most useful diagnostic method of small bowel phytobezoar [7]. Differentiated diagnosis between stone and phytobezoar in the biliary tract is difficult because stones and concrete phytobezoars are radiolucent with similar shapes and the biliary tract is a very unusual site of phytobezoar. Naturally, extrahepatic duct phytobezoar is near impossible due to the anatomical structure and location such as the ampulla of vater, common bile duct and bifurcation of common hepatic
duct. So, extrahepatic duct phytobezoar is difficult to diagnose preoperatively.

Surgical or endoscopic removal are treatments of choice for phytobezoars. Especially, surgical removal is the treatment of choice for phytobezoars that endoscopy cannot approach or fail. We successfully treated a case of extrahepatic duct phytobezoar with intraoperative transenteral endoscopic removal. Intraoperative transenteral endoscopy is an alternative treatment or diagnostic modality that can evaluate unknown small bowel bleeding or unknown small bowel intraluminal lesion during operation [8]. The benefit of using trocar during intraoperative endoscopy is its easy approach in the small bowel, aseptic from endoscopic equipment, and anchoring effect like the human mouth and neck [8].

In this patient, the gastroscopy and ERCP could not approach and evaluate the hepatico-jejunostomy site preoperatively because of Roux-en Y anastomosis between the jejunal limb from duodenum and the jejunal limb from hepatico-jejunostomy (Fig. 3). On surgical exploration, the entire gastrointestinal tract must be explored to exclude other bezoar and prevent recurrent bowel obstruction caused by residual bezoar [9]. Other nonsurgical treatment options include sodium bicarbonate powder, a liquid diet, enzymatic digestion with various agents, endoscopic fragmentation and oral intake (or endoscopic injection) of Coca-Cola [10].

In conclusion, we have presented a case of extrahepatic duct phytobezoar successfully treated with intraoperative transenteral endoscopic removal. Although it is considered extremely rare, it can be one of the possible causes of extrahepatic duct obstruction. For its great rarity and particular treatment approach, we report this case with review of the literature.

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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