Overt gastrointestinal bleeding from a pseudoaneurysm and fistulous tract formation complicating a case of necrotizing pancreatitis: A case report

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Abstract

Pancreatic pseudoaneurysm is a rare yet potentially life-threatening complication of necrotizing pancreatitis, with a reported global incidence ranging from 4% to 17%, and frequently presents with overt gastrointestinal bleeding. In the local setting, data on the incidence and clinical characteristics of this condition are lacking, underscoring the relevance of reporting this case to contribute to regional clinical knowledge.

This is a case report of a 57-year-old man with gallstone-related necrotizing pancreatitis complicated by pancreaticoduodenal fistula formation and massive hematochezia. Endoscopy identified a bleeding duodenal lesion, while cross-sectional imaging and mesenteric angiography confirmed pseudoaneurysms arising from pancreaticoduodenal arterial branches. Hemostasis was successfully achieved through coil embolization. Persistent fistula output delayed oral intake and was managed conservatively using postpyloric enteral feeding via an endoscopically placed nasoduodenal tube. The patient remained clinically stable with no recurrence of bleeding and was discharged with planned imaging follow-up.

This case highlights the importance of early recognition of vascular complications in necrotizing pancreatitis and demonstrates that a multidisciplinary approach combining endoscopy, interventional radiology, and nutritional support can result in favorable outcomes.

Keywords: *Necrotizing pancreatitis, Pseudoaneurysm, Gastrointestinal bleeding, Enterocutaneous fistula case report*

Introduction

Necrotizing pancreatitis, which is associated with an 8 to 39% rate of death, develops in approximately 20% of patients.[2] One of its rare complications is the formation of pancreatic pseudoaneurysms, which can result in life-threatening gastrointestinal bleeding. Bleeding from arterial causes occurs in approximately 5–10% of pancreatitis cases. In the presence of associated pseudocyst formation, the frequency of arterial bleeding increases to 15–20%.[4]

In this case, the successful management of a pancreatic pseudoaneurysm in a patient with necrotizing pancreatitis using mesenteric angiography and embolization is described.

Clinical Presentation

The patient was a 57-year-old man with a history of hypertension and dyslipidemia and no other significant medical or psychosocial history. He initially presented with 10/10 boring epigastric pain radiating to the back without jaundice, tender abdomen with lipase elevated 174.3x more than the normal upper limit. The patient was then assessed as having gallstone pancreatitis managed conservatively, followed by interval laparoscopic cholecystectomy. He subsequently developed progressive necrotizing pancreatitis with infected peripancreatic collections managed medically. Two weeks later, he presented with acute hematochezia and anemia, prompting endoscopic evaluation and angiographic workup, which revealed pancreaticoduodenal pseudoaneurysms requiring embolization.

CT and MRI scans revealed the progression from acute pancreatitis to necrotizing pancreatitis with the development of peripancreatic fluid collections and pseudoaneurysm formation (Figure 1a). An esophagogastroduodenoscopy was done to locate the bleed which revealed a friable mass with an overlying ulcer that was oozing blood, which spontaneously stopped (Figure 1b). The surrounding mucosa was nodular and hyperemic with associated exudates. Endoscopic ultrasound revealed a fistulous tract extending into a fluid collection at the peripancreatic area, with extensive areas of inflammation and necrosis at the peripancreatic area likely from a previous episode of severe acute pancreatitis. Since hemoglobin was dropping from having an active source of bleeding, a conventional celiac and mesenteric angiogram confirmed the presence of a pseudoaneurysm at the pancreatic head, and two pseudoaneurysms in the inferior pancreaticoduodenal branch (Figure 2).

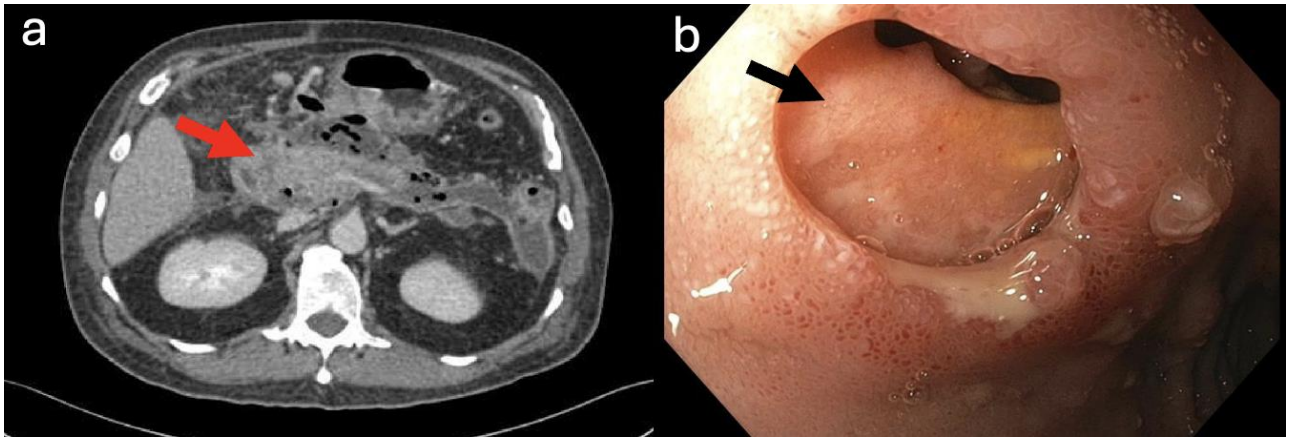

Figure 1. (a) Whole abdominal CT scan showed homogeneous enhancement of the pancreas, with fluid collections in the peripancreatic, left anterior peritoneum, mesentery, perigastric, perisplenic, left anterior pararenal space, and pelvic regions. The largest collection in the left anterior peritoneum, measures 9 x 47 mm (previously 21 x 82 mm, APxT). (b) Esophagogastroduodenoscopy showed that the first portion of the duodenum had an opening, approximately 2cm in size with purulent discharge and a visualized tract with surrounding erythematous mucosa with a few clean-based ulcers.

The patient underwent mesenteric angiography, which identified two pseudoaneurysms at the pancreatic head at the D1-D2 region, specifically the inferior pancreaticoduodenal branch of the superior mesenteric artery. Embolization with 11 coils was performed to control the bleeding (Figure 2). The procedure was successful, and the patient's symptoms of gastrointestinal bleeding resolved. A second look endoscopy was done to reassess the friable mass previously seen.

Figure 2. (A) Mesenteric angiogram revealed a suspicious pseudoaneurysm at the pancreatic head and D1-D2 region. (B) Two pseudoaneurysms at the inferior pancreaticoduodenal branch of the superior mesenteric artery. Embolization was performed using 11 coils.

Follow-up and Outcomes

The patient had no recurrence of gastrointestinal bleeding post-embolization. The plan was to conservatively manage the fistula by resting the stomach and D1 to D2 portions of the duodenum by putting the patient on nothing per orem, while bypassing straight to the distal duodenum to facilitate enteral feeding, optimizing the clinical status of the patient. His hemoglobin levels stabilized, and he was discharged in stable condition, with a plan for follow-up imaging and assessment of the pseudoaneurysm formation.

Discussion

Pancreatic pseudoaneurysm is a rare but potentially fatal complication of necrotizing pancreatitis, with a reported incidence ranging from 4% to 17% in affected patients.[1,4] Hemorrhage from pseudoaneurysm rupture represents one of the most feared vascular complications of pancreatitis and is associated with significant mortality if not promptly recognized and treated.[5,6] The pathophysiology of pseudoaneurysm formation involves enzymatic digestion and inflammatory destruction of adjacent arterial walls by activated pancreatic enzymes, compounded by local cytokine-mediated inflammation and pressure necrosis from surrounding collections or walled-off necrosis.[5,6] Arterial bleeding may also arise from erosion into a pseudocyst or necrotic cavity, further increasing the risk of sudden and massive gastrointestinal hemorrhage.[5]

In this case, progressive necrotizing pancreatitis led to pseudoaneurysm formation within branches of the pancreaticoduodenal arcade, presenting as overt hematochezia. While esophagogastroduodenoscopy identified a friable duodenal lesion, definitive diagnosis required cross-sectional imaging and conventional mesenteric angiography. This underscored the importance of maintaining a high index of suspicion for vascular complications in patients with pancreatitis who develop unexplained gastrointestinal bleeding, even in the presence of endoscopic findings.[4,5,6] Angiographic embolization was considered the treatment of choice for pancreatitis-related pseudoaneurysms due to its high technical success rate, minimally invasive nature, and ability to achieve rapid hemostasis.[3,4,6]

In this patient, coil embolization successfully controlled bleeding with no recurrence, consistent with reported outcomes in the literature.[3,6] The concomitant pancreaticoduodenal fistula posed an additional management challenge. Pancreatic fistulas resulted from disruption of the pancreatic duct or erosion into adjacent epithelialized structures, allowing enzyme-rich pancreatic secretions to leak and perpetuate inflammation.[7,8,9] Management principles emphasized initial conservative therapy focused on pancreatic rest, nutritional optimization, and correction of metabolic derangements before considering invasive interventions.[9] Postpyloric enteral feeding was utilized in this case to maintain nutrition while minimizing pancreatic stimulation and promoting fistula healing. This approach aligned with evidence demonstrating that approximately one-third of pancreatic or enterocutaneous fistulas might close spontaneously within five to six weeks with conservative management alone.[10,11] Endoscopic or surgical interventions were generally reserved for persistent, high-output, or complicated fistulas refractory to supportive care.[9,10,11]

Figure 3 illustrates a consolidated algorithm on management of complications of severe acute pancreatitis like necrotizing pancreatitis and perivascular complications such as splenic vein thrombosis and pseudoaneurysm.[12,13,14]

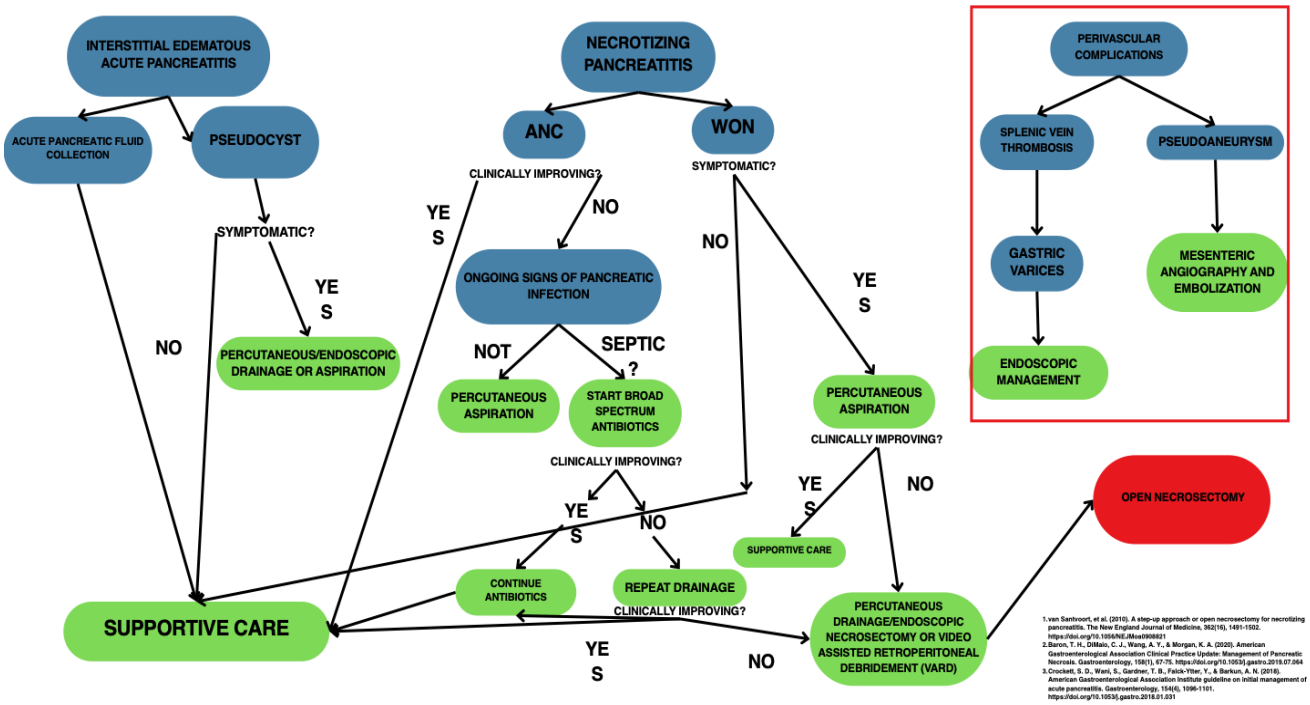

Figure 3. Algorithm on Management of Complications of Severe Acute Pancreatitis [12,13,14]

Conclusion

This case highlights the importance of a multidisciplinary approach involving gastroenterology, interventional radiology, and nutritional support in managing complex complications of necrotizing pancreatitis. Early recognition of vascular complications, timely angiographic intervention, and judicious conservative management of associated fistulas are essential to reducing morbidity and preventing catastrophic outcomes.

Patient Consent Statement

Written informed consent was obtained from the patient for publication of this case report. All identifying information had been removed to ensure patient confidentiality.

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