Malignant Colo-Duodenal Fistula: A Rare Complication of Carcinoma Colon

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Abstract

Colo-duodenal fistula is a very infrequent complication of colon cancer that presents not only with severe clinical symptoms, but a poor prognosis due to locally advanced disease. It consists in a pathological communication between the lumen of the colon and duodenum. Presentation is generally sub-acute with majority of the patients presenting with non-specific abdominal pain, diarrhea, nausea and vomiting. The contact of duodenal bile salts with colonic mucosa frequently leads to diarrhea, so also duodenal colonization with colonic pathogens frequently leads to malabsorption, foul eructation and feculent vomiting. The diagnosis is established either by gastrointestinal contrast studies or contrast enhanced CT scan. Gastro-duodenoscopy and colonoscopy can demonstrate the fistulous communication and it can also be helpful in obtaining a histological diagnosis. We report a case of a 38-year-old male patient who presented to our gastroenterology clinic with complaints of diarrhea and abdominal pain and was diagnosed to have carcinoma colon with colo-duodenal fistula.

Keywords: carcinoma colon, colo-duodenal fistula, endoscopy, colonoscopy

Introduction

A colo-duodenal fistula is a very rare complication of colon cancer and has been reported to occur in 0.1% to 0.14% of colon cancer patients.[1,2] The principal causes of entero–enteric fistula in order of frequency are Crohn's disease, diverticular disease, colorectal malignancy, radiation enteritis, tuberculosis and actinomycosis.[3] Malignant entero–enteric fistulas are usually from ileum or jejunum to colon and primary is frequently located in the sigmoid colon.[3] Cases with malignant colo-duodenal fistulae can present with symptoms of the primary, fistula or from metastatic disease. A colo-duodenal fistula often presents with severe clinical symptoms including diarrhea, vomiting, and weight loss.[4] Vomiting may be feculent or truly fecal associated with foul eructation. The contact of duodenal bile salts with colonic mucosa frequently leads to diarrhea, and duodenal colonization with colonic pathogens frequently leads to malabsorption and foul eructation. Malignant colo-duodenal fistula that presents in patients with locally advanced cancer leads to a poor prognosis.[2] We report a case of a 38-year-old male patient who presented to our gastroenterology clinic with complaints of diarrhea and abdominal pain and was diagnosed to have carcinoma colon with colo-duodenal fistula.

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Case Report

A 38-year-old man presented to our gastroenterology clinic with complaints of diarrhea for two months, associated with pain in the abdomen, vomiting with foul eructation, significant weight loss and anorexia. He had cachectic appearance with body mass index of 16.4 kg/m^2. His systemic examination was normal. His hemoglobin was 10.2 gm% with microcytic hypochromic red blood cells. His leucocyte and platelet counts were normal. His renal and liver biochemistries were normal. His esophagogastroduodenoscopy showed large fistulous opening in the lateral wall of the second part of the duodenum with infiltrated mucosa leading to transverse colon (Figure 1A). His colonoscopy showed circumferential ulcero-proliferative growth with large fistulous opening in transverse colon near the hepatic flexure leading to duodenum (Figure 1B).

His colonic biopsy revealed closely packed confluent neoplastic glands lined by stratified columnar epithelium with atypia suggestive of adenocarcinoma transverse colon. His imaging revealed a metastatic disease in the peritoneum, liver and lungs. Based on these finding, the diagnosis of carcinoma transverse colon with malignant colo-duodenal fistula with metastasis was made. The findings were discussed in a multidisciplinary meeting with the patient and onco-surgical and medical oncology experts. It was decided to proceed with palliative care owing to poor general condition of the patient and advanced nature of the disease. Patient succumbed to his illness within 4 months from diagnosis.

Discussion

Haldane in 1862 reported the first malignant colo-duodenal fistula arising from the hepatic flexure in the *Edinburgh Medical Journal*.[5] Reports of malignant fistulae are sporadic and due to their rarity are usually reported as a single case in literature. They are usually secondary to a colonic primary rather than an upper gastro-intestinal malignancy. Malignant fistulae are usually secondary to colonic tumours, mainly those located at the hepatic flexure or the transverse colon.[4] However, primary lesions from stomach, small bowel, pancreas, gall bladder and lymphoma have already been cited as cause.[6] In present days, these fistulae rarely occur because of an earlier discovery and resection of the tumor, therefore only isolated reports appeared.[6]

Gastrointestinal bacterial overgrowth caused by the upward migration of the colonic content leads to most frequent symptoms like diarrhea, abdominal pain, nausea and vomiting. The direct leakage of pancreatic and biliary secretions into the colonic lumen through the fistula is associated with the development of secretory diarrhea, metabolic acidosis and chronic malabsorption, reflecting a bypass mechanism.[7]

Barium enema has an accuracy of approximately 90% and shows better sensitivity than barium meal or gastrografin swallow.[8] Computed tomography (CT) scanning is of great value in assessing metastatic spread as well as assessing the local invasion of the primary. Upper or lower endoscopy allows direct visualizations of the fistulous tract and can help in obtaining a histological diagnosis as is seen in our case.[9]

The management of colo-duodenal fistula may differ, depending on the affected segments of the duodenum and colon, presence of metastatic disease and the clinical status of the patient. The complexity of the pancreatico–duodenal area makes the operative management challenging. In the case of a malignant colo-duodenal fistula, oncological *en bloc* resection with complete resection of both duodenal and colonic components with a negative margin is required. Highest survival rates have been reported when right radical hemicolectomy is combined with pancreatico–duodenectomy (Whipple's Procedure) due to resection of the tumor and the fistula as well as adequate regional lymph node dissection.[10] In a few select cases right radical hemicolectomy with *en bloc* wedge excision of duodenum is a feasible option. Palliative surgery is indicated in extensive retroperitoneal involvement of the primary tumor and includes Ileo-transverse anastomoses along with gas-

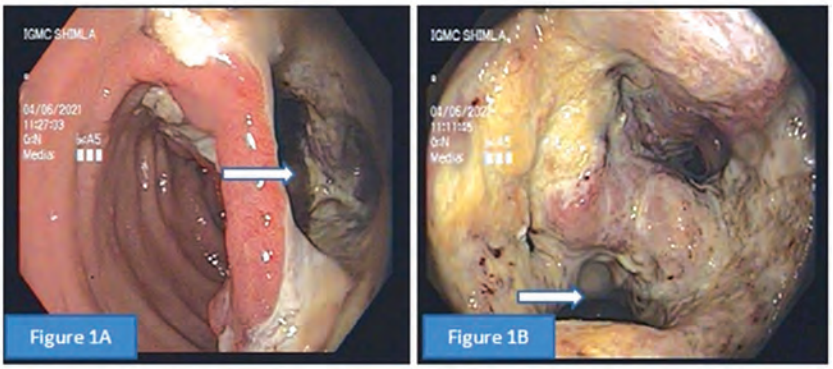

Figure 1A: Endoscopic image showing large fistulous opening (arrow) in duodenum with infiltrated mucosa leading to transverse colon. Figure 1B: colonoscopic image (arrow) showing circumferential ulcero-proliferative growth with large fistulous opening in transverse colon leading to duodenum.

trojejunostomy which relieves the symptoms of malignant duodeno-colic fistula.[11] The survival of patients with malignant colo-duodenal fistula is usually less than 12 months when treated with such palliative operations. More conservative treatments may be reasonable for patients with a poor clinical status as is seen in our case.

Conclusion

Colo-duodenal fistulae are uncommon and should be suspected in patients with advanced colon cancer in the hepatic flexure or transverse colon, with persistent diarrhea or fecaloid vomiting. The standard surgical treatment includes right radical hemicolectomy with *en bloc* pancreatico duodenectomy.

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