

An unusual case of high gastrointestinal bleeding after Whipple surgery

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Abstract

Pancreatic cancer is an aggressive malignancy with poor survival rates. Pancreatic surgery has improved outcomes in the last few decades, but still contains high morbidity rates. Pancreatic fistula, delayed gastric emptying, intra-abdominal infections and bleeding are well-known complications. We report a case of a 57-year old woman with a portogastric fistula complicated with high gastrointestinal bleeding and septic thrombophlebitis after pancreaticoduodenectomy for pancreatic adenocarcinoma. (*Acta gastroenterol. belg.*, 2024, 87, 430-432).

Keywords: pancreatic carcinoma, pancreaticoduodenectomy, gastrointestinal hemorrhage, portogastric fistula, septic thrombophlebitis.

Introduction

In 80-85% of patients with pancreatic cancer, the disease is irresectable at time of diagnosis. In case of resectable cancer of the pancreatic head, a pancreaticoduodenectomy (whipple procedure) is often performed, sometimes preceded by neo-adjuvant chemotherapy (1). Due to improved surgical techniques and better patient selection, postoperative mortality has declined over the last years. Yet a pancreaticoduodenectomy remains an extensive procedure, with high prevalence of postoperative morbidity. Post-pancreatectomy bleeding is a well-known complication (2). We present a rare case of high gastrointestinal bleeding caused by a portal vein fistula to the gastric lumen after pancreaticoduodenectomy performed for pancreatic cancer. The fistula was accompanied by septic thrombophlebitis in the portal vein leading to portal hypertension with ascites.

Clinical case

Our patient, a 57-year old Caucasian woman, was diagnosed with an adenocarcinoma of the pancreatic head. Relevant medical history included sleeve gastrectomy and cholecystectomy. Oncologic staging showed no locoregional vascular conflict, nor metastasis, cT2N0M0, stage Ib. Primary surgery with curative intent was performed in form of a laparoscopic pancreaticoduodenectomy with lymphadenectomy. Surgery itself was uncomplicated. The pathology specimen confirmed stage Ib, pT2N0, with tumor-free surgical margins. A week after surgery she developed hematemesis. Her vital parameters were unstable, and she was transmitted to the intensive care unit. Her hemoglobine declined from 10.6 to 9 g/dl. After



Figure 1. — CT with angiography (axial image) showing a small blush on the minor curvature in the antral lumen (white arrow).

hemodynamic stabilization and transfusion of 1 unit packed cells, diagnostic imaging with computed tomography (CT) with angiography was performed, revealing a small blush on the minor curvature in the antral lumen (Figure 1). Furthermore a portal vein thrombosis was documented. High dose proton pump inhibitors and somatostatin analogues were added. CT was followed by upper gastrointestinal endoscopy. After rinsing intraluminal old blood clots, a clean base ulcer of 1 cm (Forrest classification III) was seen on the minor curvature of the stomach, right above the stented pancreatogastric anastomosis. There were no signs of active bleeding or visible vessels, no endoscopic treatment was performed. As no further bleeding was observed during hospitalization, low molecular weight heparin (LMWH) was started as treatment for the portal vein thrombosis. The patient was released from the hospital another 9 days later.

Adjuvant chemotherapy with the modified FOLFIRINOX regimen was initiated 10 weeks after surgery. She consulted with fatigue and diarrhea 10 days after the first cycle. Her laboratory tests showed a hemoglobine of 5.2 g/dl, and she was admitted for transfusion. Retrospectively she reported having dark stools the first

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Figure 2. — On CT of the abdomen (axial image) a portal vein thrombosis with intraportal air bubbles was seen (white arrowhead). The portal vein had a direct connection with the stomach (white arrow).

days after chemotherapy. Further investigation with gastroscopy was advised, but the patient refused it.

After her second cycle of chemotherapy she was readmitted with tense abdominal pain due to the sudden appearance of massive ascites. Novel CT of the abdomen showed an extensive septic thrombophlebitis of the portal and superior mesenteric veins, secondary to a portogastric fistula with leakage of gastro-intestinal fluids into the portal vein, causing portal hypertension and ascites (Figure 2). Gastroscopy showed esophageal varices grade 1, there were no more signs of the ulcer. Cultures of blood and ascites remained sterile. LMWH were continued, antibiotics were associated and chemotherapy was halted. The patient received diuretics and evacuating draining of ascites on weekly base during the following 9 months. Radiographic imaging at that point showed formation of multiple venous collaterals, hypertrophy of the hepatic artery and resolution of the ascites. Our patient remains currently cancer free 2 years post-surgery, despite cancellation of the adjuvant therapy.

Discussion

Curative surgery for pancreatic adenocarcinoma is only possible in approximately 15% of patients, however the majority will eventually show disease recurrence even after surgery (1). Adjuvant therapy with preference for the modified FOLFIRINOX regimen is recommended for patients who underwent curative pancreatic resection to reduce the risk of recurrence (3). Despite successfully evolving pancreatic surgery with a decreasing mortality rate during recent years, postoperative complications from pancreaticoduodenectomy such as delayed gastric emptying, pancreatic fistula and intra-abdominal infections are common (2).

Bleeding after pancreatic surgery has an incidence ranging from 7 to 20%. Early postoperative bleeding is generally due to technical failure of hemostasis at anastomotic sites or by an underlying coagulopathy (4,5). Delayed post-pancreatectomy hemorrhage is defined as bleeding minimal 24 hours after surgery.

The most common sites of bleeding are the gastroenteral anastomosis and the visceral vessels (mostly the gastroduodenal artery) (2,5).

Fistula between the portal venous system and gastrointestinal tract as a cause of high gastro-intestinal bleeding are extremely rare. There are a few case reports describing fistula between the portal vein and the duodenum, due to peptic ulcer disease or due to chronic ulceration after biliary surgery such as extrahepatic bile duct resection and extended right hepatectomy for cholangiocarcinoma (6,7,8,9,10). Two other case reports note portogastric fistula due to coil migration into the stomach after transjugular intrahepatic portosystemic shunt procedure and endovascular treatment of gastric varices (11,12). Our report is, by our knowledge, the first to describe a portogastric fistula resulting in high gastro-intestinal bleeding as a complication of pancreaticoduodenectomy. Only one other case report describes hemorrhage after pancreaticoduodenectomy due to a fistula between the portal vein and the jejunum, as a result of a portal vein aneurysm (4). We did not account for a possible role of the previous sleeve gastrectomy in the fistula formation, because of the onset 7 days after pancreaticoduodenectomy and its location inside the post-Whipple inflammation.

The diagnosis of a portogastric fistula was made on cross-sectional imaging. CT angiography is the preferred diagnostic imaging modality in hemorrhage post-pancreatectomy to detect the cause and site of bleeding, combining with evaluation of postoperative anatomy and possible complications (4,5). In our case the fistula was not picked up on the first CT scan, but in retrospect already present in the postoperative inflammation. Upper gastrointestinal endoscopy can be performed when intraluminal bleeding is suspected. In patients with portogastric fistula it can play a role in detecting the entrance location, as in our case, an ulceration as the top of the fistula (5).

The preferred treatment strategy for a portogastric fistula is unclear, as there is a lack of clinical trials or systematic reviews due to the rare nature of the condition. Several treatment options such as medicinal management, interventional endovascular therapy, endoscopic hemostasis and surgery should be discussed multidisciplinary. The treatment of choice will always be case dependent. In our case portal venous embolization or stenting was thought not to be feasible due to the septic thrombophlebitis. In two case reports an endoscopic ultrasound guided coil insertion was used to treat a portoduodenal fistula, one after mispuncture of an intrahepatic portal vein during endoscopic ultrasound-guided hepaticogastrostomy (10,13). In our patient this was not possible as well. Pyelephlebitis is a rare complication, mostly seen after abdominal infections such as appendicitis and diverticulitis, that drain into the portal vein. The treatment contains of source control of the primary infection, with surgery if needed, and therapy with prolonged antibiotics. Anticoagulants tend

to be beneficial, but there is no strict consensus in the literature (14).

In our patient, the risk of morbidity and mortality of surgical relaparotomy was estimated too high. Her clinical condition was not well enough for a surgical reintervention at the time of bleeding. Furthermore relaparotomy would have been extremely difficult by the presence of postsurgical adhesions and complications of portal hypertension such as collateral veins and ascites. Therefore supportive measurements were the best option.

Conclusion

This report is, by our knowledge, the first to describe gastrointestinal hemorrhage deriving from a portogastric fistula as a complication of pancreaticoduodenectomy. The fistula was complicated with a portal vein thrombosis and pyelephlebitis leading to portal hypertension with ascites. CT angiography played a critical role in localizing the site of hemorrhage. Different treatment options such as interventional radiology, surgical reintervention and conservative management should be considered and discussed multidisciplinary.

Conflict of interest statement

ED: none, RG: none.

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