CASE REPORT

Intra-abdominal ticking time bomb: haemosuccus pancreaticus

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SUMMARY

A 48-year-old man presented in a near-syncopal state with a 3-day history of melaena, anaemia and epigastric pain. His medical history was significant for chronic autoimmune sclerosing pancreatitis and three previous hospitalisations for enigmatic gastrointestinal bleeding. Symptomatic treatment for anaemia was coupled with oesophagogastroduodenoscopy, two colonoscopies and video capsule endoscopy, but all failed to identify a source of gastrointestinal bleeding. CT angiography of the abdomen revealed extravasation of contrast from a small branch of the splenic artery, later identified as a splenic artery pseudoaneurysm, which was subject to two separate failed embolisation attempts. The patient eventually required a splenectomy to abate the haemorrhaging. One-month postsplenectomy, the patient was haemodynamically stable but required readmission due to significant epigastric abdominal pain secondary to acute exacerbation of pancreatitis.

BACKGROUND

Haemosuccus pancreaticus is a rare and often illusory source of gastrointestinal bleeding. It is defined as gastrointestinal haemorrhage into the pancreatic duct with expulsion into the duodenum via the ampulla of Vater.¹ It is usually identified in the context of alcoholic pancreatitis and classically involves bleeding from a splenic artery aneurysm or pseudoaneurysm.² This case demonstrates an aetiology of haemosuccus pancreaticus scarcely described in the literature, that of autoimmune pancreatitis, and demonstrates many of the pitfalls associated with diagnosing and treating haemosuccus pancreaticus.

CASE PRESENTATION

A 48-year-old man presented to a local emergency department (ED) in a near-syncopal state with a 3-day history of melaena and epigastric pain. At that time, his pertinent lab findings included haemoglobin (HB) 5.8 g/dL, lipase of 3400, amylase of 186 and his stool occult blood test was positive. He was given 2 units of packed red blood cells, which raised his HB to 7.2 g/dL, and transferred to an acute care facility a few hours later. His medical/surgical history was significant for haemorrhagic duodenitis, antral gastritis, autoimmune sclerosing pancreatitis (previously diagnosed with serum IgG4 values greater than 1–2 times the upper limit of normal) and a laparoscopic cholecystectomy for symptomatic cholelithiasis. In the 3 years prior to

this admission, he had received three oesophagogastroduodenoscopies (OGD), one colonoscopy, one endoscopic retrograde cholangiopancreatography (ERCP), one video capsule endoscopy and one endoscopic ultrasound, of which the only significant diagnostic finding was fibrosing pancreatitis.

At the acute care facility, he underwent an upper gastrointestinal (GI) endoscopy, which revealed a normal oesophagus, normal gastric cardia and fundus and five sessile polyps in the gastric fundus (all <8 mm in largest dimension). No evidence of blood or bleeding was found on the examination. Video capsule endoscopy performed the next day demonstrated blood in the distal ileum and colon, but the source could not be identified. He then received a colonoscopy, which was unable to identify any apparent source of bleeding.

Given the fallow nature of the previous examinations, CT angiography was performed to investigate a *recherche cause* of this patient's symptoms. The CT angiography demonstrated a 3 mm focus of contrast outside the lumen of a splenic artery tributary. Interventional radiology (IR) was consulted, and they conducted an abdominal fluoroscopic angiogram, which identified a 3 mm pseudoaneurysm arising from the distal splenic artery at the level of the vascular hilum (figure 1). The pseudoaneurysm was coil embolised and postembolisation angiography showed no leakage through the coil pack.

It was inferred that blood from the splenic artery pseudoaneurysm likely crossed into the pancreatic duct allowing it to flow through the ampulla of Vater and into the duodenum; thus, he was diagnosed with haemosuccus pancreaticus. The patient remained at the acute care centre under observation for two nights and, as he had no apparent signs of melaena and his HB was increasing, he was discharged home.

The patient presented to his local emergency department 1 week later with an HB of 5.9 g/dL and melaena, which began 1 day prior. The patient was again transferred to the acute care centre, and a mesenteric angiogram was performed. The previously placed coils within the splenic artery pseudoaneurysm were identified and no active haemorrhage was evident, but contrast opacification of a short aneurysm neck and a small portion of the aneurysm sac was identified. The patent portion of the aneurysm sac and the anterior branch of the splenic artery distal and proximal to the pseudoaneurysm were coil embolised back to the origin of the dominant posterior splenic artery branch.

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Figure 1 3 mm pseudoaneurysm arising from the distal splenic artery (red arrow).

A postembolisation angiogram confirmed near stasis of flow through the branch. The patient again remained at the acute care centre under observation for two nights and when clinically stable, he was discharged home.

Two months later the patient presented to his local emergency department with a 1-week history of melaena and fatigue. His HB at that time was 8.3 g/dL, his vital signs were within normal range. He was again transferred to the acute care centre and received an OGD, which demonstrated type 1 isolated gastric varices and sessile gastric polyps as well as fresh blood and blood clots in the gastric fundus. It was deduced that the bleeding was most likely secondary to gastric varices; general surgery was consulted and the decision was made to proceed with a splenectomy to help treat the gastric varices. The splenectomy was performed, and the patient did well postoperatively in the hospital and was discharged home 5 days later in good health.

OUTCOME AND FOLLOW-UP

The patient required immunisations against encapsulated bacteria including PCV 13, PPSV 23 and meningococcus postsplenectomy. As of the time of this writing, the patient had approximately 2 months of follow-up postsplenectomy. During this timeframe, he noted two 'flareups' of epigastric abdominal pain at his home for which he did not seek medical attention, but he was readmitted for a third 'flareup' of significant epigastric abdominal pain. During this admission, he did not experience vomiting, melaena or haematochezia. He had an uneventful inpatient course and was treated with IV fluids and pain control for 4 days, then discharged home. He has followed-up with his primary care provider and his gastroenterologist since his latest discharge, during which time he has been experiencing moderate, intermittent epigastric pain and fatigue.

Of note, the patient has been unable to adequately perform his job as a groundkeeper during this time due to weakness and pain attributed to his various conditions. The patient has voiced concerns that his relative inability to work has caused distress in his life.

DISCUSSION

Haemosuccus pancreaticus is defined as an upper gastrointestinal tract haemorrhage originating in the pancreatic duct

and emptying into the duodenum via the ampulla of Vater.³ Approximately 100 cases have been reported in the literature. The most common aetiology of haemosuccus pancreaticus is rupture of splenic artery pseudoaneurysm, usually secondary to chronic pancreatitis in the setting of chronic alcohol intake.¹ The postulated mechanism of pseudoaneurysm formation is chronic exposure of an arterial wall to pancreatic enzymes resulting in scarring and granulation and eventual formation of a pseudoaneurysm that communicates with the pancreatic duct.² The most common arteries involved in haemosuccus pancreaticus are the splenic artery (40%), the gastroduodenal artery (30%), the pancreaticoduodenal artery (20%), the gastric arteries (5%) and the hepatic arteries (2%).⁴ Han *et al* identified the eight most common aetiologies of haemosuccus pancreaticus as comprising: pancreatitis, tumours, vascular disease, iatrogenic disease, congenital abnormalities, infection, trauma and thrombasthenia.²

Patients with haemosuccus pancreaticus usually present with a triad of epigastric abdominal pain, gastrointestinal haemorrhage (usually with signs of upper GI haemorrhage) and hyperamylasaemia.² Patients may also develop signs of lower GI bleeding such as melaena and haematochezia around 48 hours after the initial presentation and are likely to develop signs and symptoms of anaemia. Patients are usually haemodynamically stable but may rarely present with haemorrhagic shock.^{5,6} The nature of bleeding tends to be intermittent and repetitive due to the formation and dissolution of the clot in the pancreatic duct.⁵

Unfortunately, due to the constellation of symptoms associated with haemosuccus pancreaticus and their occult nature, the mortality rate remains high with the postsurgical mortality rate ranging between 6% and 58% and the mortality rate of cases treated only medically being >90%.³

Haemosuccus pancreaticus is a condition that vexes patients and remains nearly a terra incognita for the field gastroenterology. Patients with haemosuccus pancreaticus may undergo numerous diagnostic procedures to little or no avail before a diagnosis is made, as was reported in this case. Physicians should be cognizant of haemosuccus pancreaticus in the context of patients with known pancreatic disease presenting with gastrointestinal bleeding, particularly when the cause of that bleeding remains illusory. The treatment of choice in haemodynamically stable patients is transcatheter embolisation, however surgery is also a viable option.

Learning points

- ▶ Haemosuccus pancreaticus is a rare cause of gastrointestinal bleeding due to haemorrhage into the pancreatic duct with emptying into the duodenum through the ampulla of Vater.
- ▶ Haemosuccus pancreaticus is most commonly secondary to mesenteric arterial pseudoaneurysm leakage or rupture.
- ▶ Haemosuccus pancreaticus is usually seen in the context of alcohol-induced pancreatitis but may be due to various other causes such as autoimmune pancreatitis.
- ▶ Haemosuccus pancreaticus is best identified with CT angiography and best treated with embolisation or surgical removal of the haemorrhaging area.
- ▶ In cases of haemosuccus pancreaticus, initial surgical treatments may not be successful, but still provide lower mortality rates than non-surgical approaches to treatment.

Contributors OS: initially identified the case and was directly involved in the initial treatment of the patient; determined it could be a good case report and contacted

TM to assist in drafting the article; provided additional information, drafting and editing to focus the literature review. TM: became involved with the patient's medical care at that time as a medical student; conducted the first literature review. OS and TM: spoke to the patient and utilised information in the patient's medical record with permission to find the most relevant information for the article and fully understand the timeline of events; worked on drafting the report; approved the final version of the article and attributed to the accuracy and integrity of the article.

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