

## CASE REPORT

# Late Failure of Frey Procedure Due to Gastro-Jejunal Fistula Formation

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### ABSTRACT

**Context** Local resection of the pancreatic head with longitudinal pancreaticojejunostomy (or Frey procedure) generally results in excellent pain relief in chronic pancreatitis. We report a patient with chronic pancreatitis who experienced pain recurrence after an uneventful longitudinal pancreaticojejunostomy. **Case report** This is a single case study of a 58-year-old female with chronic pancreatitis undergoing longitudinal pancreaticojejunostomy for pain relief. Fifteen months after the surgery, the patient experienced pain recurrence. Radiologic evaluation followed by surgical exploration revealed a gastroenteric fistula to the Roux-limb, with obliteration of the anastomosis. After repair of the fistula and re-excitation of the pancreatic head, a two-layer longitudinal pancreaticojejunostomy was reconstructed from the same Roux-limb. An omental flap was interposed between the Roux limb and the repaired stomach. At 6-month follow-up, the patient was pain free and asymptomatic. **Conclusion** Late failure of the Frey procedure due to a gastroenteric fistula to the Roux-limb of jejunum has not been previously reported. This finding may explain one of the causes of longitudinal pancreaticojejunostomy late failure.

### INTRODUCTION

The local resection of the pancreatic head with longitudinal pancreaticojejunostomy (or Frey procedure) has proven to be a durable method for the relief of pain due to chronic pancreatitis [1]. With excavation or “coring” out of the pancreatic head added to a Roux-en-Y longitudinal pancreatico-jejunal anastomosis, this procedure exceeds the long term success rate of the Puestow procedure, and has been shown to provide pain relief to 80% of chronic pancreatitis patients for up to 5 years [2, 3, 4, 5, 6, 7, 8]. Late failures with recurrence of pain after either the Frey or Puestow procedure are uniformly ascribed to progression of the underlying chronic pancreatitis. We recently cared for a patient with chronic pancreatitis who experienced complete pain relief after an uncomplicated longitudinal pancreaticojejunostomy followed by the abrupt recurrence of pain 15 months later. Evaluation revealed the spontaneous development of a gastroenteric fistula from the gastric antrum to the Roux-limb, presumably due to peptic

ulcer formation. The pancreaticojejunostomy anastomosis was completely obliterated, suggesting that the occurrence of the fistula may have caused the failure of the decompression procedure, and that this may represent a previously unrecognized cause for the late failure of Roux-en-Y longitudinal pancreaticojejunostomy.

### CASE REPORT

A 58-year-old white female with chronic pancreatitis associated with alcohol abuse underwent a longitudinal pancreaticojejunostomy procedure in November 2005 after imaging studies confirmed the presence of duct dilation. The excavation of the pancreatic head was performed with the Cavitron<sup>®</sup> device (Dentsply International, York, PA, USA), and an uncomplicated Roux-en-Y longitudinal pancreaticojejunostomy was performed. No pathology was seen in the remainder of the gastrointestinal tract. The patient experienced complete pain relief, and gained 14 kg in the year following the procedure. In July 2007, the patient developed mid-epigastric pain associated with nausea and vomiting, poor appetite, and an 8 kg weight loss. She denied alcohol use, but was admitted twice with chemical and CT evidence of acute pancreatitis. Following initiation of total parenteral nutrition, proton pump inhibitor and octreotide therapy, CT scan revealed moderate duct dilatation and the Roux-limb filled with contrast (Figure 1). EUS revealed a gastroenteric communication just proximal to the pylorus (Figure 2) and sonographic changes compatible

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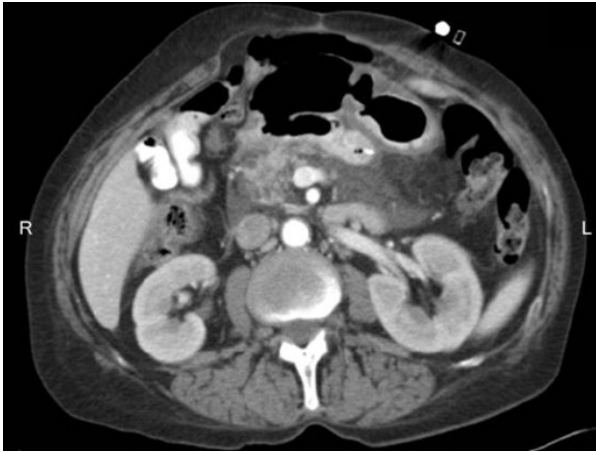
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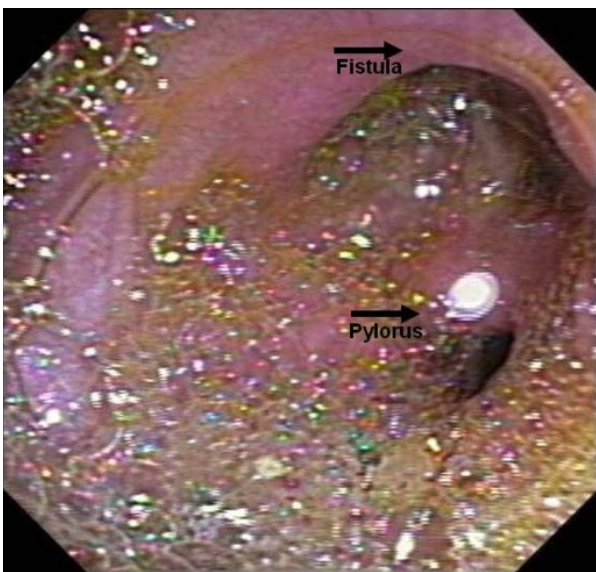
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**Figure 1.** CT scan showing ductal dilatation and evidence of edema surrounding the pancreas. The Roux-limb is filled with air and contrast. The gastroenteric fistula to the Roux-limb is apparent but was unappreciated at the time of study.

with chronic pancreatitis, with moderate duct dilatation and a small cystic lesion, aspiration of which revealed non-mucinous fluid consistent with pancreatic fluid. An ERCP revealed mild to moderate duct dilatation with no evidence of communication between the pancreatic duct and the Roux limb of jejunum (Figure 3). After stabilization of pancreatitis and restoration of nutritional abnormalities, the patient underwent abdominal exploration. This confirmed the presence of the gastroenteric fistula to the Roux-limb (Figure 4). The fistula was taken down and repaired (Figure 5), the Roux-limb was elevated from the pancreas, and a complete occlusion of the prior pancreaticojejunostomy anastomosis was seen. The pancreas head contained scar tissue which was excavated (Figure 6) and a two-layer longitudinal pancreaticojejunostomy was reconstructed from the same Roux-limb. An omental flap was interposed between the Roux-limb and the



**Figure 2.** Upper endoscopic view showing the gastroenteric fistula to the Roux-limb.

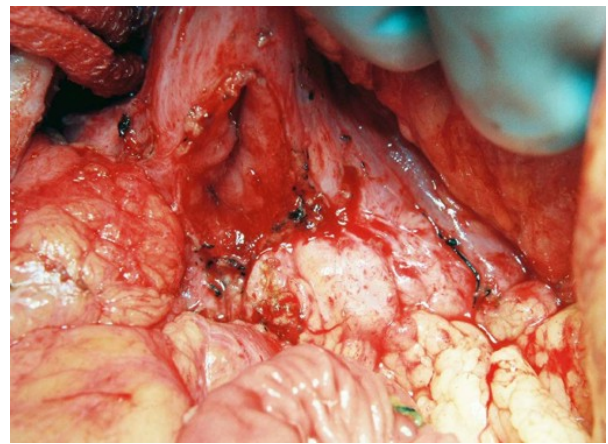


**Figure 3.** ERCP showing duct dilatation and dilated side branches.

stomach. The patient made an uneventful recovery, and 6 months later is pain free and has gained 9 kg. Repeat upper endoscopy confirmed the absence of any lesions or abnormalities in the stomach and duodenum.

#### DISCUSSION

Late failure of operative procedures performed for the relief of pain due to chronic pancreatitis occur in 20-30% of patients followed for over 5 years after the performance of either the longitudinal pancreaticojejunostomy, the duodenum-preserving pancreatic head resection or Beger procedure, or the Whipple procedure [2, 3, 4, 5, 6, 7, 8, 9, 10, 11]. Late failure rates have been shown to be higher with the Puestow procedure and higher still after caudal pancreaticojejunostomy or Duval procedure. Some symptomatic failures after an end-to-end pancreaticojejunostomy anastomosis, such as used in the Whipple, duodenum-preserving pancreatic head resection, or caudal pancreaticojejunostomy procedures, may be due to recurrent stenosis of the pancreatic duct at the site of the anastomosis [10]. However, with the longitudinal (side to side) pancreaticojejunostomy late recurrence is either ascribed to progression of disease in the head of the gland (after the Puestow or Duval procedure) or

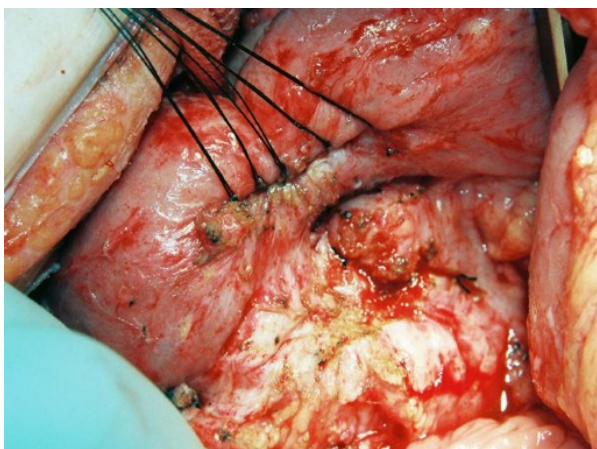


**Figure 4.** A gastroenteric fistula to the Roux-limb was observed at abdominal exploration.

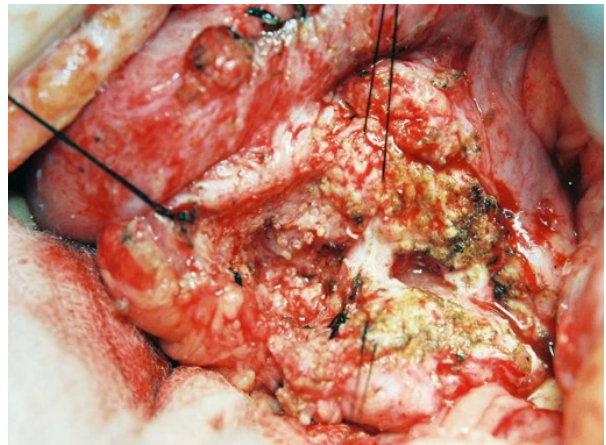
progression of the disease throughout the gland. Mechanical causes for late failure of the decompressive procedures have rarely been reported.

We discovered the occurrence of a gastroenteric fistula to the Roux-limb of jejunum used to perform an uncomplicated longitudinal pancreaticojejunostomy. This was associated with recurrent pain after an initial pain-free interval of over one year, and was found to be accompanied by a complete occlusion of the longitudinal pancreaticojejunostomy. The cause of the fistula remains uncertain, but may have been related to peptic ulcer disease. Takedown and repair of the fistula was performed and a longitudinal pancreaticojejunostomy procedure was again performed, with interposition of an omental flap between the gastropyloric region and the Roux-limb of jejunum. The patient was continued on proton pump inhibitors as well as pancreatic enzyme supplements and her subsequent recovery has been uneventful. Six months after the procedure, she is pain free and has gained 9 kg, and upper endoscopy is unremarkable.

The development of gastroenteric fistula formation to the Roux-limb of the longitudinal pancreaticojejunostomy has not been previously reported after either the Puestow procedure or the longitudinal pancreaticojejunostomy. Our case therefore raises the possibility that this unusual development may represent a cause for late failure after a longitudinal pancreaticojejunostomy. The mechanism whereby the development of the fistula causes obstruction of the pancreaticojejunostomy anastomosis is unclear, but may be due to the presence of gastric acid within the defunctionalized Roux-limb. Awareness of this complication may lead to greater surveillance for this occurrence. Our experience indicates that upper endoscopy should be included in the initial evaluation of patients who experience a recurrence of pain after a prior operation for chronic pancreatitis.



**Figure 5.** A two layer closure of the gastroenteric fistula was performed. The head of the pancreas is scarified.



**Figure 6.** Complete excavation of the scarified head of pancreas. Pancreatic duct dilation and the unroofed pancreas pseudocyst are shown. A longitudinal pancreaticojejunostomy was then performed.

**Conflict of interest disclosure** The authors have nothing to disclose

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