CASE REPORT
ONCOLOGY

Diseases & Research

Mechanical Large Bowel Obstruction as the Initial Presentation of Locally Advanced Pancreatic Tail Carcinoma: A Case Report and Literature Review

Faisal Elagili[1,#], M Fahmi[1], A Aziz[1], Azmi Md Noor[1]

[1] Department of Surgery, Faculty of Medicine, International Islamic University Malaysia, Kuantan 25200, Malaysia

Abstract: We report a rare case of large bowel obstruction caused by locally advanced pancreatic tail adenocarcinoma. A 58-year-old male chronic smoker presented with progressive abdominal distention and absolute constipation for three weeks, without nausea or vomiting. On examination, he appeared cachectic with a grossly distended, tympanic, and tender abdomen, while rectal examination was unremarkable. A CT scan revealed diffuse bowel dilatation with a transition zone at the splenic flexure. Emergency exploratory laparotomy identified a mass involving the left colonic flexure, spleen, and pancreatic tail. The patient underwent a left hemicolectomy, splenectomy, and distal pancreatectomy, with the creation of stoma. Histopathology confirmed ductal adenocarcinoma originating in the pancreatic tail with invasion into the colon and spleen. Postoperatively, he developed hospital-acquired pneumonia, which resolved with antibiotics, and was discharged on day 21. Unfortunately, he succumbed to recurrent pneumonia with severe sepsis one week later. Although rare, pancreatic adenocarcinoma should be considered in the differential diagnosis of large bowel obstruction.

Keywords: Mechanical large-bowel obstructing; Locally advanced; Tail pancreas; Carcinoma.

Introduction

Pancreatic cancer, in general, is a highly aggressive malignancy with a dismal prognosis. While the majority of pancreatic cancers arise in the head of the pancreas, tumors originating in the tail represent approximately 5-10% of all cases[1]. This lower incidence contributes to a relative paucity of data specifically addressing the clinical characteristics and optimal management of pancreatic tail cancer. Compared to head-of-pancreas cancers, tail tumors often present at a later stage, potentially due to less pronounced early symptoms and the anatomical location, which can lead to delayed detection[2]. This delayed diagnosis frequently results in a less favorable prognosis. Clinically, the diagnosis of tail of pancreas cancer can be challenging due to the insidious onset of symptoms. Patients may experience vague abdominal or back pain radiating to the flank, often attributed to other benign conditions. Weight loss, anorexia, and new-onset diabetes are also common findings. As the tumor progresses, it can invade adjacent structures, leading to splenic vein thrombosis, gastric outlet obstruction, or, as observed in this case, large bowel obstruction. The latter is an exceedingly rare presentation and warrants further investigation into the underlying pathophysiology. The optimal management of pancreatic tail cancer is multifaceted and depends on several factors, including tumor stage, patient performance status, and the presence of comorbidities. Surgical resection, when feasible, remains the cornerstone of curative treatment. However, the anatomical location of tail tumors often necessitates more extensive resections, including distal pancreatectomy, splenectomy, and sometimes even left hemicolectomy, as potentially indicated by the presence of bowel obstruction. Neoadjuvant or adjuvant chemotherapy and/or radiation therapy play crucial roles in improving outcomes, particularly in locally advanced or metastatic disease. The choice of specific treatment modalities is guided by multidisciplinary discussion. This case report will detail a specific instance of tail pancreatic cancer presenting with large bowel obstruction, illustrating the clinical challenges and therapeutic considerations involved.

Case Presentation

A 58-year-old chronic smoker male presented to the emergency room with progressive abdominal distention that started 3 weeks prior. It was associated with obstipation but no nausea or vomiting. Several kilograms of weight loss had been noted in the preceding six months, although there was no history of other gastrointestinal symptoms. He appeared emaciated and chronically ill. Jaundice was not present, and no lymphadenopathy was detected. His vital signs were within normal limits. The abdomen was distended, tympanitic, and tender; no intra-abdominal masses were palpable. The bowel sounds were hyperactive with occasional peristaltic rushes and high-pitched sounds. The rectal examination was unremarkable. All hematological and biochemical investigations were normal. Abdominal computerized tomography (CT) demonstrated dilatation of the large and small intestine with a possible transition zone at the splenic flexure area (Fig. 1).

Correspondence: Faisal Elagili. E-mail: elagili2009@gmail.com. Address: Department of Surgery, Faculty of Medicine, IIUM, Kuantan, Bandar Indera Mahkota, Jalan Sultan Ahmad Shah, Kuantan 25200, Malaysia.

Received 1 September 2024; Revised 8 October 2024; Accepted 29 November 2024; Available Online 12 December 2024
DOI: 10.54457/DR.202402012

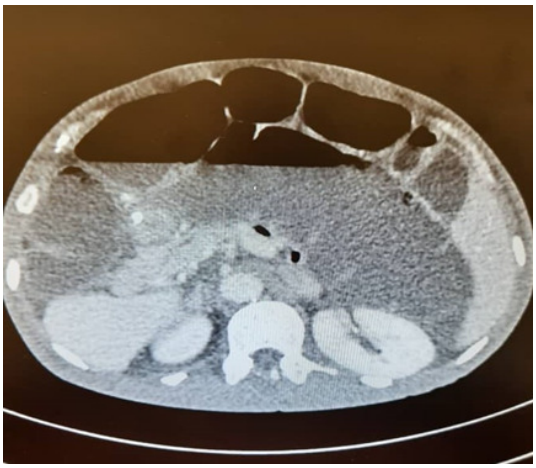

Fig. 1. Abdominal computerized tomography (CT) demonstrated dilatation of the large and small intestine with a possible transition zone at the splenic flexure area.

He was taken to the operating room to undergo an emergency exploratory laparotomy. At the operation, gross dilation of the large and small bowel with an obstructing mass at the splenic flexure was discovered (Fig. 2A and B). The decision was made to perform a left hemicolectomy. As the splenic flexure was mobilized, it was noticed that the mass was firmly adherent to the inferior pole of the spleen and the tail of the pancreas, and it could not be determined whether the mass was of colonic or pancreatic origin. Distal pancreatectomy, left hemicolectomy, a transverse colostomy, and a sigmoid fistula were performed. The histology showed ductal adenocarcinoma with the primary location in the pancreatic tail, invading the colon and metastasizing to the spleen. The postoperative period was uneventful except for hospital-acquired pneumonia, which was managed with antibiotics. The patient was discharged back home, where he succumbed one month later.

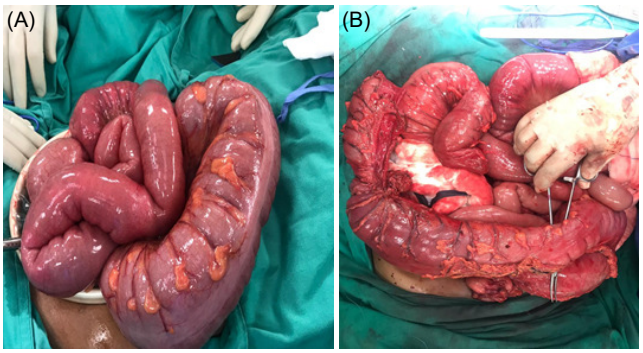

Fig. 2. Intraoperative finding.
A. Gross dilation of the large and small bowel.
B. Obstructing mass at the splenic flexure.

Discussion

Cancer of the pancreatic tail accounts for approximately 15–20% of all pancreatic malignancies. Due to their location and the absence of early symptoms, these tumors are often diagnosed at an advanced stage. The occurrence of acute large bowel obstruction as a primary manifestation of pancreatic tail carcinoma is infrequent, with only seven prior cases documented in the English literature[3–8]. The previously reported cases involve patients aged 48 to 92 (Table1), with a male predominance that aligns with our patient's demographic profile. This trend may suggest a hormonal or genetic predisposition that deserves further investigation.

Advancements in Imaging and Biomarkers

Imaging studies, especially contrast-enhanced CT scans, have been crucial in identifying masses in the pancreatic tail and their associated complications. In cases where patients present with bowel obstruction, CT scans often show signs of compression or invasion of the colon by the pancreatic mass. Advances in imaging techniques, such as endoscopic ultrasound (EUS) and MRI, have improved the sensitivity for detecting small pancreatic tumors and assessing involvement of nearby blood vessels or organs. Additionally, emerging biomarkers like CA 19-9 and new genomic markers (such as KRAS mutations and circulating tumor DNA) may assist in the earlier detection of pancreatic cancer, although their effectiveness in asymptomatic patients is still limited. Despite these advancements, significant delays in diagnosis continue to occur, particularly in cases that present with atypical symptoms, as seen with our patient.

Path physiological Insights

Pancreatic tail carcinoma can cause large bowel obstruction due to either direct invasion of the splenic flexure or external compression. The close anatomical proximity of the pancreatic tail to the retroperitoneal and left colonic structures facilitates this interaction. As the tumor grows, it may encase nearby blood vessels, nerves, and lymphatic's, leading to progressive invasion and fibrosis.

Unlike intrinsic colonic lesions such as adenocarcinoma or volvulus, extrinsic obstructions caused by pancreatic carcinoma often do not show the typical endoscopic signs of mucosal irregularity, which can delay a definitive diagnosis.

The path physiology of obstruction in these cases is further complicated by the aggressive nature of pancreatic cancer. Tumor-induced desmoplasia and per neural invasion worsen local mass effects. In contrast to other causes of bowel obstruction, such as adhesions or volvulus both of which can often be managed surgically with good outcomes obstruction associated with pancreatic tail carcinoma usually indicates advanced disease and carries a poor prognosis.

Management Strategies

Surgical and Palliative Interventions

The management of large bowel obstruction secondary to pancreatic tail carcinoma requires a delicate balance between alleviating obstruction and addressing the underlying malignancy. Surgical interventions reported in the literature have included distal pancreatectomy, spelenectomy, colectomy, and colostomy. However, the high perioperative mortality and poor long-term outcomes associated with extensive resections in advanced pancreatic cancer necessitate careful patient selection (Table1). In

Table 1. Literature review of carcinoma tail of pancrease cases presenting with large bowel obstruction.

Author	No. of Cases	Sex	Age (years)	Presentation	Diagnosis	Point of Invasion	Colonic Perforation	Pathology	Procedure	Outcome
Welch, 1979[3]	1	M	54	Generalized abdominal pain,constipation and weight loss	Postoperative	Splenic flexure	No	Adenocarcinoma	Emergency decompression transverse colostomy. Reoperation: segmental colon resection with primary anastomosis, pancreatic cancer non-resectable	Died several months later
Slam, 2007[4]	1	M	78	Generalized abdominal pain,distention and nausea	Postoperative	Splenic flexure	Yes	Mucinous adenocarcinoma	Right hemicolectomy with primary anastomosis. Reoperation: en bloc resection of pancreatic tail, spleen and left colon with primary anastomosis	Survival at three-month follow-up
Griffin, 2012[5]	1	M	73	Generalized abdominal pain,distention, vomiting,constipation and weight loss	Postoperative	Splenic flexure	Yes	Mucinous adenocarcinoma	Distal pancreatectomy, splenectomy, subtotal colectomy. Reoperation: ileostomy formation	Died 17 days later
IzuishiK,2012[6]	1	M	60	Abdominal pain	Postoperative	Descending colon	No	Anaplastic carcinoma	Distal pancreatectomy, left hemicolectomy, partial adrenal ec to my and lymph node dissection	Survival at two years follow-up
Bang-Nielsen A, 2018[7]	2	M	48	Generalized abdominal pain,vomiting, dizziness	Postoperative	Splenic flexure	No	Adenocarcinoma	Distal pancreatectomy, splenectomy, left hemicolectomy, transverse colostomy and sigmoid fistula	Died 16 days later
		F	92	Progressively distended abdomen	Postoperative	Splenic flexure	No	Adenocarcinoma	Distal pancreatectomy, splenectom,total colectomy.	Died two months later
Gil IC, 2018[8]	1	M	63	Diffuse abdominal pain and distention.	Preoperative	Splenic flexure	No	Adenocarcinoma	En bloc subtotal colectomy, splenectomy and distal pancreatectomy ileocolic anastomosis	Survival at 7 months follow up
Current case	1	M	58	Progressively distended abdomen, constipation, weight loss	Postoperative	Splenic flexure	No	Adenocarcinoma	Distal pancreatectomy, splenectom,transverse colostomy and sigmoid fistula	Died one month later

our case, exploratory laparotomy revealed a fixed mass, emphasizing the importance of intraoperative frozen section analysis to guide decision-making. Frozen sections can help confirm malignancy and avoid unnecessary extensive resections, particularly in palliative settings.

Palliative procedures, such as colostomy or bypass surgery, may be preferred for patients with poor overall prognosis. While colonic stenting has been attempted in similar cases[7], its success is limited by patient instability and tumor rigidity, as seen in two previously documented cases. Endoscopic decompression may be an option in select cases but requires a multidisciplinary team to assess feasibility.

Multidisciplinary Approach

A multidisciplinary approach involving surgical oncologists, gastroenterologists, and palliative care specialists is essential in managing advanced pancreatic tail carcinoma. Oncologists play a critical role in determining systemic therapy options, such as chemotherapy with FOLFIRINOX or gemcitabine-based regimens, which may palliate symptoms and modestly prolong survival. Gastroenterologists can assist with endoscopic interventions or stent placement, while palliative care teams ensure symptom control and quality of life.

Clinical Implications

This case reinforces the importance of maintaining a high index of suspicion for pancreatic carcinoma in patients presenting with atypical gastrointestinal symptoms, particularly large bowel obstruction. Early identification of pancreatic tail masses through improved imaging protocols or biomarker panels could facilitate more timely intervention. Intraoperatively, the fixation of a colonic mass to the pancreas should prompt clinicians to con-

sider pancreatic malignancy as a potential etiology. Frozen section biopsy is invaluable in such scenarios, allowing for real-time decision-making and avoiding overly aggressive surgeries that may not improve survival.

Future Directions

Further research is needed to identify predictive factors for atypical presentations of pancreatic tail carcinoma, such as large bowel obstruction. Prospective trials investigating minimally invasive techniques, including colonic stenting and laparoscopic palliative procedures, could provide valuable insights into optimizing outcomes for these patients. Additionally, studies exploring novel diagnostic biomarkers and imaging modalities may improve early detection rates, particularly in asymptomatic or atypical cases. Finally, given the rarity of this presentation, collaborative multicenter case registries could help establish standardized management guidelines.

Conclusion

Large bowel obstruction as the initial presentation of pancreatic tail carcinoma is a rare and challenging clinical scenario. This case highlights the importance of understanding the anatomical and path physiological mechanisms underlying this presentation and the need for a multidisciplinary approach to management. While surgical and palliative strategies remain the cornerstone of care, advancements in imaging, biomarkers, and minimally invasive techniques hold promise for improving outcomes in these patients. Clinicians must stay vigilant for atypical presentations of pancreatic cancer to facilitate earlier diagnosis and tailored treatment planning.

Abbreviations

Ca19-9, carbohydrate antigen 19-9; CT scans, Abdominal computerized tomography; KRAS mutation, Kristen Rat Sarcoma Viral oncogene homolog; MRI, Magnetic Resonance Imaging.

Ethical approval and consent to participate

Written informed consent for publication was obtained from the next of kin of the participant.

Conflicts of interest

This work was presented (poster presentation) at the Malaysian Society of Colon and Rectal Surgeons Annual Meeting in Weil Hotel, Ipoh, 5-8 March 2020.

Authors' contributions

FE, MF, AA and AMN: Wrote the manuscript, prepared all tables and figures, and revised the manuscript.

References

[1] Tomasello G, Ghidini M, Costanzo A, et al. Outcome of head compared to body and tail pancreatic cancer: a systematic review and meta-analysis of 93 studies. J Gastrointest Oncol, 2019, 10: 259-269.

[2] Hu JX, Zhao CF, Chen WB, et al. Pancreatic cancer: A review of epidemiology, trend, and risk factors. World J Gastroenterol, 2021, 27: 4298-4321.

[3] Welch JP. Acute large-intestinal obstruction as the initial sign of pancreatic carcinoma. Dis Colon Rectum, 1979, 22: 425-427.

[4] Slam KD, Calkins S, Cason FD. LaPlace's law revisited: cecal perforation as an unusual presentation of pancreatic carcinoma. World J Surg Oncol, 2007, 5: 14.

[5] Griffin R, Villas B, Davis C. Carcinoma of the tail of the pâncreas presenting as acute abdomen. J Pancreas, 2012, 13(1): 58-60.

[6] Izuishi K, Sano T, Okamoto Y, et al. Large-bowel obstruction caused by pancreatic tail cancer. Endoscopy, 2012, 44: E368-E369.

[7] Bang-Nielsen A, Noack MW, Bohm AM, et al. Large Bowel Obstruction due to Pancreatic Cancer A Case Series. SM J Clin Med, 2018, 4(1): 1033.

[8] Gil IC, Parente D, Rama N, et al. Pancreatic Adenocarcinoma Presenting as Acute Large Bowel Obstruction: Case Report. Surg Gastroenterol Oncol, 2018, 23: 204-208.