



Case report

Surgical management of 10 years delayed recurrent acute pancreatitis post Whipple procedure for chronic pancreatitis: A case report

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ABSTRACT

Introduction: In patients who underwent pancreatoduodenectomy for management of Chronic pancreatitis, early and late anastomotic failure can occur [1]. Nevertheless, taking into consideration that most pancreatic head resections are performed for malignant disease with poor prognosis, long term pancreatico-jejunal anastomotic durability has not been well examined; similarly, the management of its stenosis has not been well assessed [1]. **Case:** Here we present a case of a 69 years old male patient with history of chronic alcoholic pancreatitis and ampullary fibrosis managed by pancreatico-duodenectomy presenting for 10 years delayed onset of recurrent acute pancreatitis with signs of pancreatico-jejunal anastomotic stenosis, managed surgically with revision of pancreatico-jejunal anastomosis. **Conclusion:** Our case report might hold strongly for bringing up a purposeful approach, and be an insight to take into consideration in approaching pancreatic anastomosis, especially when pancreatic resections are utilized for treating benign pathologies.

1. Introduction

Early pancreatico-jejunosomy failure is measured by the development of postoperative pancreatic fistula and consequent complications of abscess or hemorrhage. However, late failure of pancreatico-jejunosomy is measured by the development of anastomotic stenosis and subsequently the superimposed disease progression manifesting as irreversible destruction of the gland architecture by fibrosis and calcifications with exocrine and endocrine insufficiency, recurrent acute pancreatitis and increased susceptibility for developing ductal adenocarcinoma [1]. Nearly half of all patients with chronic pancreatitis will eventually require some form of surgical intervention. In this domain, surgical treatment of chronic pancreatitis is pursued in order to treat intractable chronic abdominal pain that is unmanageable via lesser means, and most importantly to mitigate the risk of recurrent acute episodes of pancreatitis, developing malignancy, or treat biliary or gastrointestinal obstructive complications.

2. Case

Regarding management of recurrent acute pancreatitis post pancreatic resection, we are going to overview in this report a rare case of

delayed chronic pancreatitis (recurrent acute pancreatitis) post Whipple procedure, managed surgically after failure of conventional medical strategy, with a detailed step-wise description of the surgical intervention and intra-operative findings.

A 69-year-old male patient, Ex-smoker (6 years off smoking), with a remote history of alcohol abuse disorder, and superimposed chronic pancreatitis, managed surgically 11 years prior to presentation with classical Pancreatico-duodenectomy (whipple procedure). Histopathological examination of the specimen at the time was significant for fibrosis of ampulla of Vater secondary to chronic inflammation, with no signs of malignancy. Post whipple procedure, patient reports complete abdominal pain relief, maintained on pancreatic enzyme replacement therapy (75,000 Creon daily), and a resultant mild Diabetes Mellitus (controlled on Metformin). Family history negative for any pertinent events. No known drug or food allergies. Past medical history is significant for mild Diabetes mellitus (controlled on metformin), no other home medications.

Patient presented to our emergency department in October 2020 for acute onset of epigastric pain, radiating to the back, 7/10 in severity associated with nausea and two episodes of non-bloody, non-bilious, non-mucoid vomiting and inability to tolerate PO intake. History goes back to two years prior to presentation, as patient reports five recurrent

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peripheral hospital admissions, during the course of the last two years, for similar bouts of abdominal pain, attributed to a diagnosis of recurrent acute pancreatitis (chronic pancreatitis). In our emergency department, laboratory workup is significant for elevated pancreatic enzyme levels of Amylase 530 U/L (NL. 23–85 U/L), Lipase 620 U/L (NL. 0–160 U/L). A Computed tomography (CT) scan of the abdomen and pelvis with intravenous (IV) contrast was done that showed an edematous pancreas with surrounding fat stranding imposing a diagnosis of acute pancreatitis, non-complicated by pseudo-cyst or necrosis, but a significantly fusiform dilated main pancreatic duct up to 9 mm proximal to the existing pancreatico-jejunostomy, that was visualized distally to be 4 mm with no notable abnormalities (Figs. 1 & 2). Patient was admitted for conservative management, placed NPO with appropriate intravenous hydration, showed clinical improvement with decreased abdominal pain and improved tolerance for PO intake.

One week after resolution of symptoms, magnetic resonance Cholangio- Pancreatography (MRCP) was done for further evaluation, assessment of pancreatic remnant and rule out any underlying probable main pancreatic duct obstructive etiology. MRCP done showed a pancreas less edematous with no surrounding fat stranding, no visible masses noted, again noted a focal main pancreatic duct dilatation of 9 mm with the rest of the duct visible measuring 4 mm through the rest of the pancreas suggesting a stenosis of the pancreatico-jejunal anastomosis (Fig. 3).

A multi-disciplinary discussion of the case decided on continuation of conservative medical treatment with life-style modification (complete abstaining off alcohol and cigarette smoking), pancreatic enzymes replacement therapy and analgesia. To our concern, the patient presented with two recurrent episodes of acute pancreatitis within 2 months duration, requiring hospital admission. After discussing the case with the patient, a surgical intervention was decided, with the possibility of total pancreatectomy, fully discussed with the patient, and completely approved. Surgery was scheduled 1 month after the latest episode of pancreatitis, to be done by hepato-pancreatico-biliary surgeon Dr. Raja Wakim.

3. Surgery

- 1- Commencing from a classical Whipple procedure, a right subcostal (Kocher) incision over old scar and entry into the abdomen with no signs of peritoneal carcinomatosis or ascetic fluid.
- 2- After identification of the existing gastro-jejunal anastomosis and entry into the lesser sac after dissection of remnant gastro-colic ligament, the anterior border of the pancreas was identified with an end to side pancreatico-jejunal anastomosis.
- 3- Further dissection carried until identification of the choledochojejunostomy and the common hepatic artery.



Fig. 1. CT-scan with IV contrast: Arrows pointing to show fusiform dilated main pancreatic duct up to 9 mm proximal to the existing pancreatico-jejunostomy.

- 4- Difficult dissection of pancreas remnant body and pancreatico-jejunostomy off superior mesenteric vein (SMV) until creation of retro-pancreatic tunnel (posterior pancreas liberation).
- 5- Further dissection until identification of the bifurcation of the splenic vein with SMV and portal vein—that were secured.
- 6- Liberation of the existing pancreatico-jejunostomy that was opened proximal to the stump, over the anti-mesenteric border for intra-luminal visualization of the main pancreatic duct (Fig. 4).
- 7- Identification of a cluster of peri-ductal, non-absorbable sutures of previous surgery, eroding into the main pancreatic duct, mimicking an obstruction and obscuring the main pancreatic duct (Fig. 5), that were removed.
- 8- A trial of advancing an 8 Fr. feeding tube through the wirsung duct failed (resistance).
- 9- At this point, division of the pancreatico-jejunostomy: pancreatic side using blade cutting back the pancreas to the healthy bleeding gland, jejunal side using GIA 60 mm (Fig. 6).
- 10- **Two pancreatic duct stones** retrieved (Fig. 7).
- 11- Further feeding tube advancement, duct catheterization and lavage done—proved patency with no residual resistance.
- 12- Decision was to move forward with a **Roux en Y pancreatico-jejunostomy** as the length of the existing limb of jejunum wouldn't allow for an end to side pancreatico-jejunostomy over the same limb.
- 13- Division of a jejunal loop using GIA 60 mm with distal limb translocated trans-mesocolic and creation of an **end to side pancreatico-jejunostomy** (Colonial Wig technique), followed by a side to side semi-manual jejuno-jejunal anastomosis for re-establishment of alimentary tract (Fig. 8).

Overall operative time: 3 h.

No complications faced intra-operatively.

Blood Loss: approximated to 200 cc.

4. Post-Op

Post-operatively, the patient is clinically and hemodynamically stable, transferred to regular Surgery ward. Drain output and contents monitored closely, serous with low output maintained all through his stay. Serum glucose levels and diabetes mellitus status was well controlled over the course in hospital. Full liquid diet commenced at Day 5 post-op, well tolerated and progressed. Good uncomplicated wound healing. Patient was discharged Day 7 post-op with smooth uncomplicated course in hospital, maintained on pancreatic enzyme replacement therapy, fat restricted diet, and pre-operative status of insulin-independent diabetes mellitus over the course of 2 months post-operative followup. Long-term outcomes concerning pain relief, gland

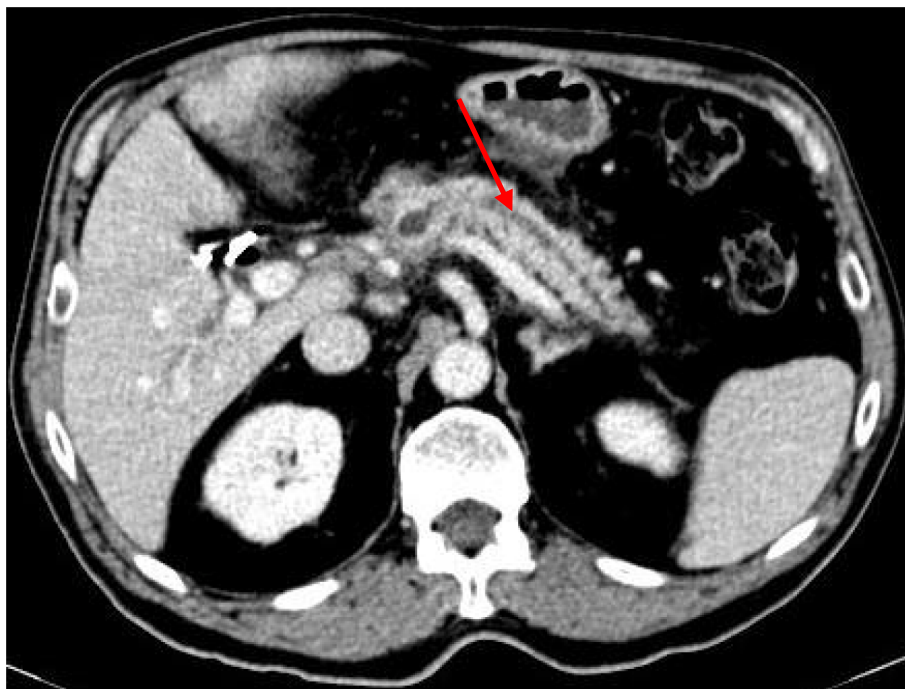


Fig. 2. CT-scan with IV contrast: arrow pointing to a visualized but normal sized distal main pancreatic duct of 4 mm.

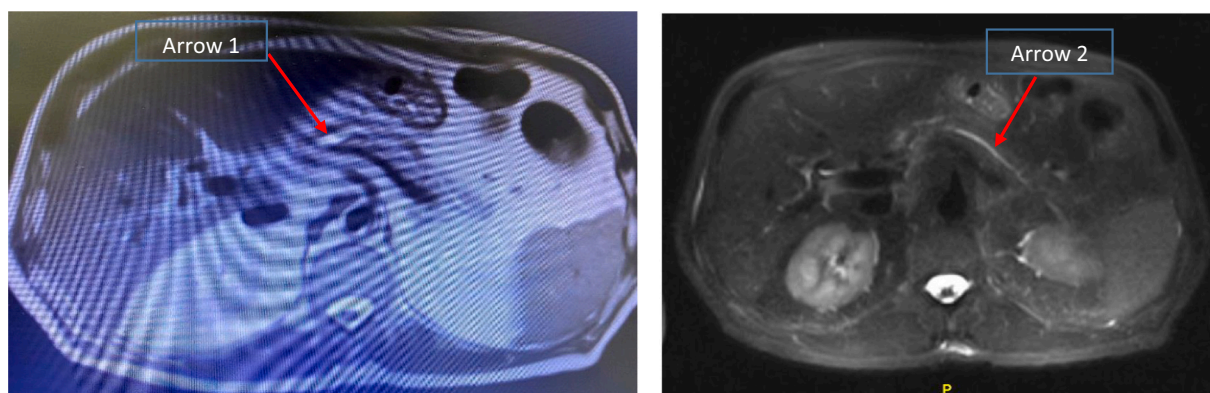


Fig. 3. MRCP: Arrow1: showing a focal main pancreatic duct dilatation of 9 mm. Arrow 2: showing the rest of the duct visible measuring 4 mm through the rest of the pancreas suggesting a stenosis of the pancreatico-jejunal anastomosis.

exocrine and endocrine functions are to be followed up.

Final Pathology result: Pancreatico-jejunal anastomosis resected: Chronic Erosive inflammation, no signs of malignancy.

5. Discussion

Recurrent acute pancreatitis (chronic pancreatitis) in a delayed fashion of about 10 years post Whipple procedure is a rare entity for which the literature is scarce, with a very low incidence rate as rarely as survival after pancreatico-duodenectomy for cancer is limited, and hence it is difficult to assess longterm pancreaticojejunal anastomotic patency.

As to our case of delayed recurrent acute pancreatitis (chronic pancreatitis) post Whipple procedure), the decision of surgical intervention followed up the traditional pathway of failing conservative medical treatment in alleviating the symptoms of chronic abdominal pain and preventing recurrent bouts of acute pancreatitis, in a desperate patient seeking a radical management of his severely debilitating condition, taking into consideration the risks of disease progression. In this

direction, worth mentioning in context of disease progression is the increased risk of progression into an irreversible further destruction of the gland architecture, worsening small and large ductal disease secondary to fibrosis and calcification, high risk of endocrine and exocrine insufficiency and the increased susceptibility of developing pancreatic ductal Adenocarcinoma [2].

Discussing our surgical options, extensive through planning over possible approaches to manage such a case has come out to a total pancreatectomy versus retrograde drainage of the gland by Duval (caudal pancreatico-jejunostomy) versus a revision of the previously existing pancreatico-jejunostomy.

To our elderly 69 years old patient with existing diabetes mellitus, total pancreatectomy, although provides a long term pain relief in up to 100% of patients [3], manifests with a significantly high rate of post-operative morbidity up to 50% and results in complete exocrine and endocrine insufficiency with a brittle form of insulin dependent diabetes mellitus that is especially difficult to manage contributing to 10% of post-operative morbidity [2]. Total pancreatectomy with islet cell auto-transplantation would have been an excellent approach given the

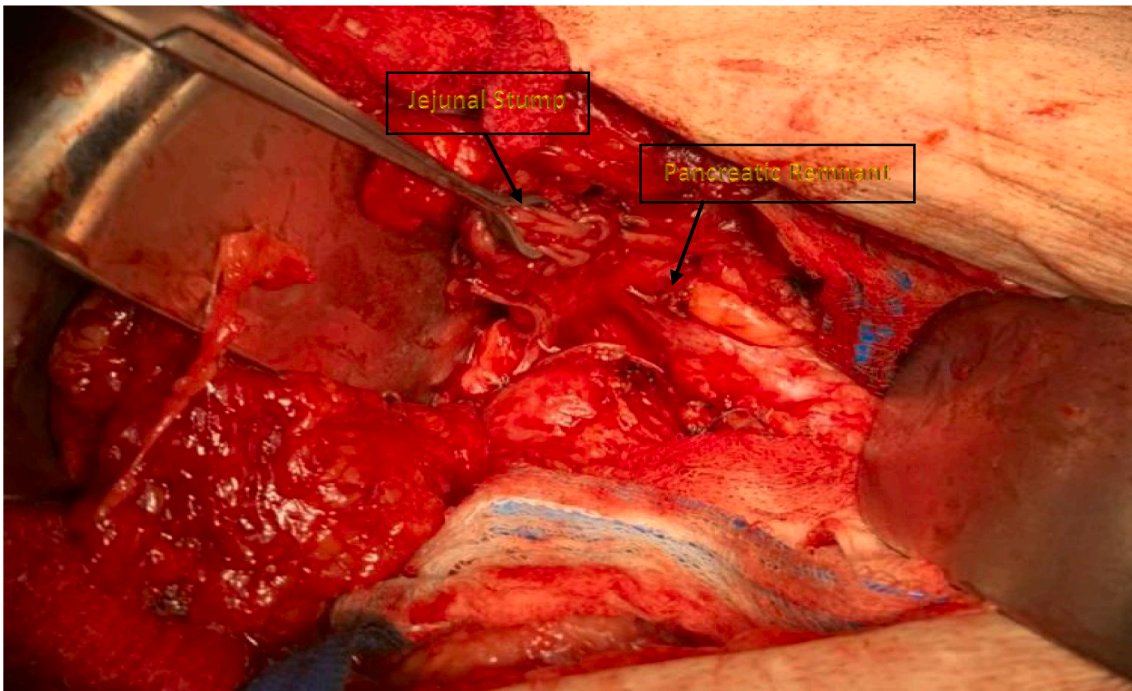


Fig. 4. Liberation of the existing pancreatico-.

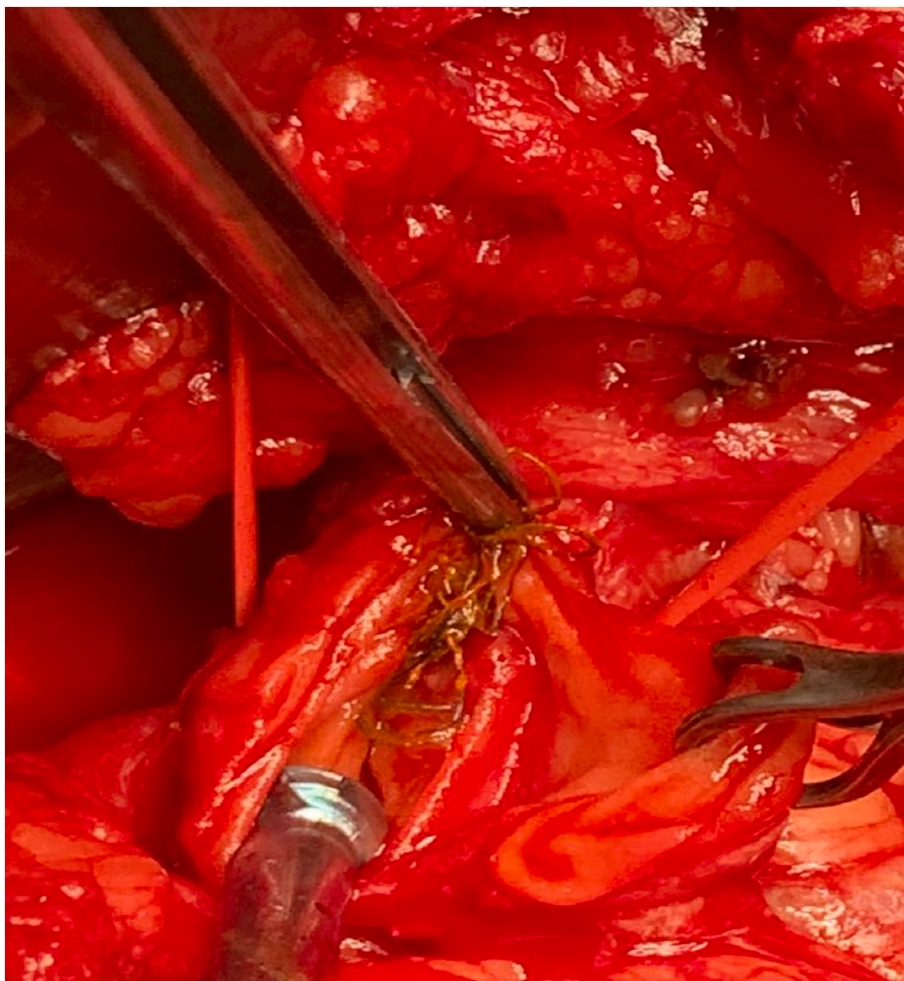


Fig. 5. Cluster of peri-ductal, non-absorbable sutures of previous surgery, eroding into the main pancreatic duct, mimicking an obstruction and.

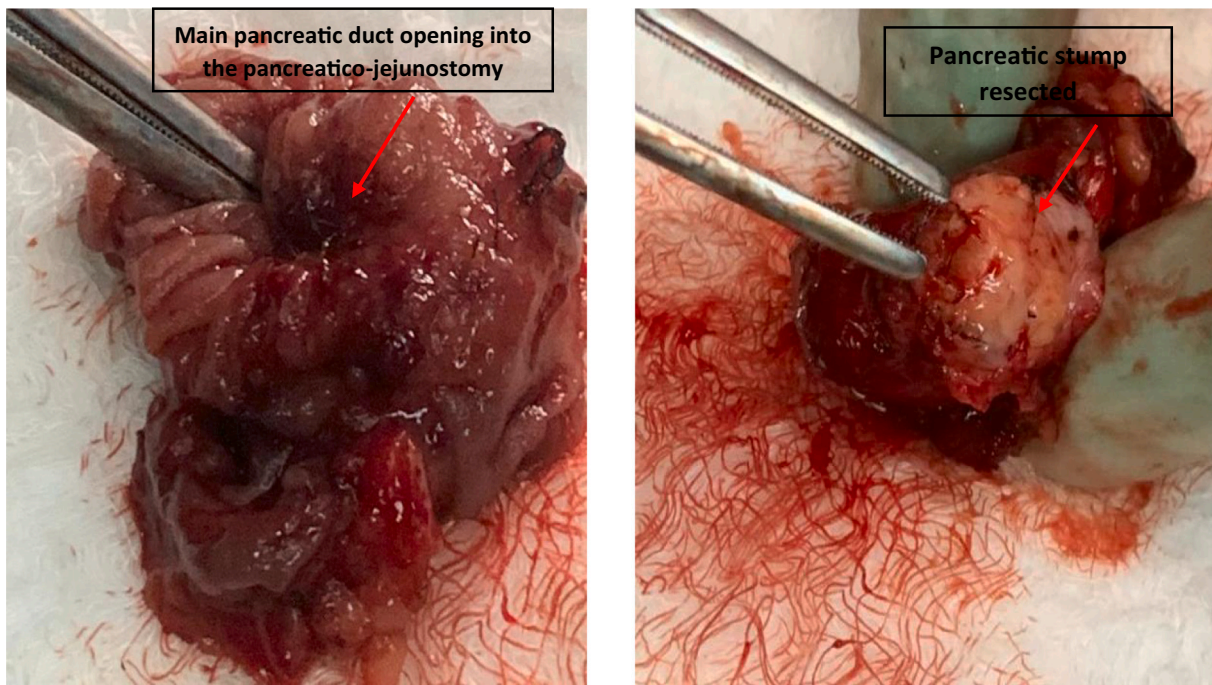


Fig. 6. Specimen resected consisting of pancreatico-jejunostomy including jejunal stump and pancreatic stump with an obstructed main pancreatic duct.

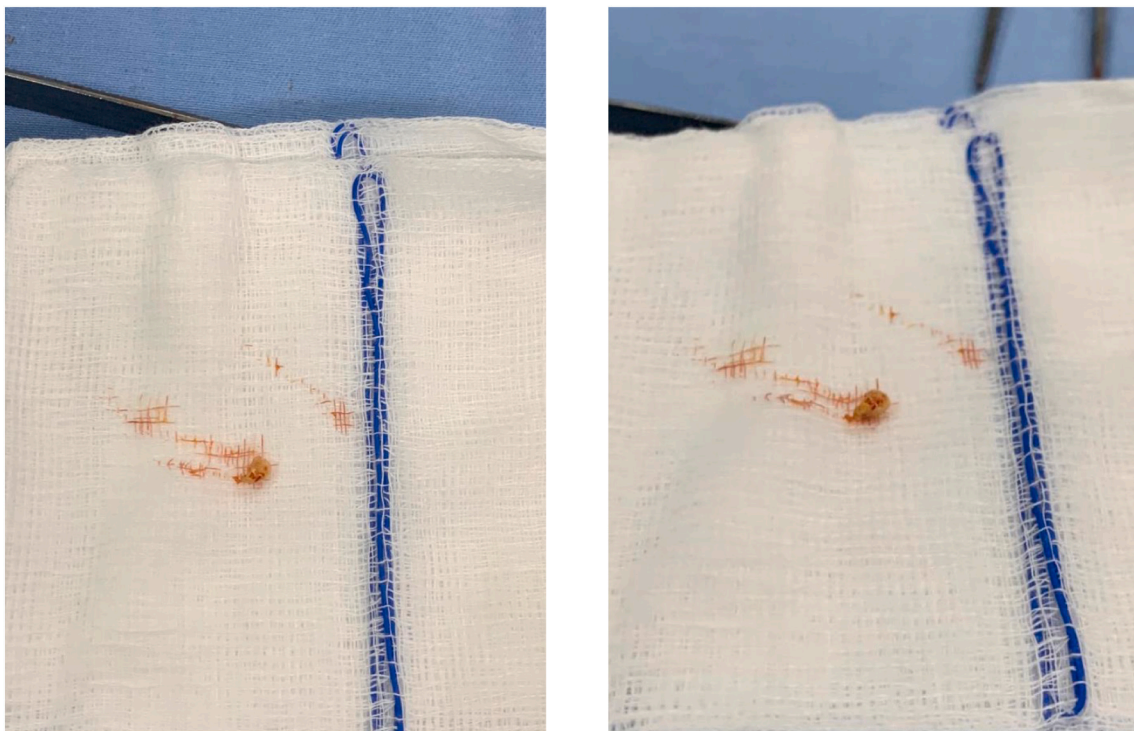


Fig. 7. Two pancreatic duct stones retrieved after resecting the existing pancreatico-jejunostomy.

potential of minimizing endocrine complications, preserving endocrine functions and improving glycemic control (insulin independence in up to 80% of patients who received appropriate total number of islet cells infused [4], but a critical barrier to this approach is the paucity of processing facilities in our region and the great financial burden, nevertheless it being agreed on to be a last resort approach.

As to caudal pancreatico-jejunostomy, a technique introduced by Duval in 1954 by which a Roux en —Y loop of jejunum anastomosed to

an amputated pancreatic tail, it has been accommodated so far for treating an obstruction of the proximal pancreatic duct by providing a retrograde drainage, and manifests as a relatively safe surgical drainage procedure (low morbidity and mortality, providing and initial pain relief in up 90% of patients [5]. But then remains the risk of the concurrent splenectomy that accompanies this procedure, that is not mention the technical difficulties of having a fine small and atrophic pancreatic tail, the low rates of long term pain relief, high rates of re-hospitalization in

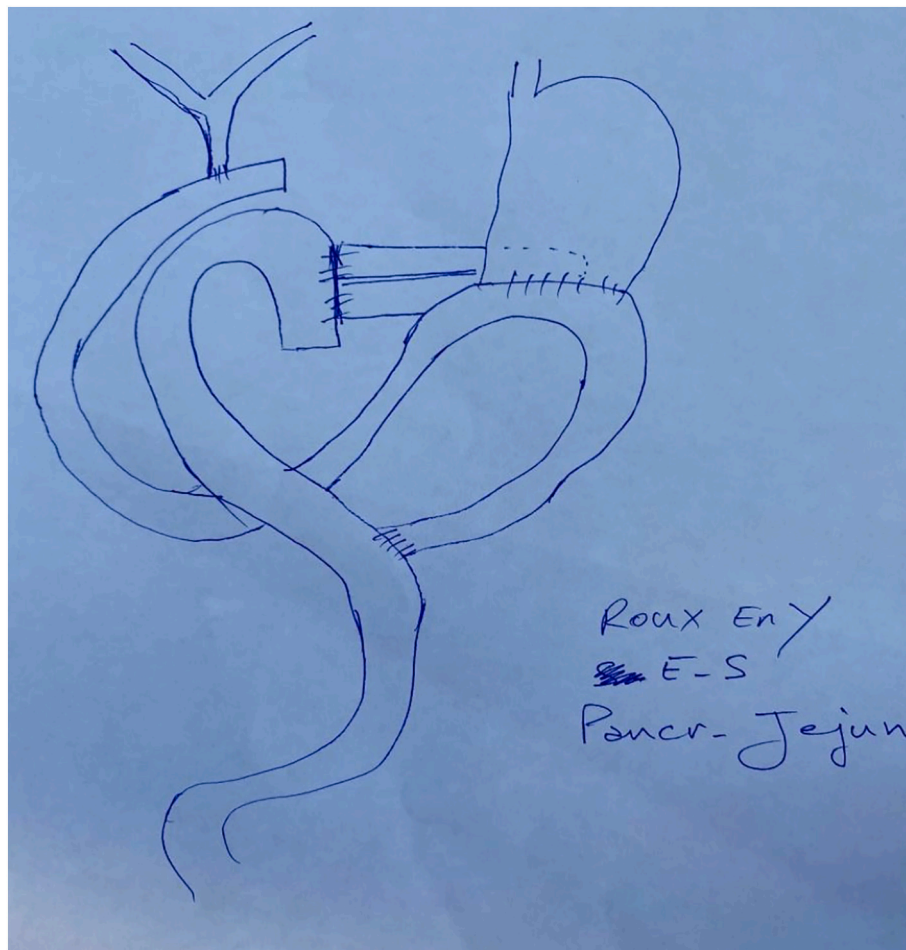


Fig. 8. Division of a jejunal loop using GIA 60 mm with distal limb translocated trans-mesocolic and creation of an end to side pancreatico-jejunojejunostomy (Colonial Wig technique), followed by a side to side semi-manual jejuno-jejunal anastomosis for re-establishment of alimentary tract.

which a significant number will need further procedure including pancreatic resections, and poor glycemic control with quarter of patients being insulin dependent with five years.

Aiming at resolving recurrent bouts of acute pancreatitis, proceeding with a revision of the pancreatico-jejunojejunostomy with an end to side pancreatico-jejunojejunostomy described above hence has been adopted, to allow the greatest chance of ductal and parenchymal decompression and to minimize the chance of recurrence of stenosis with a potentially lower risk anastomosis carried over proximal pancreatic remnant. That mentioned in addition to minimizing the post-operative morbidity, preserving the gland for better exocrine and endocrine functions and preserving the spleen. Worth mentioning in such revision procedures is the risk of anastomotic failure. As in all gastro-intestinal anastomosis, ischemia has been implicated in anastomotic failures, and pancreatico-jejunal anastomosis is no exception to that even in the long term pancreatic anastomotic failure. Hence a great attention must be given to ensuring an adequate blood supply to the pancreatic cut edge at the time of anastomosis [1]. On another side, one limitation to revision of pancreatico-jejunal anastomosis is being unsuccessful for pain relief in patients with small duct chronic pancreatitis (pancreatic duct diameter < 7 mm in diameter) [7]. However, literature in this domain arrived at a conclusion that although the relief of pain associated with chronic pancreatitis is without doubt more complicated than the correction of pancreatic duct obstruction, the revision of pancreatico-jejunal anastomosis once achievable is safe, and efficacious if utilized for preventing recurrent acute pancreatitis, as is the presentation of our case [1].

As to what type of pancreatico-jejunal anastomosis to be carried out

especially in pancreatic resections for benign disease, although their relationship to long term pancreatico-jejunojejunostomy stenosis has not been clearly assessed, our case came to question the utilized approaches. In our case, the intra-operative finding of non-absorbable sutures eroding into the previously existing duct to mucosa pancreatico-jejunojejunostomy, were highly probable to be accounting for the resulting stenosis, stasis and development on intra-ductal pancreatic stones, and hence leading in a multi-factorial fashion to re-operation.

6. Conclusion

Jumping to conclusions concerning durability of pancreatico-jejunal anastomosis post pancreatic resections and similarly the management of pancreatico-jejunal anastomotic stenosis still manifests as a controversy, and hence the scope of assessing the problem and its incidence remains a debatable subject owing to the paucity of long-term patient follow-up, as most pancreatic head resections are performed for malignant disease with poor survival and very few patients are available for long term follow-up [1]. In this direction, our case report might hold strongly for bringing up a purposeful approach, and be an insight to take into consideration in approaching pancreatic anastomosis, especially when pancreatic resections are utilized for treating benign pathologies.

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Faculty of Medicine and Medical Sciences, University of Balamand, Lebanon.

Ethical approval

Case report approved for publishing by ethical committee at mount Lebanon hospital, University Medical Center, and Head of General Surgery division.

Informed consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

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Declaration of competing interest

The authors report no conflict of interest.

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