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CASE REPORT | PANCREAS

Severe Gastrointestinal Bleeding Due to Hemosuccus Pancreaticus in Chronic Pancreatitis Treated With Percutaneous Trans-splenic Embolization

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ABSTRACT

Hemosuccus pancreaticus is a life-threatening but rare cause of intermittent upper gastrointestinal bleeding caused by acute/subacute hemorrhage into a pancreatic duct or pancreatic pseudocyst because of a ruptured pseudoaneurysm. This entity is described in patients with pseudoaneurysms that develop in the context of severe pancreatic/peripancreatic inflammatory changes. Hemosuccus pancreaticus presents a difficult diagnostic and therapeutic conundrum because it tends to involve inflamed, friable, and tortuous vascular pathways. We present a rare case of hemosuccus pancreaticus because of splenic pseudoaneurysm presenting as duodenal hemorrhage and discuss trans-splenic embolization with a combined angiographic and ultrasound-guided approach.

INTRODUCTION

Hemosuccus pancreaticus, also known as hemoductal pancreatitis or pseudohemobilia, is a potentially life-threatening but rare cause of upper gastrointestinal (GI) bleeding. Patients classically present with triad of epigastric pain and hyperamylasemia, typically because of pancreatitis, as well as an intermittent upper GI bleed.[1] Approximately 80% of hemosuccus pancreaticus results from pancreatitis. Other etiologies include pancreatic tumors, trauma, infection, and congenital abnormalities.[2] All these etiologies result in chronic inflammation, which likely damages adjacent blood vessels. The artery most commonly involved is the splenic artery (approximately 60%); however, any peripancreatic artery may be involved including gastroduodenal, pancreaticoduodenal, hepatic, left gastric, and superior mesenteric arteries.[3]

Because of its rarity, hemosuccus pancreaticus is often not highly considered in patients with upper GI bleeds. Diagnosis is even more confounding because of the intermittent nature of the bleed, and patients often undergo nondiagnostic computed tomography (CT) scans and endoscopies before angiography. Angiography is the ideal tool for diagnosis, with a sensitivity of between 67% and 100%, and also allows for potential interventions.[4] Alternatively, patients may undergo surgical resection.

The complex interplay of intermittent hemorrhage into a pancreatic duct or pseudocyst and inflammatory pancreatic and peripancreatic changes because of pancreatitis and/or pancreatic malignancy makes for a difficult diagnosis with a potentially fatal outcome. Patients who undergo nonoperative management may have up to 90% mortality rate.[5]

CASE REPORT

A 38-year-old man with a history of psoriatic arthritis and chronic pancreatitis secondary to chronic alcohol use complicated by pancreatic tail pseudocysts presented to the emergency department with progressive fatigue, lightheadedness, presyncope sensation, hematochezia, and several days of tarry stools. Pertinent physical examination included mild tachycardia with heart rate of 110 beats per minute and epigastric tenderness. Initial laboratory test results were remarkable for hemoglobin of 5.9 g/dL, decreased from

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8.7 g/dL 2 months ago. Blood transfusion was initiated, and abdominal and pelvic CT revealed a large bleeding pseudoaneurysm in the tail of the pancreas (Figure 1). After discussion with gastroenterology, the patient was brought to interventional radiology for angiography and possible embolization.

An abdominal aortogram demonstrated classic vascular anatomy of the abdominal vasculature; however, it could not visualize the pseudoaneurysm. Subsequent selective angiograms of the celiac, superior mesenteric, and splenic arteries revealed a large saccular aneurysm involving a hilar branch of the splenic artery; however, they did not visualize a definite communication with pseudoaneurysm that could be endovascularly approached, likely because of contribution from a smaller caliber hilar branch vessel. No bleeding from within the pseudocyst was identified.

With no direct endovascular path to the splenic artery pseudoaneurysm, the left upper quadrant was prepped and draped. In correspondence with the previous CT and angiographic images, sonographic ultrasound demonstrated a large pseudoaneurysm in the splenic hilum (Figure 2). Under ultrasound guidance, a 21-gauge micropuncture needle was advanced into the pseudoaneurysm, and thrombin was injected. Repeat splenic artery angiogram demonstrated complete resolution of the pseudoaneurysm. A final subselective splenic arteriogram demonstrated resolution of the blush within the proximal duodenum (Figure 3).

The patient was discharged several days after the procedure because he was asymptomatic and normotensive, and his hemoglobin was stable.

DISCUSSION

Hemosuccus pancreaticus is a rare pathology that describes bleeding from the duodenal papilla from the pancreatic duct. It accounts for less than 1% of all upper GI bleeds.[6] The most common cause is a ruptured pseudoaneurysm into the GI tract, pancreatic parenchyma, or pancreatic pseudocyst because of erosion of vessels adjacent to pancreatic inflammation.[7] The classic presentation is intermittent epigastric pain and signs of an upper GI bleed (ie, hematemesis or hematochezia) in a patient with a history of pancreatitis. The intermittent epigastric pain is the result of increased pancreatic ductal pressures secondary to obstructive blood clots.[8]

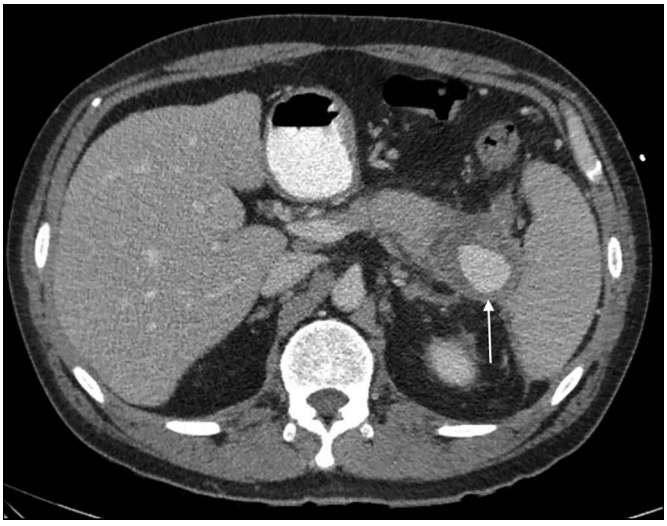

Figure 1. Abdominal computed tomography demonstrates inflammatory changes in the tail of the pancreas and a large pseudoaneurysm (white arrow).

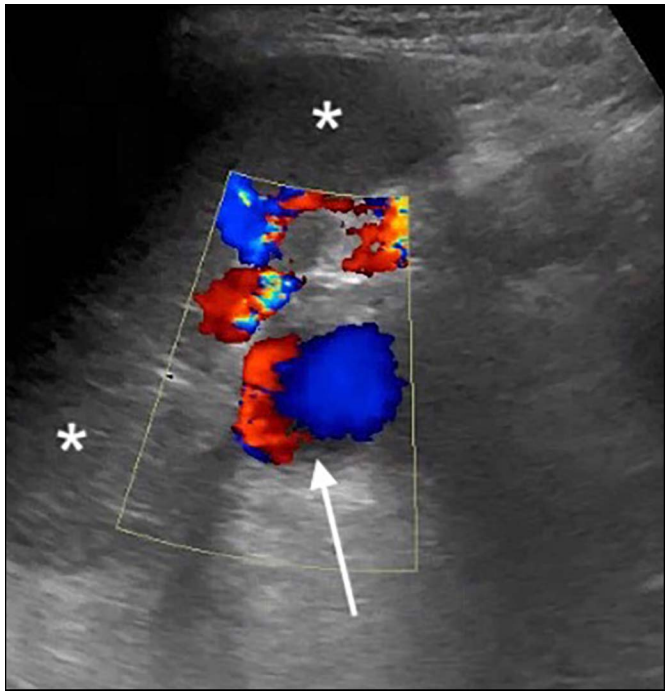

Figure 2. Color Doppler ultrasound of the spleen (white asterisks) demonstrates a large pseudoaneurysm with the splenic hilum (white arrow).

There are 2 main treatment approaches for hemosuccus pancreaticus: surgery and embolization. Surgery is typically reserved for hemodynamically unstable patients or for patients in whom embolization has failed or is not feasible. Although studies are limited, embolization is generally a good first-line management option for hemosuccus pancreaticus. One retrospective review reported a success rate of 72.5% for 40 patients who underwent embolization.[9] Unfortunately, not all pseudoaneurysms can be embolized from an endovascular approach, especially in anatomic limitations, such as in our case.

Percutaneous thrombin injection directly into pseudoaneurysms is a well-established treatment. It is mainly performed for superficial pseudoaneurysms in the extremities.[10,11] Although endovascular approach is commonly used to treat visceral pseudoaneurysms, several case reports have reported percutaneous puncture of visceral artery aneurysms for thrombin injection or embolization.[12,13] To the best of our knowledge, there has only been 1 case series which describes percutaneous injection of thrombin combined with angiographic evaluation of

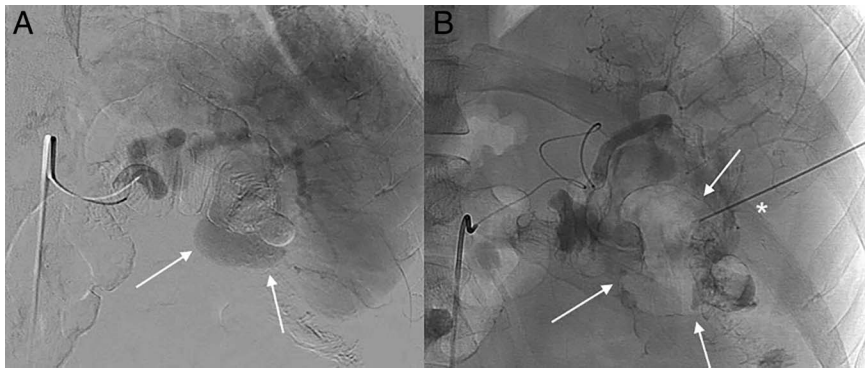

Figure 3. (A) Selective splenic angiogram before percutaneous thrombin injection into the pseudoaneurysm demonstrates a large pseudoaneurysm (white arrows) within the splenic hilum. (B) Selective splenic angiogram after percutaneous access of the pseudoaneurysm (white asterisk) demonstrates no residual filling within the pseudoaneurysm (white arrows).

visceral artery pseudoaneurysms.[14] Few complications that may arise as a result of percutaneous embolization include injury to surrounding abdominal organs and inability to completely embolize the aneurysm leading to rebleeding; however, aneurysm rupture is not a known complication.[14]

Some pseudoaneurysms that underlie rare and life-threatening entities such as hemosuccus pancreaticus are difficult to treat through an endovascular route. We suggest that this may require a catheter in the major feeding vessel for angiographic characterization, and an adequate acoustic window for ultrasound- and/or fluoroscopic-guided percutaneous approach for treatment using thrombin injection.

DISCLOSURES

Author contributions: M. Leshen and A. Dadlani wrote the manuscript, and A. Dadlani is the article guarantor. N. Ohene-Baah edited and reviewed the manuscript.

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