



Case report

Cystocolostomy as an unusual approach to recurrent pancreatic pseudocyst in a Ugandan male with dense hepatogastroduodenal adhesions: A case report

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ABSTRACT

Introduction and importance: Pancreatic pseudocyst is one of the most frequent late complications of acute pancreatitis with increasing prevalence in chronic pancreatitis. Other causes include abdominal trauma, biliary tract disease, and other idiopathic causes. 85% resolve spontaneously within 4–6 weeks. Interventions are required for persistently symptomatic, large and complicated pancreatic pseudocysts. Cystocolostomy is a rarely reported pancreatic pseudocyst drainage option.

Case presentation: 20-year-old male with large recurrent pancreatic pseudocyst following trauma underwent 2 exploratory laparotomies from a peripheral hospital, before referral to Lubaga hospital. Ultrasound-guided cyst drainage was performed. He was readmitted two weeks later with features of cyst recurrence. Re-laparotomy was done and the stomach, duodenum and proximal jejunum were inaccessible due to extensive dense non-obstructive adhesions. Therefore, we performed a transverse cystocolostomy. Patient improved and was discharged on 5th post-operative day. Review was unremarkable at 6 weeks and 3 months post-surgery.

Clinical discussion: Current management of pancreatic pseudocyst is percutaneous, endoscopic or laparoscopic drainage. However in cases of large recurrent cysts despite the above interventions, open surgery still has a role. Cystogastrostomy, cystoduodenostomy or cystojejunostomy are the commonly performed drainage options. These 3 options were not possible in this patient due to dense adhesions, hence we performed a transverse cystocolostomy with no post-operative complications. Possible complications from the procedure might include recurrent pancreatitis, pancreatic abscess and stool leak into the pancreatic duct.

Conclusion: In cases of inaccessibility to the stomach, duodenum and jejunum due to non-obstructing dense adhesions, a pancreatic cystocolostomy can be performed with equally good outcomes.

1. Introduction

Pancreatic pseudocyst is a frequent late complication of acute (prevalence 6–18.5%) or chronic pancreatitis (prevalence 20–40%) [1]. Other causative factors include: blunt abdominal trauma; penetrating abdominal trauma; operative pancreatic trauma; biliary tract disease; and other idiopathic causes. [2]. Pancreatic pseudocysts are encapsulated localized collections of extravasated pancreatic exocrine enzyme-rich fluid, that originates in or adjacent to the pancreas enclosed in a well-defined inflammatory wall of granulation/fibrous tissue with no

epithelial lining or necrosis [3,4]. They are caused by pancreatic ductal disruption following increased pancreatic ductal pressure, due to stenosis, calculi, or protein plugs obstructing the main pancreatic ductal system, or as a result of pancreatic necrosis following acute pancreatitis and infrequently trauma [2].

Patients usually present with abdominal mass associated with epigastric abdominal pain; anorexia; vomiting; jaundice; or sepsis if infected [5]. 85% resolve spontaneously within 4–6 weeks and require no intervention [6]. Asymptomatic pseudo-cysts up to 6 cm in diameter can be safely observed and monitored with serial imaging, but larger and

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symptomatic pseudocysts require intervention [7]. Different drainage options have been described including both endoscopic and laparoscopic approaches as suitable interventions. Endoscopic ultrasound (EUS)-guided drainage has become a preferred therapy when the pseudocyst can be reached endoscopically.

The patient was managed from Lubaga hospital, Surgery department. Lubaga hospital found in Kampala, Uganda, is a private not for profit tertiary level hospital founded by the Catholic Church in 1899, with a bed capacity of 275.

This work has been reported in line with the SCARE 2020 criteria [8].

2. Case presentation

We present a 20 year old male, non-smoker, non-alcoholic with no known familial or chronic illness, who was referred to our hospital from a peripheral hospital. He had blunt abdominal trauma during a football game 4 months prior to admission. 3 days after the blunt abdominal trauma, he presented at the peripheral hospital with severe generalized abdominal pain and an abdominal ultrasound scan done demonstrated peri-pancreatic (1.76 cm in depth), peri-splenic (1.4 cm in depth), and free pelvic cavity (7.55 cm in depth) fluid collections. A hemoperitoneum and extensive fat necrosis involving omentum, transverse colon, and body of pancreas was found on exploratory laparotomy. Abdomen was lavaged and closed in layers.

He presented two weeks later at the same hospital with severe epigastric pain. A repeat abdominal ultrasound scan showed a pancreatic cystic mass (9.28 × 8.58 × 5.13 cm) with elevated serum amylase: 379.7 U/L (normal range: 28–100 U/L) and serum lipase 323.6 U/L (normal range: 13–60 U/L). The patient was managed for pancreatitis with a pancreatic pseudocyst and a re-exploratory laparotomy was performed. An intra-abdominal abscess was found which was drained, abdomen lavaged and closed. He reported on and off abdominal pain in the subsequent 3 months after the second operation.

He was later referred to our hospital, with recurrent abdominal pain, intermittent vomiting, normal stool color and consistency but with no abdominal distension, jaundice or fever. On physical exam, he was wasted, mildly dehydrated, no pallor, no jaundice, temperature 36.6 °C, blood pressure 105/57 mm Hg, pulse rate 116 beats/min, mild tachypnea 27 breaths/min; random blood sugar (RBS) 4.4 mmol/L, and peripheral oxygen saturation 97% on ambient air. The abdomen was scaphoid, with a midline surgical scar, soft, moving with respiration with irregular firm slightly tender epigastric mass extending to the right hypochondriac region. Other systemic exams were unremarkable. Pancreatic enzymes were elevated with serum amylase: 692 U/L (normal range: 40–140 U/L) and lipase: 314 U/L (normal range: 13–60 U/L) at admission. Full blood count, renal and liver function tests were normal.

An abdominal ultrasound scan reported a large, well-defined, pancreatic head cystic mass (14.45 × 6.61 cm). Abdominal Magnetic Resonance Imaging (MRI) plus Magnetic resonance cholangiopancreatography (MRCP) demonstrated the pancreas having large multi-lobed and septated thin-walled cystic mass in the body and neck, measuring 11x10x8 cm. Main pancreatic duct was not dilated (Fig. 1). He later underwent ultrasound-guided cyst aspiration. Upper GI endoscopy performed demonstrated an antral bulge from the pancreatic pseudocyst and serous contents aspirated (Fig. 2). Patient was discharged after cyst drainage but returned two weeks later with similar complaints.

We planned for an open cystogastrostomy to avoid chances of re-intervention as seen in endoscopic drainage options and in anticipation of extensive dense adhesions in view of previous surgeries and traumatic pancreatitis. Intra-operatively, we found a frozen abdomen secondary to extensive adhesions, with the stomach, duodenum, and jejunum inaccessible sites for drainage. The pancreatic pseudocyst was juxtapositioned to the transverse colon. We performed extensive

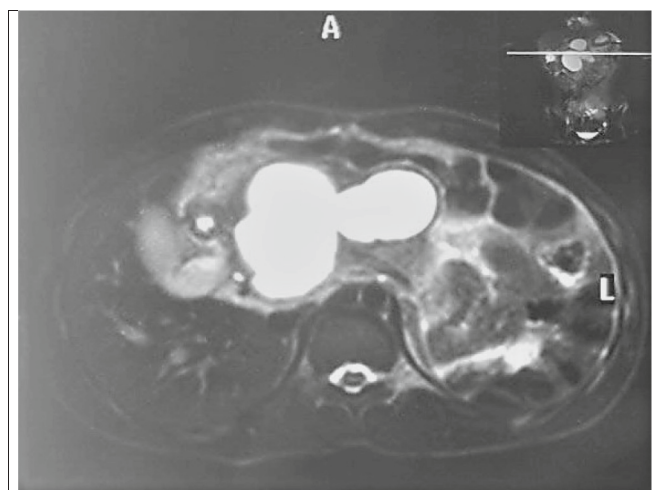


Fig. 1. MRI of the abdomen showing multi-lobed and septated thin-walled cystic mass measuring 11 × 10 × 8 cm in the body and neck of the pancreas in axial view.

adhesiolysis and a trans-transverse cystocolostomy (Fig. 3). Patient improved and was discharged on 5th post-operative day. Review was unremarkable at 6 weeks and 3 months post-surgery.

3. Discussion

The first approach to managing pseudocysts is conservative involving watchful monitoring, since 85% resolve spontaneously with time. It is recommended to observe them for at least six weeks. If the cyst regresses or does not increase in size during this period, its evolution should then be monitored with serial imaging [9]. Surgeons unanimously agree on the need to treat by drainage for pseudocysts that are: large (>6 cm); persistent pseudocysts (>6 weeks); complicated (ruptured, abscess, jaundice, and hemorrhage); and/or when they are symptomatic regardless of size [10]. Currently, many surgical approaches are available for pancreatic pseudocysts, including: percutaneous, laparoscopic, endoscopic and open surgical drainage.

Percutaneous drainage was once a commonly used initial minimally invasive method, however it has been shown to have high recurrence [11] and the need for additional re-intervention [12,13]. Ultrasound guided percutaneous drainage was performed for this patient. However the cyst recurred hence warranting an alternative drainage approach.

With emergence of minimally invasive interventions including laparoscopic and endoscopic drainage, open surgery is no longer the first-line therapy. Endoscopic drainage options like endoscopic retrograde cholangiopancreatography (ERCP) or endoscopic nasobiliary drainage (ENBD), endoscopic ultrasound scan (EUS) have shown similar efficacy and safety compared to open surgery as reported in a randomized clinical trial by Varadarajulu et al. [14] with shorter hospital stay, lower cost, comparable adverse event rates [15,16] and lesser intra-operative blood loss than laparoscopic surgery [17]. With the development of EUS, it has become the mainstay for treatment of pancreatic pseudocysts, considering its excellent efficacy, acceptable complication rate, and less expensive cost [18]. However in Uganda, EUS is not available and from our finding of non dilated main pancreatic duct at abdominal MRCP, there was a high chance for incomplete drainage of this large pancreatic pseudocyst by endoscopic retrograde cholangiopancreatography (ERCP) or endoscopic nasobiliary drainage (ENBD). The patient was already distressed from multiple procedures and so was looking for an approach that would not necessitate repetitive interventions like most therapeutic endoscopic options. Hence we opted for an open surgical approach which would also deal with the dense adhesions that we had anticipated due to the fact that the patient had

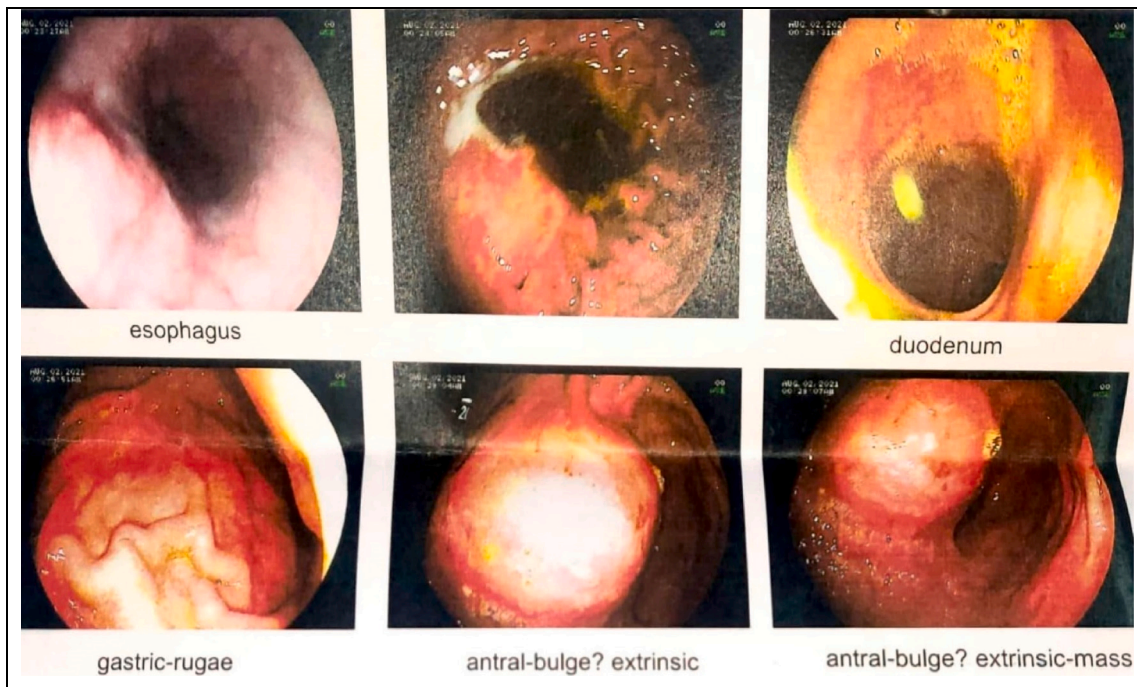


Fig. 2. Upper GI endoscopy showing the gastric antral bulge by the pancreatic pseudocyst.

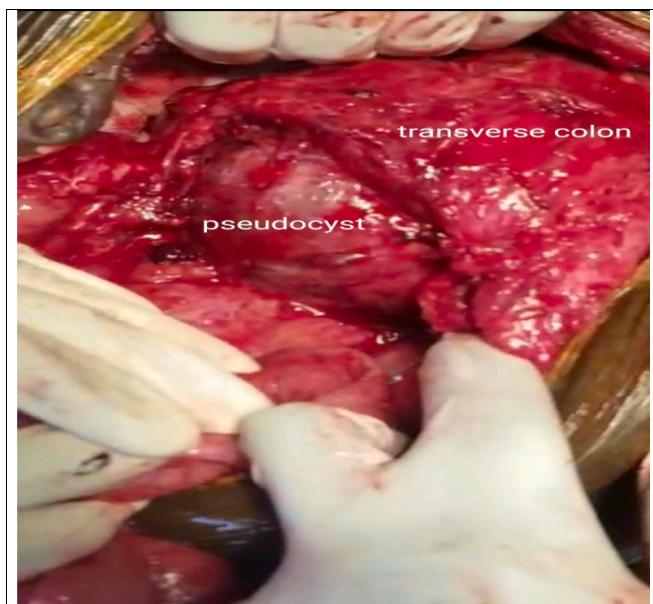


Fig. 3. Intra-operative findings showing the pancreatic pseudocyst close to the transverse colon.

undergone two previous surgeries in the setting of co-existing traumatic pancreatitis.

Laparoscopic approaches have demonstrated comparable post-operative results with some advantages associated with the minimal surgical approach: shorter operating time, less bleeding, less post-surgical pain, better cosmesis, faster bowel recovery, and overall, less hospital stay [19–21]. Despite availability of laparoscopic surgical options in our institution, we opted for open surgery due to multiple previous surgeries and extensive adhesive bowel disease.

Contrarily, open classic surgical approach still proves its efficacy, in large, recurrent and complicated pseudocysts, with lower recurrence rate of 5–10% [22]. The reported morbidity, mortality, and recurrence

rates of the open surgical procedures are 10–30%, 1–5%, and 5–20% respectively [23]. The different surgical techniques include cystogastrostomy, cystoduodenostomy, and Roux-en-Y cystojejunostomy, however by far, cystogastrostomy is the preferred method for internal drainage due to pseudocyst location at the stomach bed [20]. There have been no reports of cystocolostomy as an option for drainage of the pancreatic pseudocyst.

In this patient, prior abdominal surgeries and pancreatitis resulted in extensive non-obstructing dense adhesions between the liver, stomach, duodenum and proximal jejunum. This limited safe access to the usual drainage site options: stomach, duodenum and jejunum. Due to proximity of the pseudocyst to the transverse colon, cystocolostomy was performed successfully.

Possible complications from the procedure might include: recurrent pancreatitis, pancreatic abscess from migrating gut flora from the colon, pancreatic duct leak and possible stool leak into the pancreatic duct. However, none of these were detected on follow up of this patient.

Cystocolostomy can thus be considered as an option for pancreatic pseudocyst drainage especially in situations involving limited access to the usual drainage sites.

4. Conclusion

In cases of inaccessibility to the stomach, duodenum and jejunum due to non-obstructing dense adhesions, a pancreatic cystocolostomy can be performed with equally good outcomes.

Patient perspective

“Having had sleepless nights due to non resolving abdominal pain for over 4 months despite two prior surgeries, multiple investigations, an ultrasound scan drainage. Am finally happy to be pain free and to be able to sleep well at night after this third successful operation.”

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.

Provenance and peer review

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CRediT authorship contribution statement

Dave Darshit	Assisted in the surgery, patient follow up, conceptualized, wrote the first draft, editing and approved final manuscript.
Kayondo Derrick	Assisted in the surgery, patient follow up, conceptualized, editing and approved final manuscript.
Sanjanaa Srikant	Conceptualized, wrote the first draft, editing and approved the final manuscript.
Baseka Francis Xavier	Assisted in the surgery, conceptualized, editing and approved the final manuscript.
Okello Michael	Chief surgeon, performed the surgery, patient follow up, reviewed the manuscript for important intellectual content, editing, supervision, and final approval of the case report.

Declaration of competing interest

None.

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