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A Rare Case of Advanced Duodenal Cancer Infiltrating the Head of Pancreas and the Mesocolon of the Hepatic Flexure

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Abstract
Background
Primary small bowel carcinoma is a very rare tumor, with non-specific symptoms that usually cause a delay in diagnosis and, consequently, a negative outcome. Duodenal carcinoma is on its own an uncommon tumor of the intestinal tract. Our case presented further local advancement with infiltration of the hepatic flexure mesocolon. En-block pancreaticoduodenectomy plus right hemicolectomy or Colo-Pancreatico- Duodenectomy (cPD) is feasible in highly selected patients if performed by experienced surgeons.
Case presentation
We are introducing the case of a 48 y/o male patient presenting with a dull pain of the lower abdomen and dark stools (melena) in the recent episodes of defecation; considerable weight loss; jaundice (total bilirubin level 10 mg/dL). In the radiologic investigations, IV contrast CT of the abdomen revealed the presence of a 7.7 cm x 8.5 cm mass of duodenum (D3) which infiltrates the head of pancreas as evidenced by homogeneous contrast enhancement. The pancreatic duct of Wirsung was dilated, 4.4 mm. Gastroduodenoscopy visualizes a non-circumferential ulcerative proliferation. Exploratory laparotomy was performed. Intraoperatively we encountered the presence of local progression of the primary duodenal lesion into head of the pancreas, the mesocolon of the hepatic flexure with infiltration of the right colic vessels. Colo-Pancreatico-Duodenectomy (cPD) and Whipple's procedure was performed, with Blumgart type pancreatico-jejunal and ileo-colic anastomoses.
Discussion
En-block pancreaticoduodenectomy plus right hemicolectomy or Colo-Pancreatico-Duodenectomy (cPD) is feasible in highly selected patients if performed by experienced surgeons. The most common indication of cPD is locally advanced pancreatic head cancer that directly invades the colon or mesocolon, followed by locally invaded colon cancer at the duodenum and/or pancreatic head. The cPD procedure is rarely performed in gastrointestinal surgery. This is due to its complexity, difficulty, and high risks. In certain acute situations, cPD is the efficacious path forward.
Conclusion
Following a careful evaluation plan, along with necessary consults for accompanying disorders, the indications for colo-pancreatico-duodenectomy were clearly set for this patient with locally advanced duodenal adenocarcinoma infiltrating the pancreas head and hepatic flexure mesocolon. Our experience highlights the importance of meticulous and experienced perioperative care to minimize complications and mortality.
Keywords: General surgery, Duodenal cancer, Whipple procedure, colo-pancreatico-duodenectomy, cPD, Blumgart pancreatico-jejunal anastomosis
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1. Introduction

Primary small bowel carcinoma is a very rare tumor, with non-specific symptoms that usually cause a delay in diagnosis and, consequently, a negative outcome. The duodenum represents the highest frequency of involvement, followed by the jejunum. Small bowel adenocarcinomas, account for < 2% of all tumors of the gastrointestinal tract and ≤ 40% of all small bowel malignancies in the USA. The annual incidence is 1.2–6.5 cases per 1 million individuals. The treatment of choice for small bowel adenocarcinoma is radical surgical resection. The ability to completely resect tumors is one of the most important prognostic factors for survival, and adjuvant chemotherapy is required. Duodenal carcinoma (DC) exhibits a poor prognosis at all stages of disease, with a 5-year overall survival rate of 14–33%. Patients with small bowel carcinoma are diagnosed due to upper small bowel obstruction or in earlier cases due to hemorrhagic lesions. The standard operative procedures have not been definitely decided; furthermore, effective chemotherapy has not been fully elucidated at present.

Therefore, patient prognosis cannot be predicted by the complete resection extended to the surrounding organs. Adjuvant chemotherapy is also promising for DC. The clinical-pathological characteristics and patient outcome in DC has not been fully clarified and this rare case series seems to be unique.

2. Case presentation

We are introducing the case of a 48 y/o male patient presenting with a dull pain of the lower abdomen and dark stools (melena) in the recent episodes of defecation; considerable weight loss; jaundice (total bilirubin level 10 mg/dL). No other significant family or past history was correlated to the disease. The abdomen was tender during examination, with a palpable formation in the right upper quadrant. The digital rectal examination revealed signs of melenic stool.

In the radiologic investigations, IV contrast CT of the abdomen revealed the presence of a 7.7 cm x 8.5 cm mass of duodenum (D3) which infiltrates the head of pancreas as evidenced by homogeneous contrast enhancement. The pancreatic duct of Wirsung was dilated, 4.4 mm.

Gastroduodenoscopy visualizes a non-circumferential ulcerative proliferation. Biopsy was taken from the lesion.

Exploratory laparotomy was performed. Intraoperatively we encountered the presence of local progression of the primary duodenal lesion into head of the pancreas, the mesocolon of the hepatic flexure with infiltration of the right colic vessels. Liver and omentum are macroscopically disease free.

A Kocher maneuver was performed on the duodenum. Portal and superior mesenteric veins were dissected, which are seen to be free of disease. This set the green light to proceed with the surgery. The head of pancreas is amputated and the common bile duct is resected. From the level of antrum, resection is performed up to the proximal side of the jejunum. Simultaneously the head of the pancreas is removed. Mobilization of the right colon with the hepatic flexure is performed followed by right hemicolectomy en-bloc with jejunal +duodenal + pancreatic head and antral removal.

After lavage of the peritoneal cavity is achieved, the gastrointestinal reconstruction follows. First the Wirsung duct is implanted in the jejunal loop according to the Blumgart technique, followed by common bile duct anastomosis into the jejunum; gastro-enteric anastomosis and ileo-colic anastomosis. Multiple drainage was needed for the case.

On the 10th post operatory day the patient was discharged in good health.

Post operative course was uneventful.

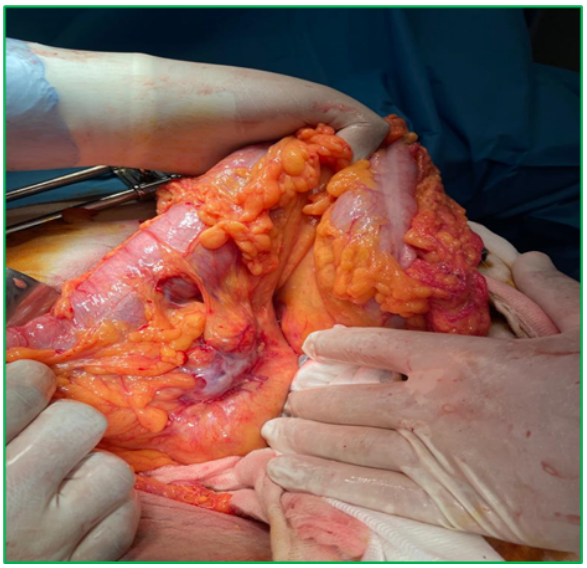

Figure 1. Infiltration of the mesocolon of hepatic flexure

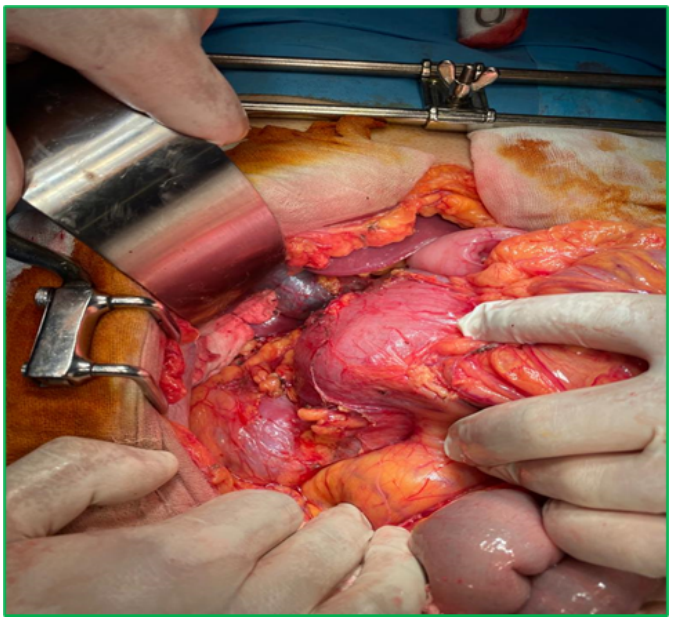

Figure 2. Duodenal tumor

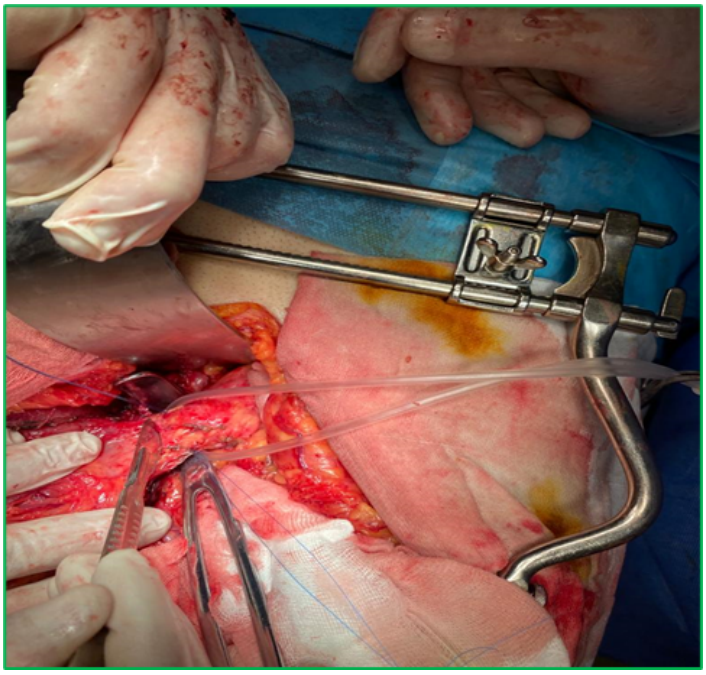

Figure 3. Amputation of the pancreaas

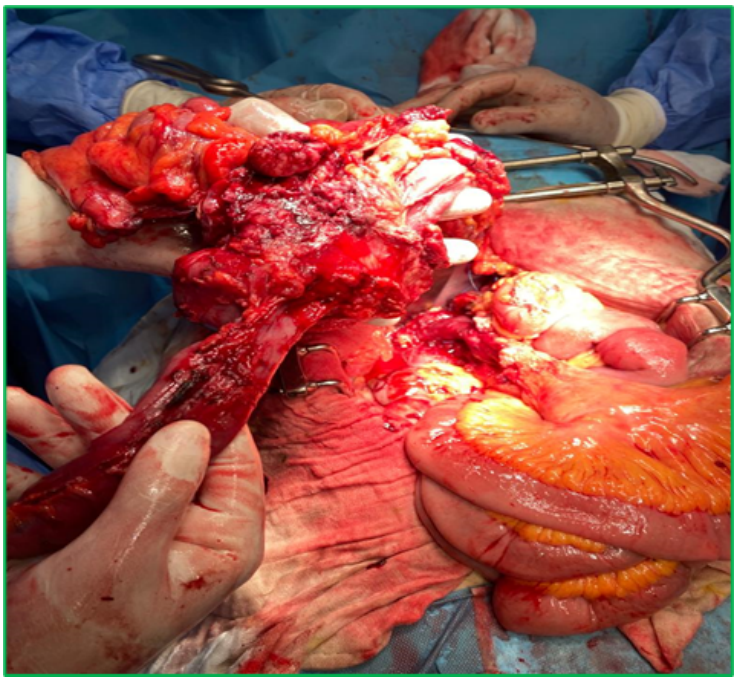

Figure 4. En-bloc resection of antrum, duodenum, pancreas, proximal jejunum and right colon

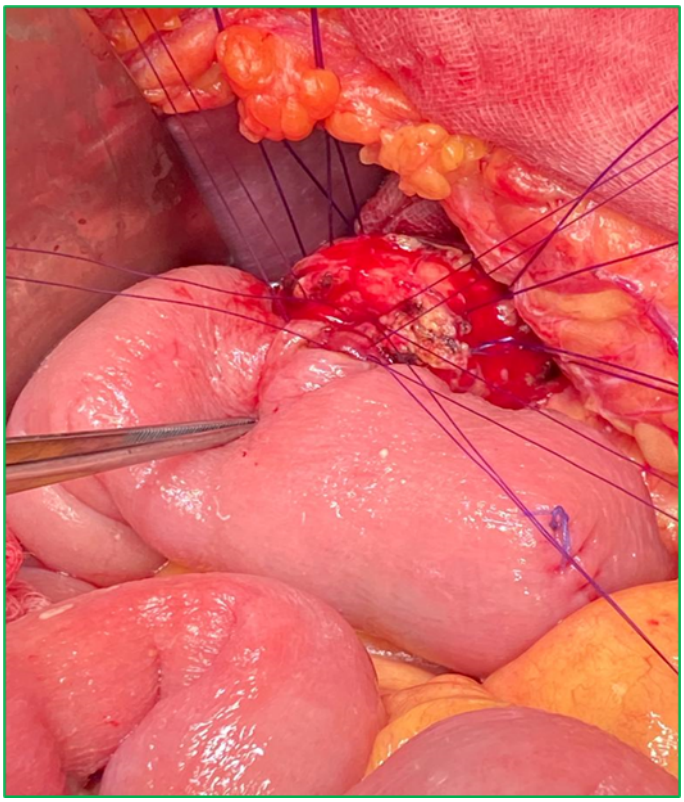

Figure 5. Pancreatico-jejunostomy according to Blumgart

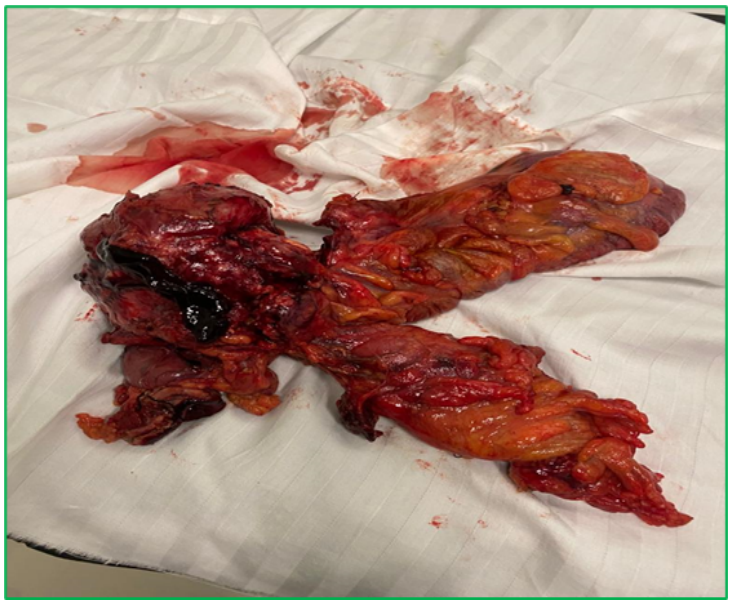

Figure 6. The resected mass

PATHOLOGY REPORT

Name Surname: Namik TAFANI **Biopsy Nr:** 3629
Age: 48, Male **Arrival date:** 13/05/2020
LOCALIZATION: Duodenum, Pancreas **Report date:** 21/05/2020
The specimen was stored in 10% formalin.
The stains used were Hematoxylin-Eosin

CLINICAL DATA
Duodeno-pancreatic tumor.
Dr. Henri KOLANI
General surgeon

SURGICAL BIOPSY
CONCLUSION: Poorly differentiated adenocarcinoma of duodenum (G3)
AJCC 8th edition staging: pT4N1Mx
MACRO: - A: (A1 – A4): Resection margins
- B: Mass Φ 9.5 cm × 8 cm infiltrating duodenum and pancreas body
- C1 – C3: F: Lymph nodes
- D: Appendix
- E: Common bile duct

MICRO: - Poorly differentiated adenocarcinoma of duodenum involving the pancreas
- Resection margins: Negative for malignance
- With angio-lymphatic resection
- Lymph nodes: 1 metastatic lymph node
- Common bile duct: Negative for malignance
- Involvement of the right mesocolon

Pathologist
Dr. Gentiana CEKODHIMA
ELECTRONIC SIGNATURE

Figure 7. Pathology report

3. Discussion

Duodenal carcinoma is on its own an uncommon tumor of the intestinal tract. Our case presented further local advancement with infiltration of the hepatic flexure mesocolon. En-block pancreaticoduodenectomy plus right hemicolectomy or Colo-Pancreatico-Duodenectomy (cPD) is feasible in highly selected patients if performed by experienced surgeons.

The most common indication of cPD is locally advanced pancreatic head cancer that directly invades the colon or mesocolon, followed by locally invaded colon cancer at the duodenum and/or pancreatic head. The cPD procedure is rarely performed in gastrointestinal surgery. This is due to its complexity, difficulty, and high risks. In certain acute situations, cPD is the efficacious path forward.

Managing postoperative complications following cPD is also an important issue. Performing cPD is in itself challenging and involves high skill levels and long operation times. Thus, the diagnosis and evaluation of preoperative general conditions of these patients should be well surveyed to prevent occurrences of potential postoperative adverse events. Therefore, proper preoperative selection of patients is critical for the success of cPD.

4. Conclusion

Following a careful evaluation plan, along with necessary consults for accompanying disorders, the indications for colo-pancreatico-duodenectomy were clearly set for this patient with locally advanced duodenal adenocarcinoma infiltrating the pancreas head and hepatic flexure mesocolon.

Our experience highlights the importance of meticulous and experienced perioperative care to minimize complications and mortality.

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