Acute Pancreatitis Occurring in Gastric Aberrant Pancreas Treated with Surgery and Proved by Histological Examination

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Abstract

We describe a case of gastric aberrant pancreas with acute pancreatitis. Barium meal examination, endoscopic examination and computed tomography of a 32-year-old man with abdominal pain revealed a submucosal tumor, about 3.5 cm in diameter, at the angulus of his stomach. Endoscopic ultrasonography revealed a hypoechoic mass with anechoic capillary areas. His serum amylase level was high at 262 IU/l. Laparoscopy-assisted local resection was carried out. The resected tumor revealed pancreatic tissue with extensive neutrophil infiltration in the gastric wall and fat necrosis in the subserosa. There are few cases of histologically proven acute pancreatitis in gastric aberrant pancreatic tissue.

Case Report

The patient was a 32-year-old man, 170 cm tall and weighing 66.6 kg. He visited our hospital for epigastralgia and further evaluation of the abnormal radiographic findings of the stomach. He had dull continuous abdominal pain for 1 week with no specific aggravating or relieving factors. Barium meal examination at the previous physician revealed a large elevated tumor in the stomach. He had been in good health and no specific family, past medical, or drug history was identified. He had drunk about 35 g/week of alcohol for 12 years. Physical examinations revealed no abnormalities. Routine hematological examination and biochemical tests were within normal limits. However, serum amylase and C reactive protein (CRP) examined by the previous physician were high at 262 IU/l (normal <=150 IU/l) and 2.0 mg/dl (normal <=0.4 mg/dl), respectively.

On radiographic examination, the double contrast radiograph showed a large elevated lesion with fold conversion on the posterior wall of the angulus (Fig. 1). Endoscopic examination of the upper digestive tract and abdominal computed tomography (CT) revealed a submucosal tumor (SMT) covered with normal mucosa, about 3.5 cm in diameter, in the posterior wall of the angulus (Fig. 2). An abdominal CT showed a normal pancreas, and there were no findings that suggested pancreatitis such as swelling or fluid. The esophagus and duodenum appeared normal. Endoscopic ultrasonography (EUS) (20 MHz frequency) revealed a hypoechoic heterogeneous mass, about 3 cm in diameter, with anechoic capillary areas which mainly occupied the third layer of the gastric wall. The border between the forth layer and this tumor was unclear (Fig. 3). Under the diagnosis of aberrant pancreas of the stomach, laparoscopy-assisted local resection was carried out.

The resected tumor was covered with normal mucosa and no ulcer or erosion was seen on the mucosal surface. Opening of the rudimentary pancreatic duct was not detected. The cut surface showed a yellowish soft mass resem-
bling a normal pancreas (Fig. 4), and located mainly in the smooth muscle layer. Histologically, the mass was composed of normal pancreatic acini, ducts, and islets and was distributed from submucosa to serosa. A part of this tumor revealed pancreatic tissue with extensive neutrophil infiltration (Fig. 5A). This resected tumor was diagnosed as an aberrant pancreas. Histological examination also revealed extensive neutrophil infiltration and small abscesses in the gastric wall. Fat necrosis was present in the subserosa (Fig. 5B). The diagnosis, based on these histological findings, was acute pancreatitis occurring in the gastric aberrant pancreas.

Discussion

Aberrant pancreas occurs in 0.25–13.7% of patients based on both autopsy and surgical series; approximately 70% of all such tissues are found in the stomach, duodenum, and jejunum (2). When an aberrant pancreas is found coincidently during surgery for other abdominal conditions, resection should be considered because of the risk of late clinical problems.

A MEDLINE search of the literature, revealed only 3 cases of acute pancreatitis occurring in the gastric aberrant pancreas in the last 30 years including the present case (3, 4) (Table 1). There have been a few reports of histologically proven acute pancreatitis in gastric aberrant pancreatic tissue. A major symptom of all 3 cases was abdominal pain. All 3 cases showed slight elevation of serum amylase and were treated with surgical resection. Fat necrosis was present in the subserosa in all 3 cases in Table 1. Acute pancreatitis was considered as a possible diagnosis before surgery, although the serum amylase was only marginally elevated in the present case. The mildly elevated serum amylase may well be explained by the relatively small amount of pancreatic tissue involved. There were some reports describing acute pancreatitis occurring in the aberrant pancreas excluding the stomach, such as in the duodenum (5), small bowel mesentery (6) or Meckel’s diverticulum (7). These patients with acute pancreatitis in the aberrant pancreas had abdominal pains. Thus, it is necessary to be aware that an aberrant pancreas may cause acute pancreatitis and should be suspected in a patient with abdominal pain regardless of a distinct cause, when serum amylase is elevated. All 3 cases of acute pancreatitis occurring in the gastric aberrant pancreas in Table 1 are young men. Gastric aberrant pancreas had been reported to be common in men, and Fam et al described that the male to female ratio of gastric aberrant pancreas was 3 : 1 (6). It is unclear whether young men with gastric aberrant pancreas tend to have acute pancreatitis. However, 2 patients with acute pancreatitis in the aberrant pancreas

Figure 1. Radiographic features of the stomach. The double contrast radiograph showed an elevated lesion with bridging folds on the posterior wall of the angulus.

Figure 2. Abdominal computed tomography on admission revealed a large submucosal tumor, about 3.5 cm in diameter, in the gastric posterior wall (arrow) and a normal pancreas.
excluding the stomach, who were reported by Fam et al (12-years old) (6) and Taylor and Owen (29-years old) (7), were young males. Acute pancreatitis in the aberrant pancreas should be suspected in a young man with atypical abdominal pain. Surgical therapy is necessary for the symptomatic patients of gastric aberrant pancreas (2). Acute pancreatitis with abdominal pain rarely occurs in the gastric aberrant pancreas. This disease occasionally develops other symptoms such as bleeding or vomiting (2, 8, 9). Moreover, this disease is rarely associated with adenocarcinoma (10). The incidence of malignant change in the gastric aberrant pancreas has been estimated to be less than that of the normal pancreas itself (2). Ikenaga et al (11) described that the cases of gastric aberrant pancreas larger than 3 cm frequently had symptoms or were associated with adenocarcinoma. Thus a tumor size of larger than 3 cm may be indicative of malignant behavior or the time for surgery.

EUS has recently been frequently used for determining the depth of tumor invasion in the gastrointestinal wall, and it is also useful for evaluating gastrointestinal SMT. It also assists in determining the indications for endoscopic removal (12). In some cases, we can obtain a histological specimen from gastric SMT by endoscopic ultrasound-guided needle aspiration (13). Yoneshima et al (14) described EUS findings in gastric aberrant pancreas as follows: 1) a mass in the submucosal layer, 2) a solid echo pattern with some small cystic or anechoic capillary areas, 3) a thick 4th layer surrounds the mass. In the present case, EUS revealed an SMT with a hypoechoic pattern, involving the submucosal layers and smooth muscle layers of the gastric wall. EUS also revealed a hypoechoic heterogeneous mass with anechoic capillary areas and these findings were compatible with gastric aberrant pancreas. We had to make a differential diagnosis regarding a gastrointestinal stromal tumor (GIST), however, we could rule out a GIST because of the existence of anechoic capillary areas. The present patient was diagnosed

Figure 3. Endoscopic ultrasonography findings of the gastric tumor. The tumor was a hypoechoic heterogeneous mass with anechoic capillary areas which mainly occupied the third layer of the gastric wall. And this tumor was connected with the smooth muscle layer (forth layer) of the gastric wall.

Figure 4. Macroscopic findings of the tumor. The cut surface showed a 3 cm sized yellowish soft mass resembling a normal pancreas (arrows).
as having a gastric aberrant pancreas by diagnostic imaging and elevation of serum amylase. Endoscopic ultrasound-guided needle aspiration was not necessary for diagnosis of this tumor. We abandoned the removal of this tumor endoscopically because the tumor size was over 3 cm and the tumor was connected with the smooth muscle layer of the gastric wall. EUS could affect the indication for surgery in the present case.

Unfortunately, we could not determine the etiology of acute pancreatitis in the gastric aberrant pancreatic tissue. In the present case, there was no specific drug history and he was not a heavy drinker. However, his alcohol habit might be related to acute pancreatitis. Aberrant pancreas associated with gastrointestinal bleeding, intussusception, and intestinal obstruction has been described in the literature (2). However, acute pancreatitis in gastric aberrant pancreatic tissue is seldom proven histologically. Thus, the causative mechanism of pancreatitis in the gastric aberrant pancreatic tissue has yet to be clarified and further studies are necessary.

In conclusion, we reported a rare case of acute pancreatitis occurring in a gastric aberrant pancreas treated with surgery and proved by histological examination. Based on the findings in the present case, we suggest that an aberrant pancreas should generally be taken into consideration in the differential diagnosis of SMT of the stomach. It is necessary to be aware that a gastric aberrant pancreas may cause acute pancreatitis and should be suspected in a patient with atypical abdominal pain when there is SMT in the stomach.

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References
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