

Duodenal obstruction due to chronic pancreatitis of the pancreas tail treated by surgical intervention

A case report

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Abstract

Rationale: Duodenal obstruction (DO) sometimes induces the groove pancreatitis. However, the case of DO due to chronic pancreatitis in pancreas tail (CPPT) is extremely rare. Therefore, the managements of DO caused by CPPT have not been established yet.

Patient concerns: A 68-year-old man, who was under the treatment of chronic pancreatitis, presented to our hospital with nausea and abdominal pain. He was diagnosed as DO caused by CPPT. The Conservative treatment, including the nasogastric aspiration and intravenous infusion under the absence of food, was performed. The drainage fluid from naso-gastric tube had been more than 2000 ml per a day although continuing treatment for 14 days. Hence, we decided that the conservative therapy was failed and the surgical intervention was required.

Diagnosis: Computed tomography showed gastroduodenal expansion due to stenosis at the horizontal portion of the duodenum with increasing pancreatic pseudocyst. The contrast radiography of the duodenum showed severe stenosis around Treitz ligament. His pre-surgical diagnosis was DO due to CPPT through exclusion of other etiologies for DO such as annular pancreas, SMA syndrome, duodenal diaphragm and Crohn disease.

Intervention: Spleen preserving distal pancreatectomy (Warshaw operation) was performed with gastrojejunostomy. During surgery, marked redness and thickness of the mesenteric serosa around Treiz ligament were observed. His surgical findings were supported our preoperative prediction.

Outcomes: The patient was successfully treated and discharged uneventfully after postoperative day 14. At the 9 months follow-up visit, the patient is still doing well without any symptoms.

Conclusion: Combination of gastrojejunostomy and Warshaw operation is one of the ideal surgical procedures for patients of DO due to CPPT.

Abbreviations: CPPT = chronic pancreatitis in pancreas tail, DO = duodenal obstruction, NPO = nil per os, SMA = superior mesenteric artery.

Keywords: chronic pancreatitis, duodenal constriction, duodenal obstruction, duodenal stenosis, duodenojejunostomy, Warshaw operation

1. Introduction

Duodenal obstruction (DO) accompanied by chronic pancreatitis is very rare, with a reported occurrence in <1% of patients with

chronic pancreatitis.^[1,2] The primary treatments for chronic pancreatitis are, first, conservative treatments, which are lifestyle improvement, absence from drink and pain control. However, endoscopic or surgical treatments are selected when the conservative treatments fail. In terms of surgical treatments, several methods, which are categorized into two groups, are useful for patients. One is the method for purpose of drainage for main pancreatic duct.^[3,4] The other is resection for focus of inflammation.^[5,6,7] The combination method of the both is sometimes performs so that each method has strong and weak point.^[3]

Here, we report the clinical features and therapeutic management of a patient with DO due to chronic pancreatitis in the pancreatic tail (CPPT).

2. Case report

A 68-year-old man presented with chief complaints of nausea and abdominal pain. He had a significant past medical history of chronic pancreatitis with pseudocysts, which had been treated using endoscopic ultrasonography-guided transgastric cyst drainage with a covered metal stent a year ago (Fig. 1A–C). On abdominal examination, epigastric fullness was observed and

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Written informed consent was obtained from the patient for publication of this report and accompanying images.

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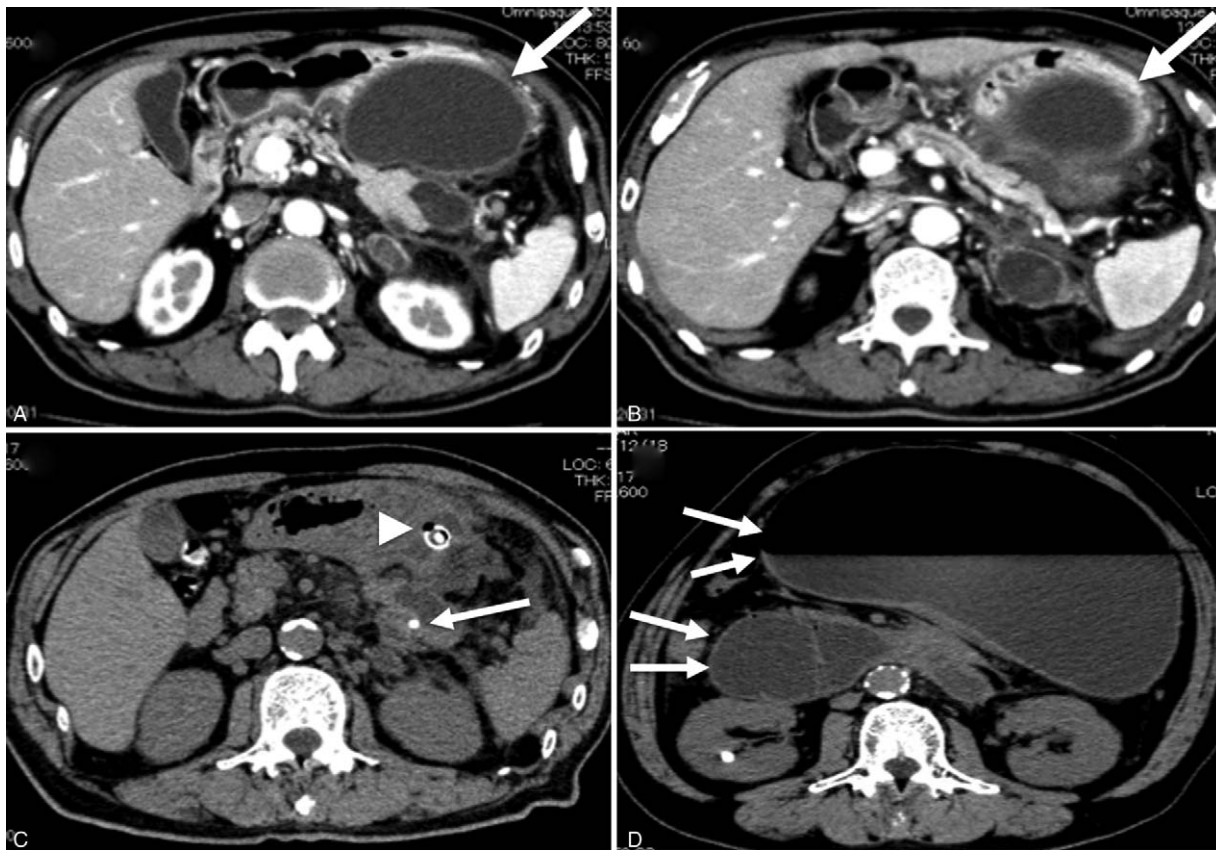


Figure 1. A, B: Enhanced CT reveals a pancreatic pseudocyst (white arrow) with stomach compression. C: Plain CT reveals a shrunken pancreatic pseudocyst with pancreatolith (white arrow) at the pancreatic tail. The pseudocyst was drained using a transgastric stent (white arrowhead) by EUS-CD. D: Dilated stomach and duodenum with stenosis in the horizontal portion. Enhanced CT reveals a pancreatic pseudocyst with stomach compression.

a succession splash was heard. Computed tomography (CT) revealed gastroduodenal expansion with an obstruction at the horizontal portion of the duodenum, a shrunken pseudocyst, and a pancreatic stone (Fig. 1D). Contrast radiography of the

duodenum also revealed an obstruction near the Treitz ligament (Fig. 2A, B). The level of serum pancreatic amylase was 811 U/L (reference range: 14–41) and that of serum lipase was 652 U/L (reference range: 13–49). The patient’s tumor markers (CA19–9

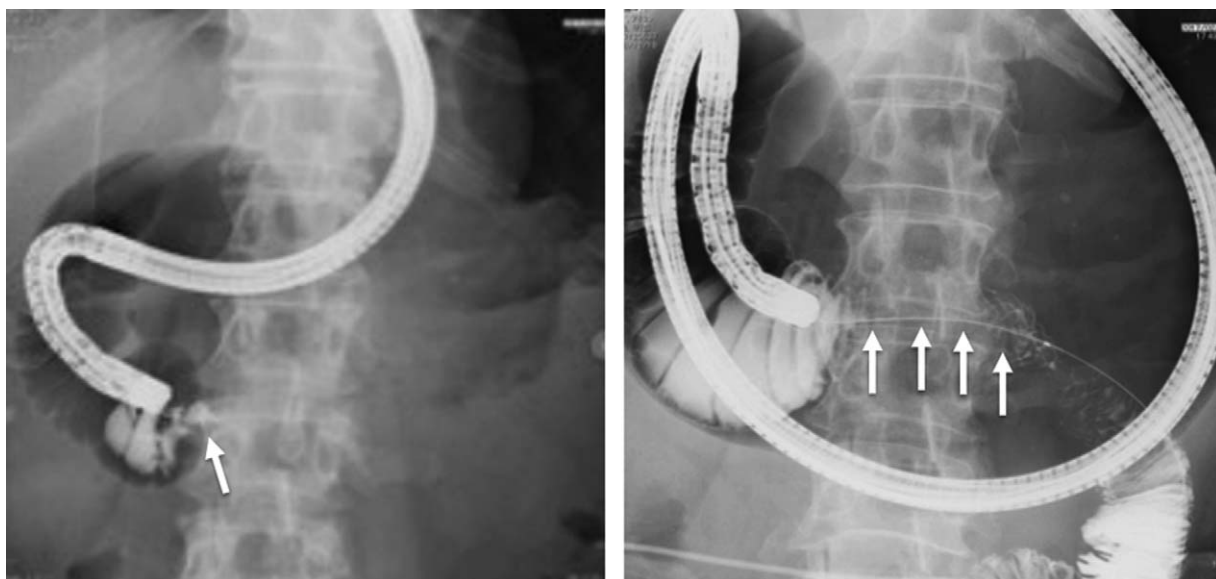


Figure 2. A: Contrast radiography revealing horizontal portion stenosis (white arrow). B: Stenotic tissue with approximately 6 cm length.

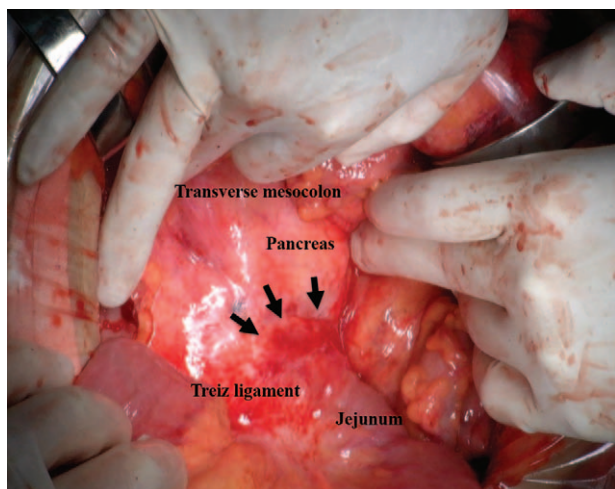


Figure 3. Intraoperative findings revealing marked redness (black arrows) around the Treitz ligament.

and CEA) and liver tests were unremarkable. The biliary system was normal. The preoperative diagnosis was DO due to CPPT. The primary approach was conservative therapy with nasogastric tube drainage, parenteral fluids, electrolyte maintenance, and

hyperalimentation; however, the nasogastric tube drainage continued at a rate of >2000 ml per day for 14 days, indicating conservative treatment failure. The patient was then operated. During surgery, marked redness and thickness of the mesenteric serosa around the Treitz ligament were detected (Figs. 3 and 4A) and a pseudocyst that did not compress the duodenum was observed. Roux-en-Y duodenojejunostomy and spleen-preserving distal pancreatectomy achieved through splenic vessel resection, known as “Warshaw operation” were performed (Fig. 4B). As a consequence of this procedure, pancreatic pseudocysts and pancreatic stones were totally removed. Histopathological examination of the resected specimen revealed chronically inflamed pancreatic tissues with fibrotic changes. The intraoperative and histopathological findings indicated that prolonged inflammation produced scarring and constriction of the mesentery, resulting in stricture of the horizontal portion of the duodenum. The definitive diagnosis was DO due to CPPT. The patient was uneventfully discharged after postoperative day 14. At his 9-month follow-up visit, he was doing well without any symptoms.

3. Discussion

Incidence of DO accounts for approximately 1% of the total number of patients with chronic pancreatitis.^[1,2] DO is primarily caused by groove pancreatitis, which is characterized by fibrous

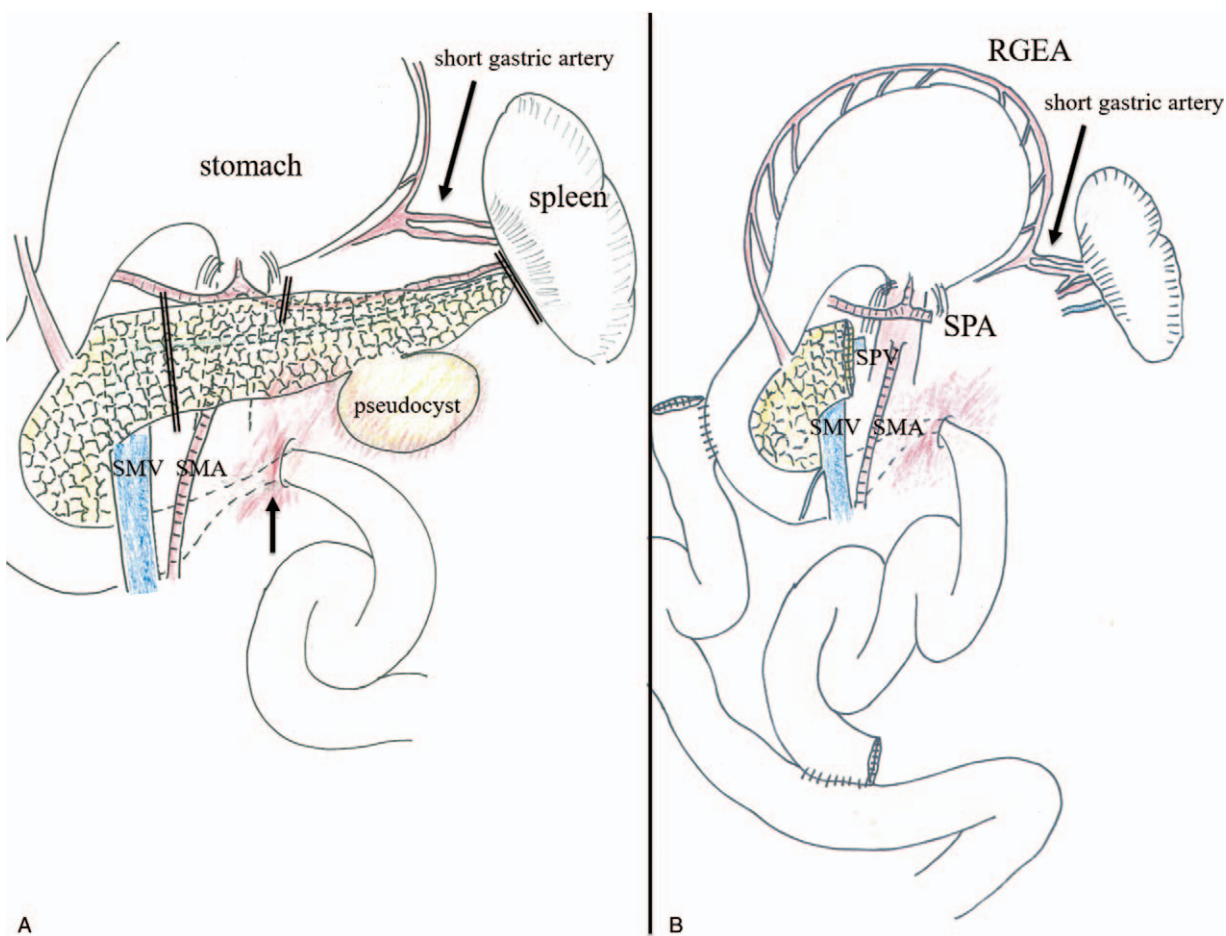


Figure 4. A: During surgery, marked redness and thickness of the mesenteric serosa around the Treitz ligament were detected (black arrow) and a pseudocyst that did not compress the duodenum was observed. B: Roux-en-Y duodenojejunostomy and spleen-preserving distal pancreatectomy achieved through splenic vessel resection, known as “Warshaw operation.” were performed.

scars of the anatomic space between the dorsocranial part of the pancreatic head, the duodenum, and the common bile duct. Contrarily, CPPT is an uncommon cause of DO. To the best of our knowledge, this is the first report of DO due to CPPT. DO due to chronic pancreatitis is suspected in patients having a history of chronic pancreatitis who present with repeated vomiting or a large nasogastric aspirate volume. Diagnosis is confirmed using contrast radiography of the duodenum revealing duodenal stenosis.^[5] CT can reveal gastroduodenal expansion and other findings that indicate the existence of chronic pancreatitis. These include irregular dilation of the main pancreatic duct with intraductal stones, calcifications, and frequent branch duct dilations.

As previously reported,^[1] only 9 patients with DO were found among 878 patients with chronic pancreatitis, and, of the 9 patients with DO due to chronic pancreatitis, 5 patients received surgical intervention, whereas the remaining four were cured using conservative treatment including nothing by mouth (NPO), nasogastric aspiration, parenteral fluid, and electrolyte maintenance. The authors concluded that surgical treatment should be considered only after conservative treatment failure. This is because reversible duodenal edema can also cause stenosis, whereas progressive fibrosis can cause irreversible stricture of the duodenum. In the present study, conservative therapy was started and continued for 14 days, but was ultimately unsuccessful. The DO was no longer able to recover by medical therapy alone. In referring the patient for surgery, we considered that the surgical procedure for DO due to CPPT was controversial and poorly established, primarily because it was rare. Three important points were discussed; first, what procedure is better in releasing obstructions that block the food passage? Gastrojejunostomy plus vagotomy in for preventing a marginal ulcer was the standard procedure described over the years; however, in almost every case, inflammation occurred in the groove region of the pancreas and the obstruction existed within the second portion of the duodenum. Contrarily, duodenojejunostomy is a^[8] well-established procedure and is described in literature for cases of DO occurring due to various other etiologies, such as annular pancreas,^[9] SMA syndrome,^[10] duodenal diaphragm,^[11] and Crohn disease.^[8] In the present study, because the obstruction existed within the third portion of the duodenum instead of the second, duodenojejunostomy, which can avoid complications of gastrojejunostomy such as bile reflux and stomal ulcerations, seemed preferable. Second, if possible, the addition of a distal pancreatectomy should be considered. This procedure allows for complete pseudocyst removal from the patient's body. Finally, spleen preservation should be attempted because it can avoid the

patient's risk of postsplenectomy syndrome (OPSI).^[12] Considering these points, duodenojejunostomy and the Warshaw operation appear to be the most feasible surgical treatments.

4. Conclusion

This is the first reported case of duodenojejunostomy combined with the Warshaw operation for DO due to CPPT. Although further experiences and studies are required, our study suggests that this combined surgical procedure could be an ideal treatment for patients with DO due to CPPT.

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