

Spontaneous superior and inferior pancreaticoduodenal artery pseudoaneurysms in the setting of a retroperitoneal hematoma surrounding the pancreatic head

Asad Rehman DO, Jordan Torres MD, Salman Islam DO, Bushra Bangash MD, Lakshmi Tatineni MD, Aneesha Shaju DO

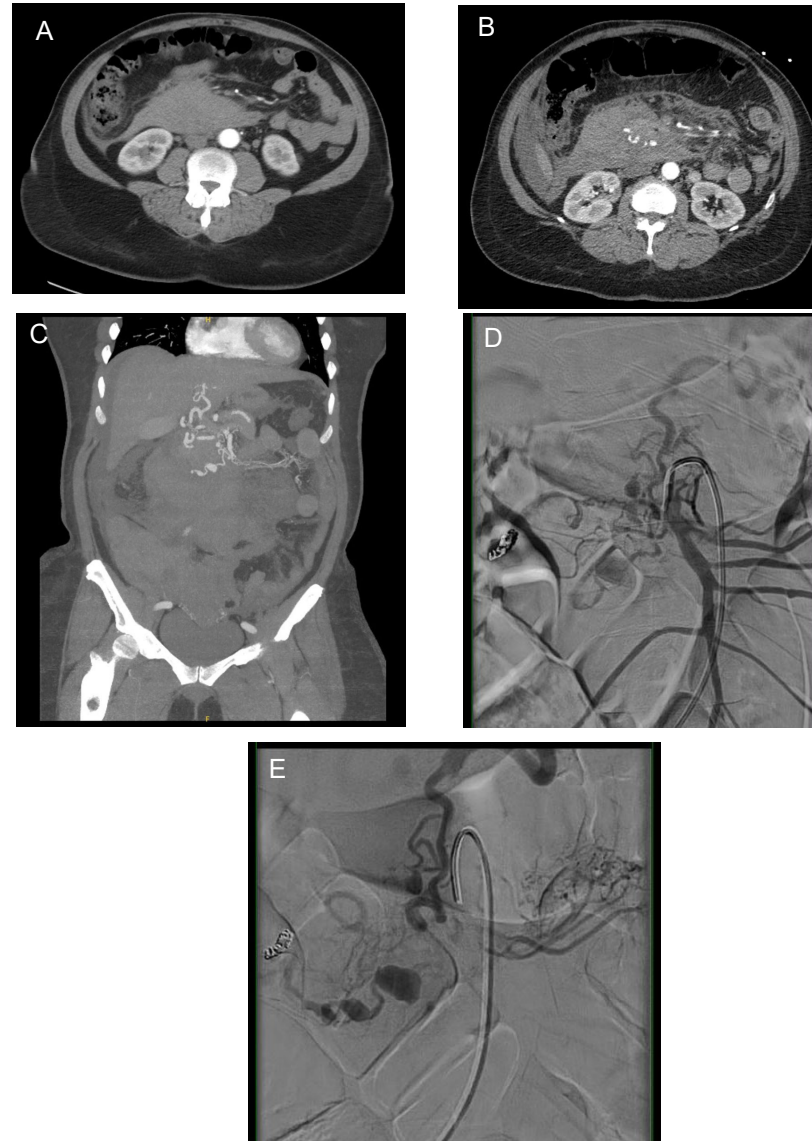
Introduction

- Superior and inferior pancreaticoduodenal artery (PDA) aneurysms, constituting only 2% of all splanchnic artery aneurysms, have no current management guidelines in medical literature.
- Detection is challenging until symptoms of rupture arise, leading to catastrophic consequences.
- Diagnosis occurs urgently through angiography or intraoperative discovery after significant bleeding.
- The reported case highlights a unique instance where a PDA aneurysm was diagnosed on repeat imaging for a patient with retroperitoneal hematoma

Case

- 47 year-old female presented to the hospital due to generalized epigastric pain, nausea, and bloating. Patient was taking aspirin powder as needed for headaches for many years.
- Computed tomography (CT) of the abdomen/pelvis showed a retroperitoneal hematoma. Patient was then sent for emergent CT-angiogram of the abdomen and pelvis was obtained and initially showed no evidence of extravasation.
- Acutely decompensated with hemoglobin dropped from 10.9 to 7.8 and hypotension
- Repeat CTA showed fusiform pseudoaneurysm of the superior and inferior PDA with active extravasation (see images)
- Received RBCs, platelets, FFP, and emergently taken for angiogram
- Inferior PDA could not be coiled due to the location of the bleed despite multiple attempts. Patient progressed to hemorrhagic shock.
- Massive transfusion protocol was initiated and the patient was intubated. Abdominal compartment pressures remained in normal range and she was transferred to higher level of care for specialty surgery.

Images



Captions

- A) CT angiogram of abdomen and pelvis showing initial retroperitoneal hematoma measuring 14 x 5.5 x 11.3 cm in the peripancreatic region extending into the lower abdomen
- B and C) Interval development of several fusiform pseudoaneurysms of the superior/inferior PDA measuring between 0.75 and 1.4 cm in diameter associated with the pancreatic head a large 10.2 x 7.4 x 12 cm complex retroperitoneal hematoma centered around the pancreatic head
- D) Selective angiogram showing tortuous but patent superior PDA in its proximal portion with continuous fusiform pseudoaneurysm dilation to the inferior PDA.
- E) Superior PDA successfully embolized with 3 mm x 12 cm and 4 mm x 16 cm coils. Unable to embolize the inferior pancreaticoduodenal artery due to significant kinking of the vessel secondary to underlying hematoma

Discussion & Conclusion

- Case describes a unique situation where PDA pseudoaneurysm was not initially present but emerged in subsequent imaging the day after admission, challenging a prompt explanation of its pathogenesis.
- Despite the common association of PDA pseudoaneurysms with pancreatitis or trauma, this patient showed no signs of either condition.
- Research indicates that 62% of PDA aneurysms are already ruptured at diagnosis, with a mortality rate of 21%.
- Rupture risk is not size-dependent, emphasizing the need for prompt definitive treatment for diagnosed PDA aneurysms.
- Notably, concurrent celiac occlusive disease is observed in patients with PDA aneurysms, suggesting increased flow through peripancreatic vessels as a contributing factor.
- However, substantial number of aneurysms occur without celiac occlusive disease.
- Pancreaticoduodenal pseudoaneurysms are rare disorders with high morbidity and mortality. Clinicians should be vigilant and involve specialty care early, including pancreatic surgery and interventional radiology, to manage this condition effectively.

This research was supported (in whole or in part) by HCA Healthcare and/or an HCA Healthcare affiliated entity. The views expressed in this publication represent those of the author(s) and do not necessarily represent the official views of HCA Healthcare or any of its affiliated entities.

References

1. Jyomasa S, Matsuzaki Y, Hiei K, Sakaguchi H, Matsunaga H, Yamaguchi Y. Pancreaticoduodenal artery aneurysm: A case report and review of the literature. J Vasc Surg. 1995;22(2):161-166. doi:10.1016/S0741-5214(95)70111-7
2. Xu QD, Gu SG, Liang JH, et al. Inferior pancreaticoduodenal artery pseudoaneurysm in a patient with calculous cholecystitis: A case report. World J Clin Cases. 2019;7(18):2851-2856. doi:10.12998/wjcc.v7.i18.2851
3. Moore E, Matthews MR, Minion DJ, et al. Surgical management of peripancreatic arterial aneurysms. J Vasc Surg. 2004;40(2):247-253. doi:10.1016/j.jvs.2004.03.045