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Case Report

Large Obstructing Duodenal Diverticulum Mimicking a Cystic Neoplasm of the Pancreas

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Introduction

Diverticula can occur anywhere along the small bowel, but are most frequently seen in the duodenum [1]. Diagnosis of this condition is made incidentally in 2% to 6% of upper gastrointestinal contrast studies, in 12% to 27% of endoscopic studies and at autopsy in 22% of cadavers [2]. Most diverticula are asymptomatic and are discovered during evaluation for other gastrointestinal disorders. Perforation and bleeding are the most frequently reported complications. In rare cases, a duodenal diverticulum may become obstructed [3,4]. Duodenal diverticula (DD) are recognized on computed tomography (CT) or magnetic resonance imaging (MRI) as completely filled with gas or with a combination of fluid and gas [5]. If its content is purely fluid, the radiologist may potentially misinterpret a DD as a cystic tumor of the pancreas [2].

Case Report

A 60-year-old male alcoholic presented to the emergency department with progressive postprandial vomiting and dull abdominal pain of 3 months' duration, resulting in a 40 kg weight loss. On physical examination, he was dehydrated and cachectic, with tender palpable mass in the right upper abdominal quadrant. Laboratory studies revealed hypochloremic, hypokalemic, metabolic alkalosis with elevated amylase, lipase, CA 19-9, CEA and liver enzymes. Esophagogastroduodenoscopy demonstrated obstruction of the second portion of the duodenum. Abdominal CT scan revealed a large (10 x 7 cm) cystic lesion adjacent to the second portion of the duodenum (Figure 1).



Figure 1. CT scan showing a large cystic lesion (10 x 7 cm) adjacent to the second portion of the duodenum.

At operation, we found a large distended stomach, the duodenal loop stretched over the large cystic lesion, and signs of portal hypertension. Whipple pancreatoduodenectomy proved too risky, due to extensive peripancreatic fibrosis. Instead, a resection of the cystic formation, the duodenum and a part of the pancreatic head was carried out, along with cholecystectomy and Billroth II partial gastrectomy. Both common bile duct and pancreatic duct were noted in the resection plane of the pancreatic head. Pancreatic- and choledochojejunostomy was

made, drains were inserted into pancreatic and common bile ducts (Figure 2). The patient had a protracted postoperative period which was complicated by pneumonia and bilateral pleural effusion. The patient was discharged home six weeks following surgery. Histology revealed a large DD, with chronic inflammatory changes in the adjacent pancreatic tissue.

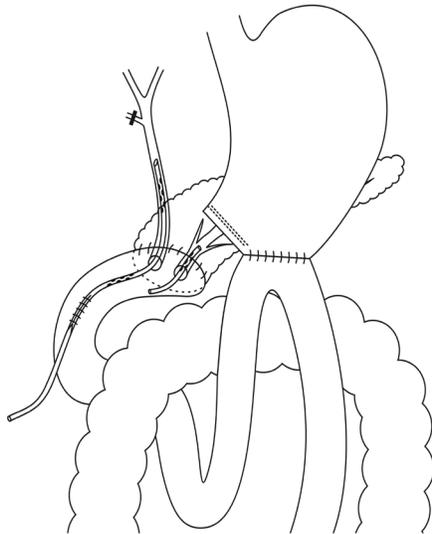


Figure 2. Operative reconstruction after resection of the cystic formation, the duodenum and a part of the pancreatic head.

Discussion

The duodenum is the most common location for small bowel gastrointestinal diverticula [1]. Most diverticula are asymptomatic and are located in the second part of the duodenum usually around the ampulla of Vater [2]. The clinical presentation of duodenal diverticula is rather nonspecific, and may include postprandial epigastric pain, bilious vomiting, gastrointestinal bleeding, perforation and duodenal obstruction [3,4]. The distended diverticulum can obstruct the intestinal lumen and the reflux of duodenal contents into pancreatic duct has been proposed as the etiology for the associated pancreatitis. Acute pancreatitis has been the initial presentation in 20% of the reported cases. Some reports suggest an association of chronic pancreatitis with a diverticulum close the major papilla.

The typical CT appearance of a DD has been described as a thin-walled rounded collection of gas and oral contrast material situated along the medial border of the junction of the second and third portions of the duodenum. On MR imaging, DD may contain both high-signal-intensity areas (related to the presence of fluid) and low-signal-intensity areas (related to the presence of gas). The differential diagnosis of a cystic lesion in the region of the head of the pancreas includes cystic pancreatic neoplasms, inflammatory process, and DD. The radiologist may not be able to distinguish DD on CT or MRI if their content is purely fluid [2]. Endoscopic ultrasound (EUS) has been used

to image the pancreas and for assessment of cystic lesions because it can provide images of cystic wall and septations. EUS permit sampling of cyst fluid, mass lesions, and lymph nodes, but has not been able to accurately differentiate between benign and malignant cystic neoplasms [6]. Contrast-enhanced ultrasound (CEUS) is a sensitive method that evaluates the vascularization of pancreatic lesions, solid and cystic and also the viability of pancreatic tissue and of pancreatic masses [7]. With CEUS it is possible to show the inner margin of the cyst without nodule structures and variability of the size of the cyst under pressure, however, CEUS was not performed in our case.

Surgical approach by duodenotomy and diverticulum excision is a treatment of choice. The diverticulum should be excised or invaginated to avoid any injury to the Vater's ampulla. Surgical management of periampullary diverticula is complicated and associated with high morbidity [5,8,9]. Symptomatic diverticula of the third and fourth stages may be safely managed by diverticulectomy and oversewing of the duodenum or distal duodenal resection if the neck to the diverticulum is wide [3]. When the tissues are friable and there is a concern of breakdown, the upper gastrointestinal tract is diverted with a gastrojejunostomy. A Whipple resection is considered in patients who do not have a preoperative tissue diagnosis [10].

In our patient, the large size of the lesion, elevated tumor markers, lack of air in the cyst, and complete obstruction of duodenal lumen indicated a potentially malignant cystic neoplasm of the pancreas. Otherwise, operative treatment of DD should be reserved for those with emergent presentations or intractable symptoms.

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