

Case Report: Groove pancreatitis masquerading as pancreatic cancer: A case report

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Abstract: Groove pancreatitis (GP) is a rare chronic pancreatitis. Its lesions involve the potential space between the pancreatic head, the 'C' ring of the duodenum, and the common bile duct. Due to its special location, its pathogenesis is still unclear and its clinical manifestations lack specificity. Its clinical manifestations are similar to those of pancreatic cancer, leading to difficulties in preoperative diagnosis and easy to be misdiagnosed. Imaging examination can often find duodenal wall thickening and small cysts, sometimes the main pancreatic duct and pancreatic head stenosis, distal dilatation, which is helpful for the diagnosis of GP, but the final diagnosis still depends on pathological diagnosis. At present, there is no unified diagnostic criteria for GP. Patients with highly suspected GP who do not improve after conservative treatment should undergo pancreaticoduodenectomy as soon as possible to confirm the diagnosis. Here, we report a case of a 67-year-old male who was admitted to the hospital for pancreatic cancer and underwent pancreaticoduodenectomy. The postoperative pathological findings were groove pancreatitis.

1. Introduction

Groove pancreatitis (GP) it is named because its lesions involve the potential space between the pancreatic head, the 'C' ring of the duodenum, and the common bile duct (pancreaticoduodenal groove) [1]. Due to its relative rarity, lack of specific clinical manifestations, and imaging findings mostly showing low-density lesions in the groove area and uneven duodenal wall thickening, it is easily misdiagnosed as pancreatic head cancer in clinical practice.

2. Case report

The patient is a 67-year-old man who developed nausea, vomiting, left upper quadrant abdominal pain and discomfort 6 days ago without obvious triggers, and unresolved stool. A gastroscopy at the local hospital showed gastric retention. Computed tomography (CT) scan showed intestinal changes in the descending duodenum and the nature of gastric retention was yet to be determined. Ulcer and encapsulated abscess in the descending duodenum were considered to be a high possibility, and neoplastic lesions were not excluded. The patient's symptoms did not improve

after symptomatic treatment. CT of the liver, gallbladder, spleen and pancreas in our hospital showed dilation of the gastroduodenum and thickening of the intestinal wall in the descending part of the duodenum, the nature of which is yet to be determined (Figure 1A-B). Abdominal contrast-enhanced CT showed gastric retention, thickening of the intestinal wall at the level of the pancreatic head in the descending part of the duodenum, narrow lumen, visible enhancement, patchy high-density lesions around the pancreatic head, and increased density of local fat spaces (Figure 1C-E). Magnetic resonance cholangiopancreatography showed multiple cystic shadow signals in the groove area and localized duodenal stenosis (Figure 1F-G). Comprehensive metabolic examination showed alanine aminotransferase 314.1 U/L, aspartate aminotransferase 197.8 U/L, alkaline phosphatase 160.3 U/L, γ -glutamyl transpeptidase 176.5 U/L, total Bilirubin was 34.45 $\mu\text{mol/L}$, direct bilirubin was 20.71 $\mu\text{mol/L}$, carbohydrate antigen 125, carbohydrate antigen 199, carbohydrate antigen 724, carcinoembryonic antigen, and alpha-fetoprotein were normal.

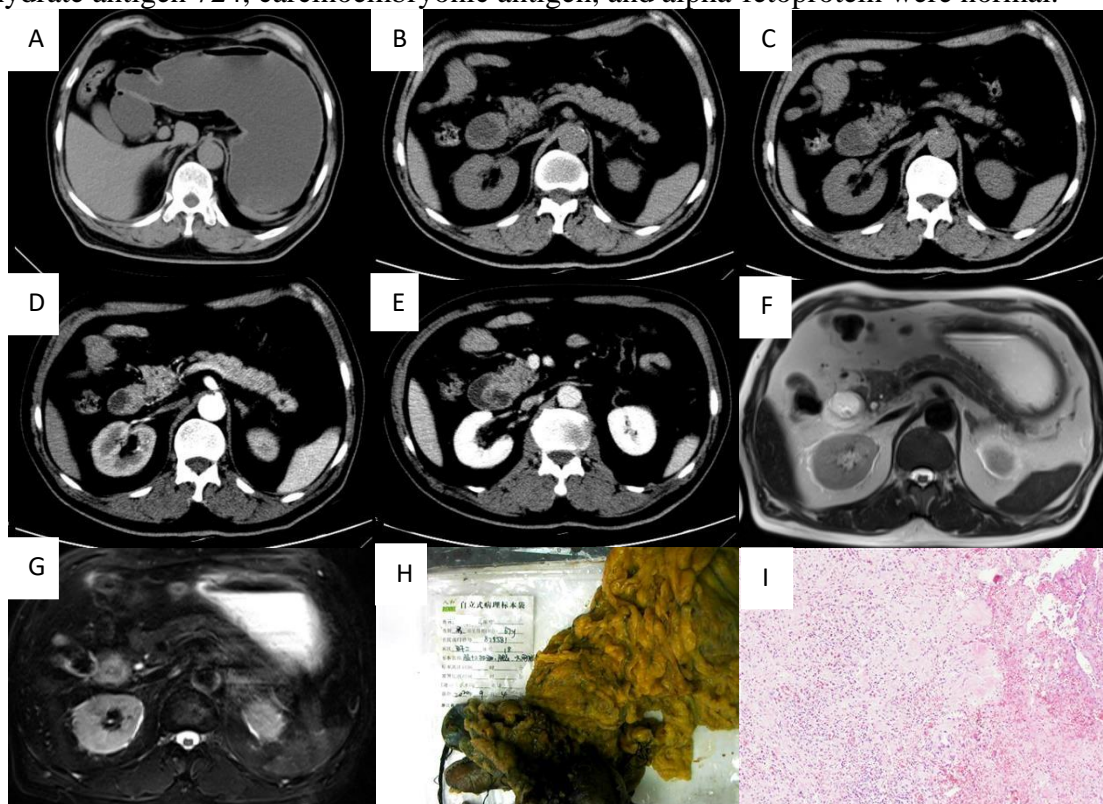


Figure 1: Patient imaging and pathological results. (A) Abdominal CT on the first day of admission showed gastric volume expansion and large amounts of fluid retention.(B) CT shows thickening of the duodenal wall and patchy high-density lesions around the head of the pancreas. (C)-(E) Abdominal contrast-enhanced CT on the fifth day after admission showed thickening of the wall at the level of the pancreatic head in the mid-duodenum, narrowing of the lumen, and visible enhancement; patchy high-density lesions were seen around the pancreatic head. (F)-(G) Localized stenosis is seen in the descending segment of the duodenum, multiple cystic T2 hyperintense lesions and cord signals are seen around the descending segment and the level, and T1 fat-suppressed sequence shows high signal. (H) Removed portions of the stomach, duodenum, pancreas, common bile duct, and gallbladder. (I) The lesion contains duodenal epithelial cells and spindle cells, and a large number of neutrophils and scattered lymphocytes can be seen in the background.

Based on the patient's examination results and clinical manifestations, local stenosis of the descending duodenum is considered, and tumor obstruction is more likely. After perfecting the preoperative preparation, exploratory laparotomy and pancreaticoduodenectomy was performed.

During the operation, a three centimeter mass in the lower segment of the common bile duct was found. It was hard in texture and had poor mobility. The frozen section of the resection margin during the operation was abnormal. The final pathological results showed fibrotic changes in the duodenal wall, a large number of fibroblast proliferation, reactive lymph node proliferation around the pancreatic head, and chronic inflammatory changes in the mucosa of the lower common bile duct (Figure 1H-I). Symptomatic treatment was given after the operation, and the patient recovered well and her symptoms improved. The above discomfort did not reappear during the 12-month follow-up.

3. Discussion and conclusions

Groove pancreatitis (GP) it is a rare and special type of pancreatitis. The groove area is a theoretical space, a potential gap surrounded by the pancreatic head, duodenum and common bile duct [1]. Due to its insidious onset, non-specific clinical manifestations, and special onset site, diagnosis is relatively difficult, and it is easily misdiagnosed as pancreatic cancer or autoimmune pancreatitis in clinical practice. GP is more common in middle-aged men aged 40-50 years old, and most of them have a history of long-term drinking. The pathogenesis is still unclear, but it is generally believed that excessive drinking is closely related to its onset [2].

At present, there is no unified standard for the diagnosis of GP. Preliminary diagnosis can be made based on the patient's clinical manifestations, laboratory and imaging test results. However, it is difficult to obtain a clear diagnosis surgically for most patients, and the final diagnosis still needs to rely on pathological diagnosis [3]. Among them, tumors in the head of the pancreas are the first to be identified.

Imaging examination is an important means of diagnosing GP. Typical CT findings [4] include low-density masses or flakes in the groove area, uneven thickening of the duodenal wall, intestinal lumen stenosis, and duodenal stenosis. Small cysts in the intestinal wall or in the pancreaticoduodenal groove. Endoscopic ultra sound (EUS) shows thickening of intramural cysts in the descending part of the duodenum and stenosis of the descending part, as well as common bile duct stenosis. Fine-needle aspiration biopsy guided by endoscopic ultrasound is helpful for diagnosis. The sampled sample shows a large number of spindle cells, giant cells, and Brunner's gland hyperplasia, and the possibility of GP can be considered [5]. Giant cells and Brunner's gland hyperplasia may also be found in fine needle aspiration specimens of pancreatic cancer [6]. Therefore, the diagnosis of GP based on cytological characteristics of fine-needle aspiration biopsy is still controversial.

Scholars such as Barbu et al [7] recommended the principle of staged treatment, that is, conservative medical treatment is the first choice, followed by endoscopic treatment, and finally surgical treatment. When treatment results are poor or tumors are highly suspected, surgical treatment should be performed as soon as possible. Surgical procedures include Pancreatoduodenectomy and duodenum-preserving pancreatic head resection. Since the pancreatic head, groove area, and duodenal wall are affected in most GP patients, and tumor lesions cannot be completely excluded in some patients, PD can completely and completely remove the lesions. Relevant international guidelines [8] believe that there is no difference in postoperative pain relief, overall mortality, and morbidity rates up to two years of follow-up between the two surgical methods. A retrospective cohort study by Usenko et al. [9] showed that for the surgical treatment of patients with grooved pancreatitis, duodenum-preserving pancreatic head resection was similar to pancreaticoduodenectomy in terms of pain control effective, but with lower complication rates and shorter hospital stay. No matter which surgical procedure is performed, the ultimate goal is to improve the patient's clinical symptoms and obtain a clear diagnosis from pathological specimens.

Treatment should be closely followed up to evaluate the efficacy and observe for recurrence.

In short, the diagnosis of GP is still relatively difficult, and the diagnosis still needs to rely on pathological diagnosis. Combining clinical characteristics, laboratory examinations and imaging-related examinations is very important for diagnosis and differential diagnosis. There is currently no unified diagnostic standard, and further clinical research and basic research are still needed to reveal the pathogenesis of GP, guide the diagnosis and treatment of the disease, and standardize the diagnostic standards [10].

Data Availability

All data used to support the findings of this study are included within the article and references.

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