

## Case Report

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# A Case of Pancreatic Pseudoaneurysm

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### ABSTRACT

Pancreatic pseudoaneurysm (PSA) is a rare complication of chronic pancreatitis. Diagnosis requires high index of suspicion and urgent intervention is required once diagnosed as delayed treatment leads to poor outcomes and mortality. In this report, we discuss the case of a 30 year old male with a history of chronic pancreatitis who presented with upper gastrointestinal bleed (UGIB). Physical exam was elevated blood pressure, tachycardia and epigastric tenderness. A CT angiogram of abdomen done revealed pseudoaneurysm of pancreas. Patient emergently underwent endovascular embolization and coiling with resolution of GI bleed post procedure.

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### Introduction

A pancreatic pseudoaneurysm (PSA) is a rare clinical entity. Recognizing this condition early is very important as it can result in life-threatening complications [1]. Possible mechanisms described in the formation of PSA are enzymatic auto-digestions of pancreatic or peri-pancreatic arteries, the transfer of a Pancreatic Pseudocyst (PSC) in a peri-pancreatic vessel which becomes a large PSA, and erosion of intestinal wall by PSC causing bleeding [2,3].

PSA often develops in chronic pancreatitis, pancreatobiliary surgery, or trauma following motor vehicle accident [1]. PSA may present as hematemesis or melena if they rupture into the gastrointestinal tract or pancreatic duct presenting as hemosuccus pancreaticus [4,5].

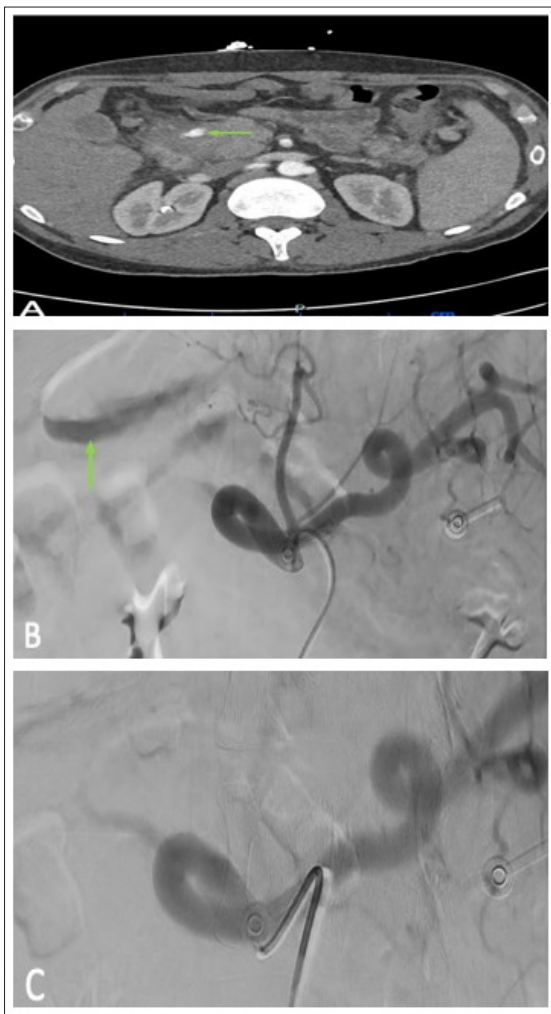
Angiography is the preferred choice for diagnosis as it offers 100% sensitivity for diagnosis and allows for treatment. It defines the location of the lesion as well as provides an opportunity for transcatheter embolization or stenting, which is the preferred treatment option. CT angiography has a high rate of sensitivity and specificity but does not facilitate intervention concurrently [1,3,6].

### Case Presentation

A 30 year old male with a history of alcohol use disorder, and chronic pancreatitis presented to the emergency department with acute onset of epigastric pain, hematemesis and melena of 1 day duration. He had few episodes of hematemesis two weeks prior

to presentation but it resolved spontaneously. The epigastric pain was described as sharp, and radiating to the right upper quadrant and back. On physical examination, he was afebrile and his blood pressure was elevated at 188/108mmHg, pulse rate of 101 bpm, and respiratory rate of 22 cpm. Abdominal examination revealed epigastric tenderness but no guarding or rebound tenderness. Bowel sounds were normal. Other systemic examinations were unremarkable.

Initial work up revealed hemoglobin 10.3g/dL. His hemoglobin at baseline was 11g/dL. Other work up included lipase, renal and hepatic function tests which were all unremarkable. Patient was started on Intravenous (IV) fluids, IV Proton Pump Inhibitors (PPIs), and IV opioids for pain control. Gastroenterology service was consulted to evaluate patient for Esophagogastroduodenoscopy (EGD) on account of his UGIB. However, CT abdomen and pelvis with IV contrast done revealed acute on chronic pancreatitis with interval development of a pseudocyst in the pancreatic tail. There was also a rounded hyperdensity within the pancreatic head measuring 10 x 8 mm which was suspicious for underlying vascular anomaly with surrounding haemorrhage. Subsequent CT angiography of abdomen showed ill-defined hypoattenuating region abutting the pancreatic head indicating hematoma measuring approximately 3.4 cm x 3.9 cm (Figure A). These findings were consistent with PSA. Interventional radiologist were then consulted and patient underwent selective catheterization and embolization of dorsal pancreatic artery branches, distal gastroduodenal artery, and distal anterior inferior pancreaticoduodenal arteries (Figures B and C).



Patient recuperated well post procedure with complete resolution of abdominal pain and melena. Hemoglobin also remained stable and he was discharged home after 5 days of admission. One week after discharge his H&H was 10.9g/dL. Table 1 shows trend of patient's Hemoglobin.

**Table 1: Trend of Patient's Hemoglobin from Day of Admission to One Week After Discharge**

Time	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	1 week post discharge
Hb (g/dL)	10.3	9.8	9.3	8.1	8.4	8.5	9.3	10.9

### Discussion

PSA is an uncommon clinical entity and a high index of suspicion is required to make early diagnosis to reduce risk of life-threatening complications. PSA develops in the background of chronic pancreatitis, pancreaticobiliary surgery, or trauma and motor vehicle accidents [1]. Another study also suggested it could be possibly caused by pancreatic cancer especially with findings of intratumoral air bubbles on CT imaging [7]. A case of cyclosporine-induced acute pancreatitis and hemodynamic instability in a 40 year old female with history of Lupus who was diagnosed and managed for PSA was also reported [8]. History of chronic pancreatitis is the main risk factor for the development of the PSA in our patient.

The commonest vessel involved in PSA is the splenic artery since it runs along the course of the pancreas before reaching the

spleen [1,9,10]. PSA can enlarge and rupture into an associated pseudocyst filling the biliopancreatic ducts and leading to bleeding via the ampulla of Vater into the gastrointestinal tract, and this is called Hemosuccus pancreaticus [11,12]. PSA can also rupture into the peritoneal cavity or retroperitoneum [1]. Patients are usually asymptomatic until the pseudoaneurysm ruptures. When a patient presents with UGIB, a PSA should be ruled out especially when there is history of pancreatitis. Sudden increase in abdominal pain with falling hematocrit or hemodynamic instability following pancreaticobiliary surgery should raise suspicion for PSA [1]. Our patient had acute onset abdominal pain, UGIB, and approximately 1g/dL drop in Hemoglobin in the setting of chronic pancreatitis. He had emesis with few streaks of blood about two weeks prior to onset of significant hematemesis. This initial, mild bleed is described as sentinel bleed [1].

A CT angiography has a high rate of sensitivity and specificity but does not facilitate concurrent intervention and it is only suitable for stable patients. Angiography defines the character and location of the lesion and provides an opportunity for treatment by transcatheter embolization or stenting [1]. Our patient was hemodynamically stable and diagnosis of PSA was not initially apparent. A CT angiogram confirmed diagnosis. Endovascular transarterial catheter embolization or by the placement of a covered stent is the standard of therapy now and suitable in unstable patients [1,13]. Observation after embolization is necessary to monitor for complications, such as early or late re-bleeding, which can occur in 20–40% of patients [14]. Surgery is reserved for cases of failed embolization but carries a higher risk [1,15]. The mortality for PSA depends on the location of the pathology. Higher mortality rates are associated with PSA located in pancreatic head compared to same pathology at the tail of the pancreas [1].

Our patient had transarterial embolization and remained stable. He was discharged home in good condition five days after the procedure.

### Conclusion

PSA is an uncommon complication of mostly chronic pancreatitis. Diagnosis can be missed or delayed and can lead to life-threatening complications. This case describes a classic presentation of pancreatic pseudoaneurysm and application of recommended standard of care. High index of suspicion is required in making a diagnosis.

### Author Contributions

**Isaac Opoku:** Data Collection, Analysis and Interpretation, Writing Original Draft, Reviewing and Editing, Supervision.

**Raissa Nana:** Data Analysis and Interpretation, Reviewing and Editing of Draft.

**Kikelomo Olaosebikan:** Data Analysis and Interpretation, Reviewing and Editing of Draft.

**Amal Naji:** Data Collection, Analysis and Interpretation, Writing Original Draft.

**Elizabeth Soladoye:** Data Collection, Analysis and Interpretation, Writing Original Draft.

**Dominic Amakye:** Conceptualization, Writing Original Draft, Reviewing and Editing, Supervision.

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