

Pancreatic Adenocarcinoma Presenting as Acute Large Bowel Obstruction: Case Report

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ABSTRACT

Introduction: Acute large bowel obstruction is a rare presentation of pancreatic cancer, with only six cases described in the revised literature. In all those cases, diagnosis was made either intraoperatively or post-mortem.

Case presentation: A 63-year-old man presented in the emergency room with 4 days of bowel constipation associated with abdominal pain and distention. Abdominal CT revealed a narrowing at the colonic splenic flexure and the colonoscopy revealed extrinsic compression at 40 cm from the anal verge. The patient was submitted to emergent exploratory laparotomy. We identified a mass involving the colonic splenic flexure, splenic hilum and the pancreatic tail. An en bloc subtotal colectomy, splenectomy and distal pancreatectomy was performed. Final pathology revealed a pancreatic ductal adenocarcinoma. The postoperative period was complicated with fecal peritonitis due to bowel perforation (day 3), hemoperitoneum secondary to pancreatic stump bleeding (day 10) and surgical site infection. The patient was discharged home on day 43.

Conclusion: A high level of suspicion is necessary to take into account pancreatic carcinoma as a differential diagnosis of bowel acute obstruction.

Key words: pancreatic adenocarcinoma, bowel obstruction

INTRODUCTION

Pancreatic adenocarcinoma accounts for 3% of new cancer cases each year, and its aggressiveness causes it to be the fourth leading cause of cancer-related deaths in Western countries (1). Classical symptoms are abdominal pain, weight loss, jaundice due to biliary obstruction and gastric outlet obstruction when the tumour is located in the pancreatic head. However, tumours located in the pancreatic body or tail usually have a more insidious and vague presentation, with abdominal or back pain, or new onset diabetes mellitus; this vagueness may lead to late diagnosis and poor outcomes.

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Large bowel obstruction is a common condition classically caused by colonic malignancy, volvulus, fecal impaction, diverticular disease, inflammatory bowel disease, radiation enteritis and colonic stricture (2). However, acute bowel obstruction secondary to pancreatic cancer is a rare primary presentation of pancreatic adenocarcinoma.

CASE REPORT

We report the case of a 63-year-old man presenting to the emergency department with diffuse abdominal pain and distention. The last bowel movement had occurred four days before. He stated that he had had complaints of abdominal discomfort, anorexia and diarrhea starting one month before.

The patient had a past medical history significant for hypertension and hyperlipidemia. No known history of previous surgeries. His last colonoscopy had been performed 6 years before, showing three polyps which were excised. Pathology revealed low grade dysplasia. No familiar history of pancreatic or colonic malignancies.

On the emergency department his vitals were all within normal values and his physical examination was significant only for abdominal distention and diffuse tenderness, but without rebound tenderness or other signs of peritonitis. Abdominal sounds were diminished. Digital rectal examination was normal.

Laboratory analysis did not reveal any abnormalities. Plain abdominal X-ray showed air-fluid levels and bowel distention (*fig. 1*). Intravenous contrast enhanced CT scan of the abdomen and pelvis revealed a nodular lesion near the pancreatic tail and splenic hilum and a narrowing of the colonic splenic flexure. There was no evidence of intraperitoneal free air or fluid (*fig. 2, 3*). Colonoscopy showed a colonic stenosis located at 40 cm from the anal verge, suspicious of extrinsic compression, with no signs of colonic intrinsic neoplastic changes.

The patient was submitted to an exploratory emergent laparotomy using a midline skin incision. We identified a suspicious mass involving the colonic splenic flexure, splenic hilum and the pancreatic tail. All the colon was distended with risk of cecum rupture. No signs of hepatic or peritoneal metastasis were found.

The decision was made to perform an en bloc subtotal colectomy, splenectomy and distal pancreatectomy. Bowel continuity was primarily restored by performing a latero-lateral mechanical ileocolic anastomosis.

The patient was admitted in the intensive care unit (ICU) during the immediate postoperative period due to the extent of surgery. At day 3, the patient developed fecal peritonitis identified by fecal content in the



Figure 1 - Admission plain abdominal X-ray

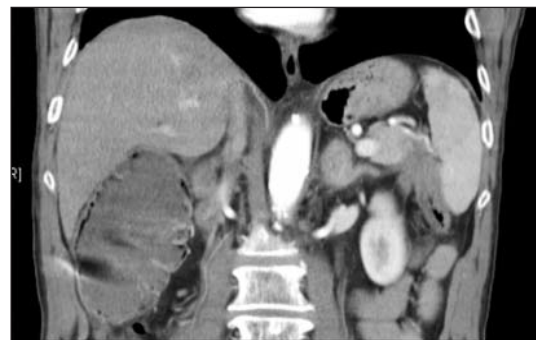


Figure 2 - Admission contrast-enhanced abdominal CT scan, coronal view



Figure 3 - Admission contrast-enhanced abdominal CT scan, axial view

abdominal drains and septic shock. He was promptly submitted to an emergent re-laparotomy. We identified an ileal perforation and fecal peritonitis. We constructed

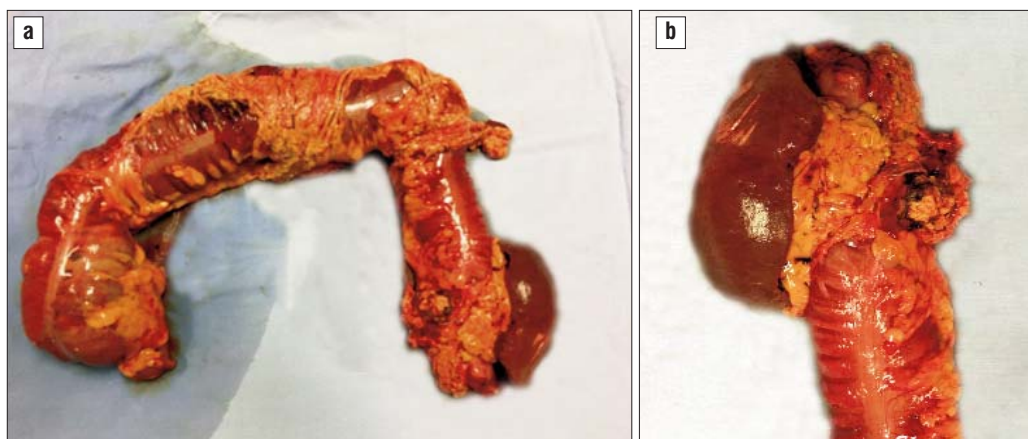


Figure 4 - Surgical specimen: en bloc subtotal colectomy, distal pancreatectomy and splenectomy

a diverting ileostomy and abdominal lavage was performed.

At postoperative day 10, the patient had a sudden onset abdominal pain and hypotension associated with hematic content in the abdominal drains and a drop in hemoglobin levels. We assumed the presence of hemoperitoneum and the patient was submitted to another emergent re-laparotomy. We found a massive hemoperitoneum due to bleeding from the pancreatic stump. Hemostasis was achieved and the patient was readmitted in the ICU for another 4 days, and after that to the surgical ward.

He later developed superficial surgical wound infection, which was apparently resolved with antibiotic therapy. The patient was discharged home at the 43rd postoperative day. He was readmitted one week later because of persistent purulent secretion from the abdominal surgical wound; microbiologic analysis revealed the presence of multiresistant *Escherichia coli* and *Proteus mirabilis*. New abdominal CT scan did not reveal any other local complications. He had a slow but steady improvement with intravenous antibiotics and bedside surgical debridement. The infection was resolved after two months.

The gross specimen consisted of a subtotal colectomy with attached distal pancreas and spleen (*fig. 4*). Microscopically, the tumour was a pancreatic ductal adenocarcinoma, with extra-pancreatic extension, with invasion of peripancreatic fat, wall of the colonic segment and splenic hilum. Surgical resection margin was invaded at the level of peripancreatic fat. Final staging was pT3, pN1, with 4 of 39 lymph nodes positive for metastasis (*figs. 5, 6, 7*).

The case was presented at the multidisciplinary group consult and the decision was made to maintain active surveillance only. No adjuvant therapies were

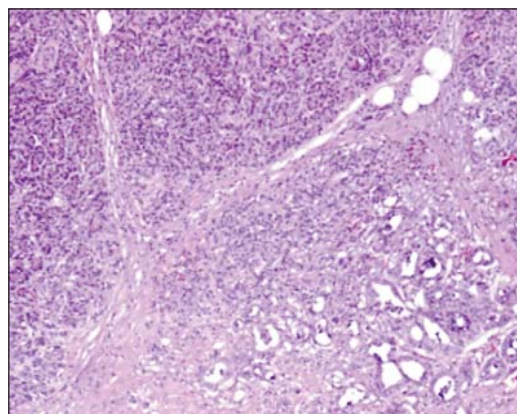


Figure 5 - Final pathology: pancreatic parenchyma (on the left) with adenocarcinoma (bottomright). H&E, 100x.

proposed since the abdominal wound infection was only resolved within 3 months from the initial surgery.

Current follow-up is of 7 months. The patient showed signs of tumour regrowth in the 6th-month toraco-abdominal CT scan. He is currently under-chemotherapy with DeGramont protocol.

DISCUSSION

Acute bowel obstruction secondary to pancreatic cancer is a rare primary presentation of pancreatic adenocarcinoma. This is only the seventh reported case of a patient whose primary presentation of pancreatic cancer was a large bowel obstruction.

In the revised literature dated from 1979, we found 3 case reports of adjacent colonic involvement of pancreatic adenocarcinoma causing mechanical obstruction (*table 1*) (3, 4, 5). We also found 3 other case reports of metastatic pancreatic cancer causing mechanical obstruction (6, 7, 8). Overall outcomes

Table 1 - Literature review of pancreatic cancer cases presenting with large bowel obstruction

Case report	Adjacent invasion				Metastasis		
	Welch, 1979	Tresadern, 1981	Griffin, 2012	Present case	Slam et al., 2007	Bellows, 2009	Kelley, 2016
Initial symptoms	Abdominal pain, constipation and weight loss	Abdominal pain, constipation/ diarrhea, weight loss and jaundice	Abdominal pain, distention, vomiting, constipation and weight loss	Abdominal pain, distention and constipation	Abdominal pain, distention and constipation		Abdominal pain, distention and constipation
Gender	Male	Male	Male	Male	Male	Male	Female
Age	54-year-old	68-year-old	73-year-old	63-year-old	78-year-old	45-year-old	67-year-old
Colon perforation	No	Yes	Yes	No		Yes	No
Primary tumor	Tail of pancreas	Head of pancreas	Tail of pancreas	Tail of pancreas		Tail of pancreas	Tail of pancreas
Point of invasion	Splenic flexure	Right transverse colon	Splenic flexure	Splenic flexure	Splenic flexure		Proximal sigmoid
Pathology	Adenocarcinoma	Adenocarcinoma	Mucinous adenocarcinoma	Adenocarcinoma	Mucinous adenocarcinoma	Adenocarcinoma	
Procedure	Emergency decompression transverse colectomy. Reoperation: segmental colon resection with primary anastomosis, pancreatic cancer non-resectable	Nonoperative treatment. Perforation on day 5 and decision was made for comfort measures.	En bloc subtotal colectomy, distal pancreatectomy and splenectomy. Reoperation: ileostomy formation	En bloc subtotal colectomy, distal pancreatectomy and splenectomy. Re-operation: diverting ileostomy	Right colectomy with primary anastomosis. Reoperation: en bloc resection of pancreatic tail, spleen and left colon with primary anastomosis	Right colectomy	Left colectomy with end colostomy
Diagnosis		Postmortem					
Outcome	Died "several months later"	Died 5 days later	Died 17 days later	Survival at seven months follow-up	Survival at three months follow-up		

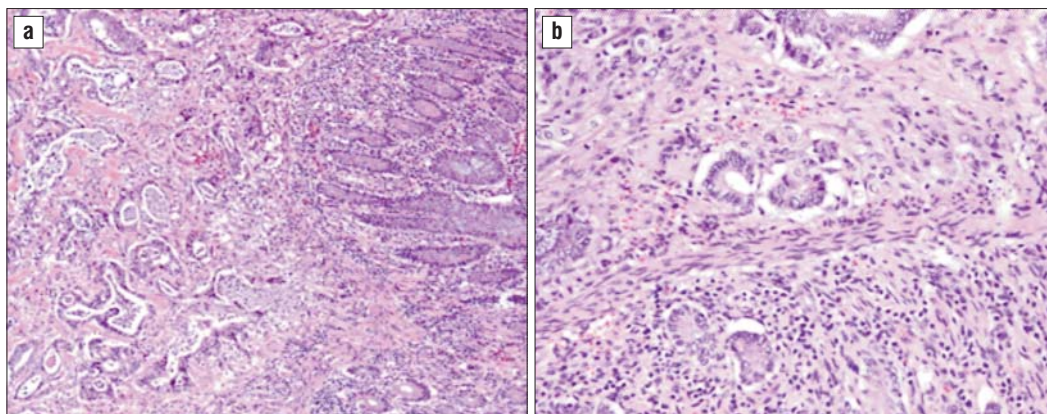


Figure 6 - a) Pancreatic adenocarcinoma with invasion of the colonic wall; note that the colonic mucosa is not invaded. H&E, 100x. b) Colonic invasion, sparing the muscularis mucosa and mucosa. H&E, 400x.

were poor, with one patient alive at three-months follow-up, since advanced disease was present at the time symptoms were developed.

Acute bowel obstruction is an uncommon presenting symptom of pancreatic disease; when it happens, it is usually a consequence of pancreatitis, that may cause localized spasm of the splenic flexure leading to dilation

of proximal colon (3, 9). Pancreatic cancer is a rarer cause of bowel obstruction, which may be due to contiguous invasion or to metastatic disease. When there is a known history of pancreatic cancer and the patient presents with a colonic mass, locally advanced or metastatic disease must be considered in the differential diagnosis; therefore, these patients should be worked

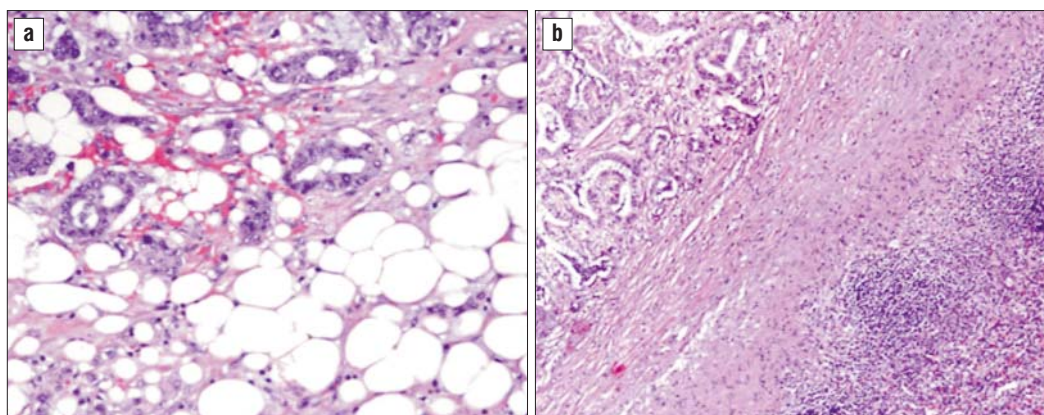


Figure 7 - Left: invasion of the peripancreatic fat. Right: invasion of the splenic hilum. H&E, 100x.

up before being considered for resection (8), since extended resection may not be justified and is associated with high rates of morbidity and mortality. Frozen section examination, when available, may be helpful in these circumstances (4).

CONCLUSION

Although rarely, pancreatic adenocarcinoma can present as acute bowel obstruction; therefore, it should be considered in the differential diagnosis of a large bowel obstruction.

Conflicts of interest

The authors have no potential conflicts of interest to declare.

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