CASE REPORT

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Groove (paraduodenal) pancreatitis: Report of two cases

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"Groove" pancreatitis is a rare segmental form of chronic pancreatitis that involves the area located between the common bile duct, head of the pancreas and duodenum. It is more common in middle-aged males who have a history of alcohol abuse. The differential diagnosis varies from anatomic variants to malignancies. The most relevant differential diagnosis of groove pancreatitis is adenocarcinoma of the head of the pancreas. Most of the cases were diagnosed after pancreatic resection. Thus, the correct diagnosis of this rarely seen disease is very important to avoid unnecessary tests or procedures and to determine the definitive treatment.

Key words: Groove pancreatitis, paraduodenal pancreatitis, chronic pancreatitis

İki groove (paraduodenal) pankreatit olgusu

Groove pankreatit, seyrek görülen, paraduodenal bölgeyi tutan ve sıklıkla pankreas kanseri ile ayrımı yapılamadığından pankreatikoduodenektomi sonucu tanı konan bir durumdur. İki olgumuz nedeni ile groove pankreatiti tartıştık.

Anahtar kelimeler: Groove pankreatit, paraduodenal pankreatit, kronik pankreatit

INTRODUCTION

"Groove" pancreatitis is a rare segmental form of chronic pancreatitis that involves the area located between the common bile duct, head of the pancreas and duodenum (1). It is more common in middle-aged males who have a history of alcohol abuse. The differential diagnosis varies from anatomic variants to malignancies (2-5). The most relevant differential diagnosis of groove pancreatitis is adenocarcinoma of the head of the pancreas. Most of the cases were diagnosed after pancreatic resection. Thus, the correct diagnosis of this rarely seen disease is very important to avoid unnecessary tests or procedures and to determine the definitive treatment.

Because it is not common and there is no large series, we believe that our knowledge will increase with the presentation of new cases. We therefore report herein two cases diagnosed as groove pancreatitis.

CASE REPORTS

Case 1

A 50-year-old male with chronic alcohol abuse was admitted to the hospital with abdominal pain, weight loss, nausea, and vomiting in January 2010. Upper endoscopy showed that the duodenum was edematous and narrow. He was followed with conservative treatment. A few months later, he presented to our clinic with recurrent abdominal pain and weight loss. His amylase and lipase levels were more than five-fold of normal limits. In his up-

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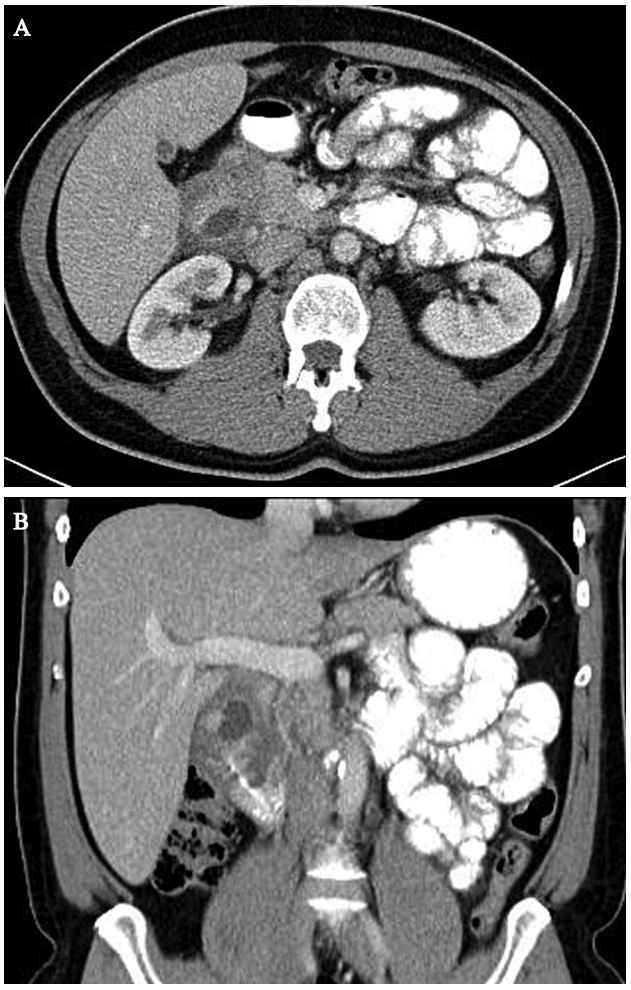

Figure 1. (A, B) Axial and coronal plane venous phase CT scans show a thickened duodenal wall and wall enhancement of the cystic lesion in the duodenal wall-pancreatic Groove.

per endoscopic examination, the second part of the duodenum was significantly edematous. The computed tomography (CT) scan demonstrated small low-density cystic areas within the duodenal wall and thickening and luminal narrowing of the descending part of the duodenum (Figure 1). On endoscopic ultrasonography (EUS) examination, the head of the pancreas showed heterogeneity and the duodenal wall was thickened. Fine needle aspiration (FNA) result was benign. He was diagnosed as groove pancreatitis. The patient was advised to quit smoking and alcohol consumption. During the 2.5-year follow-up period, he experienced pain attacks 3 or 4 times upon alcohol consumption. All of his imaging examinations revealed that the disease was limited in the groove area. After a five-month asymptomatic period, he died due to intracranial bleeding.

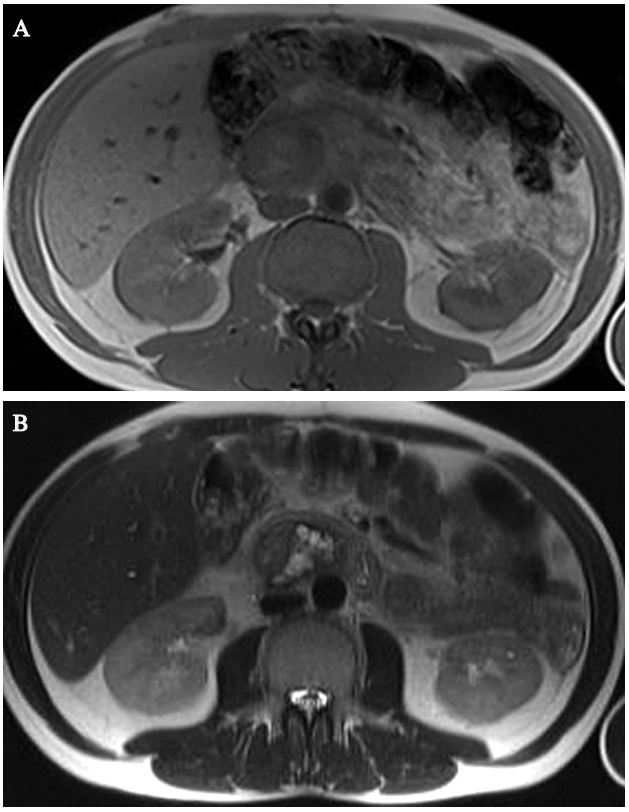

Figure 2. Axial plane gradient- echo T1 weighted **(A)** and HASTE-T2 weighted **(B)** breath-hold MR images show micro cystic lesions and edema in the duodenal wall.

Case 2

A 45-year-old male had chronic pancreatitis related with chronic alcohol consumption. One year before, distal pancreatectomy was performed because of suspected malignancy. The histopathologic examination was benign. Because of pain attacks, the patient became opioid- dependent. Magnetic resonance imaging (MRI) showed cysts and a heterogeneous area in the pancreatic head that was suspected as malignant (Figure 2). On EUS examination, the head of the pancreas and duodenal wall were thickened, and there was an increased heterogeneity on the pancreatic head, which was considered as pancreatitis (Figure 3). Total pancreatectomy was performed for chronic intractable abdominal pain. The histopathologic examination was compatible with groove pancreatitis. The pathology of the resected specimen showed cystic dystrophy of the duodenal wall with hypertrophy of the Brunner glands and the presence of an ectopic pancreas in the submucosa of the duodenum (Figure 4).

During the follow-up period, the patient had no surgical complications, but he died following opioid overdose.

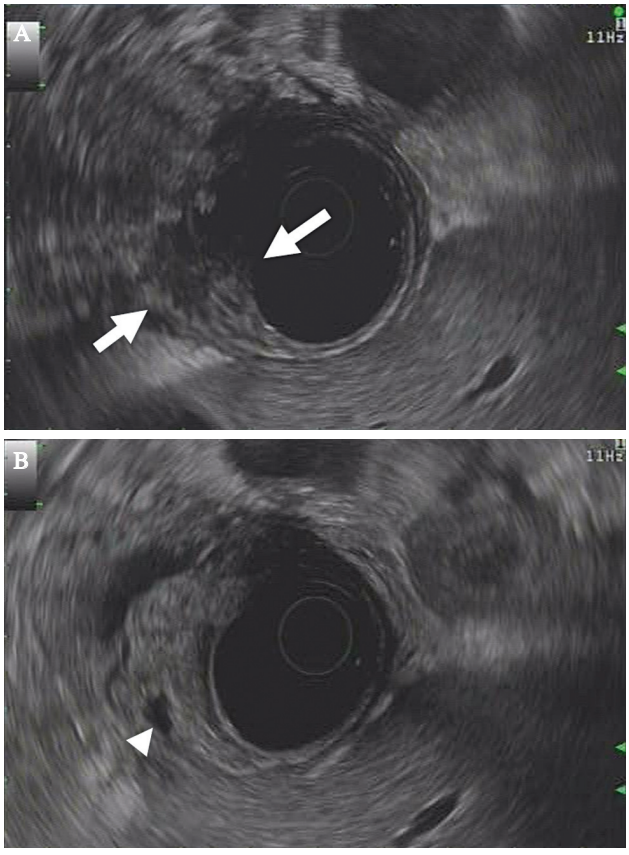

Figure 3. EUS: **(A)** Thickened, heterogeneous second portion of the duodenal wall (arrows) and **(B)** cystic area within the duodenal wall (arrowhead).

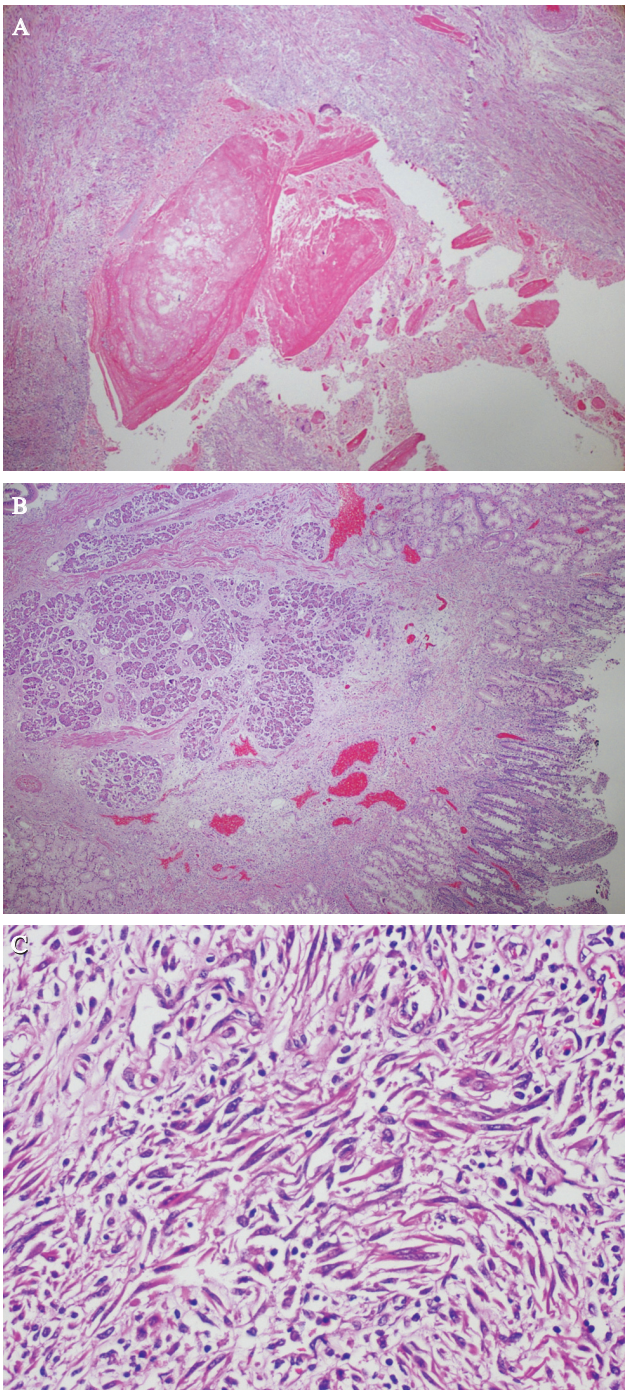

Figure 4. Histologic examination: **(A)** Cystic cavity filled with amorphous proteinaceous secretion. **(B)** Heterotopic pancreatic tissue in the submucosa of the duodenum. **(C)** Reactive fibroinflammatory proliferation mimicking an inflammatory fibroblastic tumor.

DISCUSSION

The pancreatic groove is the area between the pancreatic head, duodenal wall and the common bile duct. In this region, tumors of the duodenum, pancreatic head, distal common bile duct, and lymph nodes can be seen.

Cystic dystrophy of the heterotopic pancreatic tissue in the duodenal wall was described in 1970 (6). Adsay and Zamboni (7) grouped groove pancreatitis with cystic dystrophy of the pancreas, pancreatic hamartoma of the duodenum, paraduodenal wall cyst, and myoadenomatosis as paraduodenal pancreatitis. In 1991, Becker (3) divided groove pancreatitis into two groups as the pure and segmental form. The pure form affects the groove only, while the pancreatic parenchyma and the main pancreatic ducts are preserved. The segmental form predominantly involves both the groove and head of the pancreas; however, it was then reported that the whole pancreas could be affected in some cases. One of our cases also had chronic pancreatitis in the entire pancreas and had undergone surgery for pancreatic tail resection. The histopathologic result of this resection material was chronic pancreatitis. However, after the second operation, the histopathologic examination of the duodenopancreatectomy specimen showed typical groove pancreatitis.

The pathogenesis of groove pancreatitis remains controversial. Chronic alcohol consumption is the initiating factor in most of the cases. It increases the viscosity of the pancreatic juice. According to one theory, if the Santorini duct of the patient is narrow, the viscous pancreatic juice causes occlusion of the duct. Tumors occluding the major or minor papilla also cause groove pancreatitis. Some studies have reported that endoscopic treatment of this occlusion relieves the disease (8-10).

According to the second theory, if the patient has heterotopic pancreatic tissue in the duodenal wall, chronic alcohol consumption can cause inflammation and cystic dystrophy of this heterotopic tissue.

Most of the patients are middle-aged males with chronic alcohol consumption. The most common symptoms are abdominal pain, nausea and weight loss. Some of the patients may also have jaundice. Vomiting and weight loss are more than expected and the reason is the stenosis of the duodenum (11). The real incidence is not known. In some old series, histopathologic results of the specimen from patients who underwent surgery for chronic pancreatitis showed that the ratio of groove pancreatitis ranged between 19-24%. This high ratio could be related with the increased rate of surgery in these patients because the differential diagnosis between groove pancreatitis and pancreatic adenocarcinoma was very difficult. In our country, chronic alcohol consumption is less than in Western countries, so the incidence of groove pancreatitis is probably low.

In recent years, advances in imaging methods and awareness about the disease have resulted in increased reported cases. Nevertheless, most of the cases can only be diagnosed after pancreatic resection for the management of chronic pancreatitis or pancreatic cancer. In a review of 58 cases, all patients were diagnosed after pancreatic resection (12). In another series of six patients with groove pancreatitis, one patient was diagnosed as distal common bile duct carcinoma after the operation. This patient was an elderly female with no history of alcohol consumption (13).

If cystic lesions and a thickened duodenal wall are seen on CT, MRI or EUS, groove pancreatitis should be suspected. MRI and EUS are especially sensitive for revealing cystic dystrophy on the duodenal wall (14-16). EUS-FNA help to exclude pancreatic cancer. In some cases, it is difficult or even impossible to perform EUS due to the stenosis of the duodenum.

Groove pancreatitis should be differentiated from pancreatic head carcinoma (17-19). If the pancreatic head carcinoma grows into the duodenal wall, it becomes very difficult to differentiate it from groove pancreatitis. In pancreatic cancer vascular invasion, high tumor markers may be present and helpful in the differentiation from groove pancreatitis. Stenosis of the bile duct is smooth and long in groove pancreatitis, whereas it is abrupt and short in pancreatic cancer. In groove pancreatitis, the main pancreatic duct is usually normal, and vascular invasion is not seen. Amylase and lipase levels may be mildly elevated in groove pancreatitis; however, the differential diagnosis still requires a meticulous work-up. The accurate diagnosis can only be done with histopathologic examination.

There is no other proven treatment option except stopping alcohol consumption and smoking.

In some cases, endoscopic stenting of the minor papilla or administration of somatostatin has been tried, but to date, there have been no long-term follow-up results or other experiences in the literature. In these patients treated with stenting, the symptom recurrence rates are high, indicating that permanent response to the endoscopic therapies is questionable. The surgical management option is pancreaticoduodenectomy. However, it is difficult to perform pylorus- preserving operations because of the fibrosis and inflammation of the duodenum.

Groove pancreatitis is a benign disease, and if diagnosed preoperatively, unnecessary surgery can be avoided. However, because of frequent, recurrent and intractable pain or cancer suspicion, pancreaticoduodenectomy is usually unavoidable. If the duodenal wall is thickened and cysts are present in the groove region in a middle-aged male patient with chronic alcohol consumption, groove pancreatitis should be kept in mind.

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