Clinics of Surgery

Case Report ISSN: 2638-1451 | Volume 7

Gastrocolic Fistula Caused by Transverse Colon Cancer: A Case Report

Sugi T[1,2], Kurata M[1,2*], Furuta T[1], Ishibashi A[1], Satoshi I[1], Horigome Y[3], Okada K[3], Ariga H[3], Kashimura J[3], Kawai H[4], Takayashiki N[4] and Oda T[2]

[1]Department of Surgery, Mito Kyodo General Hospital, Japan

[2]Department of Gastrointestinal and Hepato-Biliary-Pancreatic Surgery, Faculty of Medicine, University of Tsukuba, Japan

[3]Department of Internal Medicine, Mito Kyodo General Hospital, Japan

[4]Department of Diagnostic Pathology, Mito Kyodo General Hospital, Japan

***Corresponding author:**

Masanao Kurata,
Department of Surgery and Gastrointestinal Hepato-Biliary-Pancreatic Surgery, of Tsukuba, Mito Kyodo General Hospital, 3-2-7 Miya-machi, Ibaraki 310-0015, Japan, Fax: (+81) 29-22-5137;
Tel: (+81) 29-231-2371;
E-mail: mkurata@md.tsukuba.ac.jp

Received: 10 Jul 2022
Accepted: 29 Jul 2022
Published: 04 Aug 2022
J Short Name: COS

Keywords:

Gastrocolic fistula; Colon cancer; En bloc resection

Citation:

Kurata M. Gastrocolic Fistula Caused by Transverse Colon Cancer: A Case Report. Clin Surg. 2022; 7(13): 1-6

1. Abstract

1.1. Background: A gastrocolic fistula is an unusual communication between the colon and the stomach. Many various diseases can cause gastrocolic fistula. Although colon cancer is the commonest malignant cause for gastrocolic fistula in western world, the incidence of gastrocolic fistula due to colon cancer is 0.3% in operated cases.

1.2. Case Presentation: A 68-year-old man presented with anorexia, general malaise, weight loss, and vomiting of fecal matter. Investigations revealed that the patient had a large nonmetastatic splenic flexure tumor that was diagnosed as colon cancer and had invaded the stomach and pancreas. Upper gastrointestinal series confirmed a gastrocolic fistula. Left hemicolectomy, distal gastrectomy, distal pancreatectomy, and splenectomy were performed. Histology revealed transverse colon cancer, which was UICC stage (8th edition) pT4bN1bcM0 pStageⅢC. Adjuvant chemotherapy was not performed. There was no recurrence or metastasis one year after surgery.

We reviewed 17 cases including our case of a gastrocolic fistula caused by colon cancer. Neoadjuvant chemotherapy was not given to any of the patients. En bloc resections were conducted in all cases. Adjuvant chemotherapy was given to almost all of the patients. There was no recurrence or metastasis.

1.3. Conclusion: For the gastrocolic fistula caused by advanced colon cancer, secure en block surgical resection have been done as initial treatment in all 17 reported cases including present case, and adjuvant chemotherapy may contribute for the better prognosis.

2. Introduction

Gastrocolic fistula is a pathologic communication between the colon and stomach. Both benign and malignant etiologies can cause gastrocolic fistulas [1]. The benign causes include gastric ulcers, Crohn's disease, diverticulitis, cholecystitis, pancreatitis, tuberculosis, and the use of steroids or NSAIDs [2-4]. The reported malignant causes include gastric, colon, and pancreatic tumors, metastasis of lung cancers, and lymphoma [5, 6]. The incidence of gastrocolic fistula that occurs secondary to colon cancer is reported to be ten out of 3200 colon cancer patients who have had surgery [7]. We report a case of a gastrocolic fistula caused by transverse colon cancer and discuss the management through a literature review.

3. Case Presentation

A 68-year-old man visited our hospital because of anorexia, general malaise, and vomiting of fecal material. His weight had decreased by 12 kg over a period of 3 months, and his body mass index was 22.0 kg/m² (174.0 cm tall and 66.5 kg weight). The patient had no significant medical history. Laboratory data showed that the patient had severe anemia (hemoglobin: 4.0 g/dl) and malnutrition (albumin: 2.7 g/dl). The tests for tumor markers revealed that the patient's carbohydrate antigen 19-9 was 8.0 U/ml and his carcinoembryonic antigen was 202.4 ng/ml.

A computed tomography scan of the abdomen with contrast re-

vealed a tumor in the splenic flexure of the colon, and the tumor had invaded the greater curvature of the stomach and the tail of the pancreas (Figure 1A). The spleen was enlarged and there was suspicion of tumor invasion to the splenic vein (Figure 1B). There was no distant metastasis, including peritoneal dissemination. Upper gastrointestinal endoscopy showed a large cratered gastric ulcer in the posterior wall of the gastric body (Figure 2A). There was fluid in the patient's stomach that contained fecal material, as well as a hole in the gastric body, which raised suspicion for possible connection to the colon (Figure 2B). A biopsy of the hole revealed a moderately differentiated adenocarcinoma. The upper gastrointestinal series, which used iodinated contrast, confirmed that there was a fistulous path to the transverse colon from the stomach (Figure 3). We diagnosed a gastrocolic fistula due to colon cancer.

A radical en bloc resection, involving a left hemicolectomy, distal gastrectomy, distal pancreatectomy, and splenectomy was conducted. We could not avoid resection of the pancreas because the tumor was strongly adhered to it, and there was a suspicion of tumor invasion. The spleen was also excised because the splenic vein was adhered to the tumor, and there was a suspicion of tumor invasion. The tumor of the transverse had also invaded the stomach and created a gastrocolic fistula (Figure 4). Histology revealed that the tumor originated from the colon and had invaded the stomach. Gastrocolic fistulas surrounded the tumor, and the surface of the fistula was covered with tumor cells (Figure 5). The pancreas and the spleen were histologically free of the tumor. The histology also revealed the presence of lymph node metastasis in three out of the 55 retrieved lymph nodes. The surgical margins were free of tumor cells.

The postoperative course was uneventful except for the development of delayed gastric emptying. Conservative management was performed for this complication, and the patient eventually recovered with a good appetite. The patient was discharged on postoperative day 66. Adjuvant chemotherapy was not performed because the patient did not want to receive this treatment. One year after surgery, there was no recurrence or metastasis.

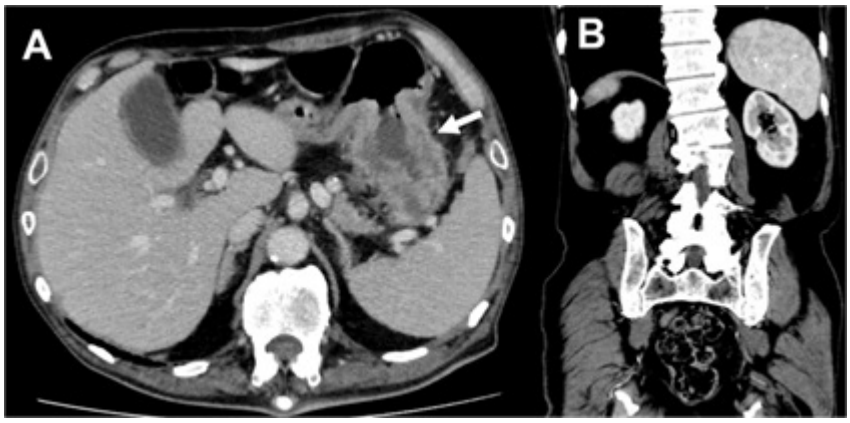

Figure 1: A: Computed tomography revealed a tumor in the splenic flexure of the colon, and the tumor had invaded the grater curvature or the stomach and the tail of the pancreas. The white arrows indicate the gastrocolic fistula.
B: The spleen was enlarged, and there was suspicion of tumor invasion to the splenic vein.

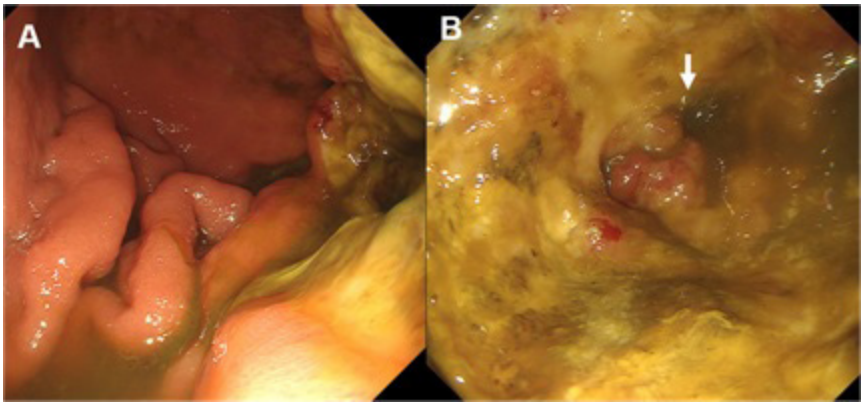

Figure 2: A: The upper gastrointestinal endoscopy showed that a cratered gastric ulcer in the posterior wall of the gastric body.
B: There was fluid with fecal material in the stomach. The white arrow indicates the hole in the gastric body which raised suspicion for a possible connection to the colon.

Figure 3: Upper gastrointestinal series confirmed fistulous path to the colon from the stomach.

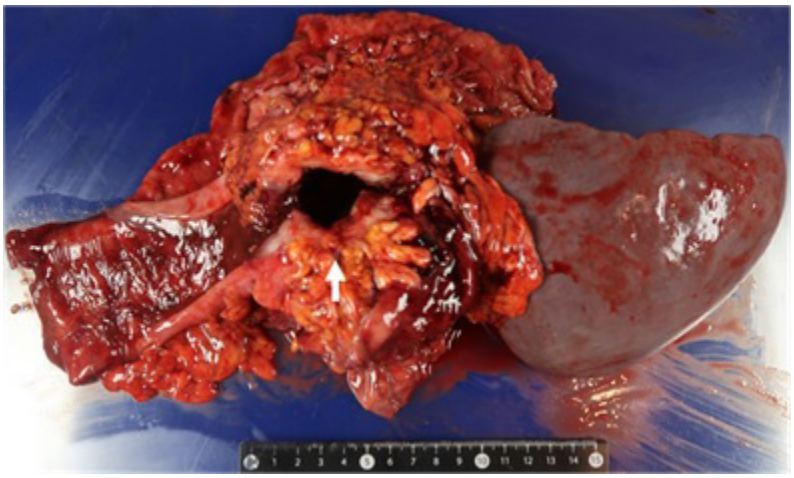

Figure 4: A radical en bloc resection involving a left hemicolectomy, distal gastrectomy, distal pancreatectomy, and splenectomy was conducted. The white arrow indicates the gastrocolic fistula which was created by the transverse colon tumor.

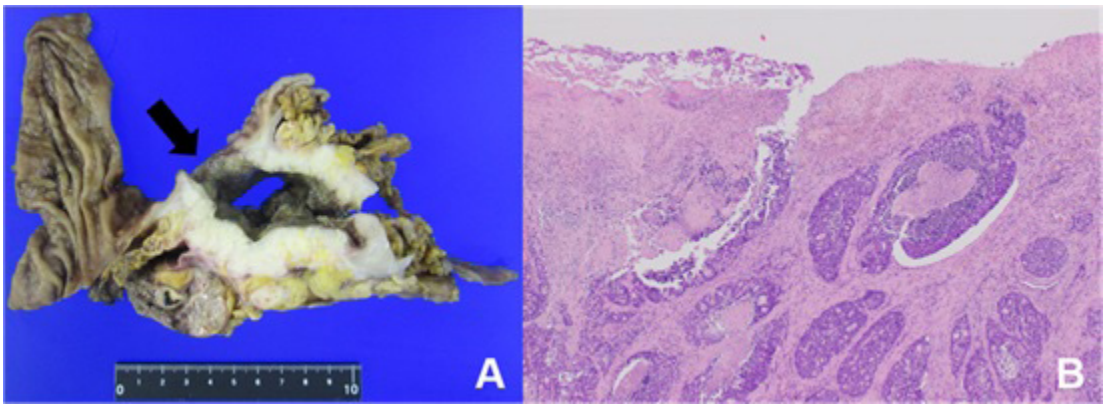

Figure 5: A: The black arrow indicates the gastrocolic fistula that was surrounding the tumor.
B: The surface of the fistula was covered with tumor cells.

4. Discussion

The first case of gastrocolic fistula was reported by Haller in 1775 [7]. Colon cancers are the most common malignant cause of gastrocolic fistula in Western countries, while gastric cancers are the most common malignant cause in Japan [8]. The average age of the patients with a gastrocolic fistula caused by cancer was reported to be 64.2 years [7]. No unique sex distribution has been noted in patients with gastrocolic fistulas secondary to cancer [5]. Gastrocolic fistulas most commonly occur between the gastric greater curvature and the distal transverse colon because of the proximity of these two structures [7, 9].

Two theories have been proposed for the development of gastrocolic fistulas secondary to colon cancer: the first theory is contiguous growth of the tumor, and the second is chronic ulceration of the primary tumor with the development of peritoneal reaction or organization of exudate, leading to the adherence of adjacent structures and eventual perforation into the lumens of both structures [5]. In our case, the gastrocolic fistula had surrounded the tumor and the surface of the fistula was covered with tumor cells. It was possible that the tumor had directly invaded the stomach and that the tumor invasion eventually created the fistula (Figure 5).

The main clinical findings in patients with gastrocolic fistulas are weight loss, pain, vomiting of fecal material and diarrhea, and the frequencies have been reported to be 91%, 64%, 45% and 36% respectively [7]. Laboratory tests often reveal malnutrition, anemia, and acute or chronic electrolyte loss [5, 7]. Referring to our case, the patient complained of weight loss and fecal vomiting, and his laboratory tests were consistent with severe anemia and decreased serum albumin levels.

The most reliable modality for the diagnosis of a gastrocolic fistula is a barium-enema, which has a specificity of 90-100% [10]. Iodinated contrast with an upper gastrointestinal series instead of a barium-enema was performed in our case, and the results were sufficient to make a diagnosis. Upper gastrointestinal endoscopy allows direct visualization of the fistula and can be used to determine if a biopsy is necessary to establish a pathologic diagnosis [3]. Computed tomography is of great value for assessing metastasis and the local invasion of the primary tumor [10].

If there is no metastasis, surgery is the basic treatment for colon cancer accompanied by a gastrocolic fistula. The American Society of Colon and Rectal Surgeons clinical practice guidelines strongly recommend that colon cancer with adherent or grossly involved adjacent organs should be treated with an en bloc resection, and not a separated resection [11]. The guidelines state that it is impossible to intraoperatively distinguish between malignant and inflammatory adhesions during surgery [11]. Referring to our case, distal pancreatectomy and splenectomy were conducted because the tail of the pancreas and the splenic vein was strongly adhered to the tumor although there was no histological invasion to the or the spleen.

We searched for the keywords “gastrocolic fistula” and “colon cancer” in PubMed, and we found 16 surgical resection cases written in English that were included in our evaluation here, in addition to our case (Table 1) [1-3, 6, 8, 10, 12-20]. The ratio of men to women was 9:7. The mean age of the patients was 56.1 years. The tumor location was in the transverse colon or splenic flexure in 16 out of the 17 cases. Weight loss, vomiting of fecal maerial, and diarrhea were seen in 15 out of 17 patients (88.2%), 8 out of 17 patients (47.1%), and 10 out of 17 patients (58.8%), respectively. The adjacent organs that were involved with the combined resections were the pancreas in 7 out of 17 cases, the spleen in 8 out of 17 cases, the small intestine in 6 out of 17 cases, and other organs (left diaphragm and left adrenal) in 2 out of 17 cases.

An en bloc resection including adjacent organs if necessary was achieved in all cases and separation surgery was not conducted in any of the patients. These factors may have contributed to the reason why there was no recurrence or death in the patients. Hunter et al. [12] reported a significantly higher 5-year survival (61% vs. 23%, P=0.03) after en bloc resection of colon cancer compared with colectomy with separation of adherent organs; the latter approach was associated with an unacceptably high local recurrence rate (69% vs. 18%, P=0.002). Surgeons should not hesitate to perform extended operations in patients with colon cancer with an accompanying gastrocolic fistula.

Neoadjuvant chemotherapy sometimes given for locally advanced colon cancer. Dehal et al. [21] reported that neoadjuvant chemotherapy improved the survival in patients with clinical T4b colon cancer. Our study reveals that there were no cases which neoadjuvant chemotherapy was used to treat colon cancer with a gastrocolic fistula. There is a possibility that patients with gastrocolic fistula secondary to colon cancer may have too severe general condition such as malnutrition to receive neoadjuvant chemotherapy like our case.

Information about adjuvant chemotherapy was obtained in 12 out of 17 patients. Adjuvant chemotherapy was performed in almost all of the patients (eleven out of 12). Five out of 11 patients were treated with adjuvant chemotherapy, even if the patient had no lymph node metastases. The ESCO consensus guidelines define patients with T4 colon cancer as a high-risk group and recommend adjuvant chemotherapy [22]. Adjuvant chemotherapy is considered the preferable treatment for colon cancer involving a gastrocolic fistula. The regimen is mainly composed of fluoropyrimidine and platinum-containing drugs.

Table 1: Surgical resection cases of gastrocolic fistulas secondary to colon cancer

			Chief complaints				Combined resecton organs								
Author	Age/ Sex	Tumor location	Weight loss	Fecal Vomiting	Diarrhea	Resection	Pancreas	Spleen	Small intestine	The others	pN	cM	Neoadjuvant chemotherapy	Adjuvant chemotherapy	Prognosis
Our case	68/M	Splenic flexure	●	●		En bloc	●	●			1b	0	No	No	No recurrence
Ammori [6]	54/M	Splenic flexure	●	●		En bloc		●			1a	0	No	FOLFOX	UNK
Chime. [1]	85/F	Transverse colon	●	●		En bloc					0	0	No	Yes	UNK
Bacalbasa [13]	61	Transverse colon	●			En bloc	●		●		1a	0	No	5-FU	No recurrence
Orosey [8]	65/M	Transverse colon	●	●	●	En bloc	●	●	●		UNK	0	No	Yes	UNK
Fernández [2]	48/M	Splenic flexure	●		●	En bloc			●	Left diaphragm	0	0	No	CAPOX	No recurrence
Huttenhuis [3]	47/F	Transverse colon	●		●	En bloc	●	●			2b	0	No	CAPOX	No recurrence
Harkin [14]	51/F	Splenic flexure	●	●		En bloc		●			UNK	0	No	5-FU	UNK
Wang [15]	54/M	Transverse colon	●		●	En bloc			●		UNK	0	No	UNK	UNK
Tejedor [16]	49/M	Splenic flexure	●	●	●	En bloc		●	●		0	0	No	Yes	No recurrence
Imai [12]	60/F	Splenic flexure	●		●	En bloc	●	●			1	0	No	UFT/UEZL	No recurrence
Matar [17]	52/M	Splenic flexure	●		●	En bloc					0	0	No	Capecitabine	UNK
Forshaw [21]	24/F	Transverse colon	●	●	●	En bloc			●		0	0	No	5-FU	No recurrence
Lee [18]	41/M	Splenic flexure			●	En bloc					UNK	0	No	UNK	UNK
Lee [18]	73/F	Splenic flexure				En bloc	●	●		Left adrenal	UNK	0	No	UNK	UNK
Singh [19]	49/M	Descending colon	●	●	●	En bloc					1a	0	No	UNK	UNK
Matsuo [20]	72/F	Transverse colon	●			En bloc					0	0	No	UNK	No recurrence

pT and pN are according to the UICC 8th edition

UNK: unknown, CAPOX: Capecitabine and oxaliplatin, FOLFOX: Folinic acid, 5-fluorouracil, and oxaliplatin, 5-FU: 5-fluorouracil and folinic acid, UFT/UEZL: Uracil/ftorafur plus leucovorin

5. Conclusions

We experienced a case of a gastrocolic fistula caused by transverse colon cancer. Secure en block surgical resection of both stomach and colon are mandatory for gastrocolic fistula caused by advanced colon cancer, and adjuvant chemotherapy should be advisable if feasible for prolongation of the prognosis.

References

1. Chime C, Ravi M, Daniel M, Patel H, Balar B. Gastrocolic fistula: a rare presentation of colon cancer. Case Rep Gastrointest Med. 2018; 2018: 6958925.
2. Vergara-Fernández O, Gutiérrez-Grobe Y, Lavenant-Borja M, Rojas C, Méndez-Sánchez N. Gastrocolic fistula secondary to adenocarcinoma of the transverse colon: a case report. J Med Case Rep. 2015; 9: 263.
3. Huttenhuis JM, Kouwenhoven EA, Zanten RAV, Veneman TF. Malignant gastrocolic fistula: review of the literature and report of a case. Acta Chir Belg. 2015; 115: 423-5.
4. Stamatakos M, Karaiskos I, Pateras I, Alexiou I, Stefanaki C, Kontzoglou K. Gastrocolic fistulae; From haller till nowadays. Int J Surg. 2012; 10: 129-33.
5. Amlicke JA, Ponka JL. Gastrocolic and gastrojejunocolic fistulas. A report of sixteen cases. Am J Surg. 1964; 107: 744-50.
6. Ammori BJ. The first report of laparoscopic multivisceral resection for a gastrocolic fistula secondary to colon cancer. Surg Laparosc Endosc Percutan Tech. 2020; 30: e8-e12.
7. Marshall SF, Knud-Hansen J. Gastrojejunocolic and gastrocolic fistulas. Ann Surg. 1957; 145: 770-82.
8. Matsuo S, Eto T, Ohara O, Miyazaki J, Tsunoda T, Kanematsu T. Gastrocolic fistula originating from transverse colon cancer: report of a case and review of the Japanese literature. Surg Today. 1994; 24: 1085-9.
9. Orosey M, Desai T, Amin MB, Cappell MS. Malignant gastrocolic fistula diagnosed by esophagogastroduodenoscopy abd colonoscopy. Minerva Gastroenterol Dietol. 2017; 63: 165-7.
10. Martinez LO, Manheimer LH, Casal GL, Lubin J. Malignant fistulae of the gastrointestinal tract. Am J Roentgenol. 1978; 131: 215-8.

11. Vogel JD, Eskicioglu C, Weiser MR, Feingold DL, Steele SR. The American society of colon and rectal surgeons clinical practice guidelines for the treatment of colon cancer. Dis Colon Rectum. 2017; 60: 999-1017.

12. Hunter JA, Ryan JA, Schultz P. En bloc resection of colon cancer adherent to other organs. Am J Surg. 1987; 154: 67-71.

13. Imai H, Tanaka K, Yawata K, Kojima N, Matsui K, Adachi T, et al. Gastrocolic fistula secondary to adenocarcinoma of the colon. Am Surg. 2011; 77: E13-E4.

14. Bacalbasa N, Stoica C, Balescu I. Multiple visceral resections for synchronous left and transverse colon adenocarcinoma with gastro-colic-cutaneous fistula – case report and literature review. Anticancer Res. 2017; 37: 2601-7.

15. Harkin S, Gananadha S. Gastrocolic fistula: a rare sequela of colonic adenocarcinoma. J Gastrointest Surg. 2014; 18: 2230-1.

16. Wang Q, Jin B, Ding Y. Gastrocolic fistula secondary to transverse colon cancer. J Coll Physicians Surg Pak. 2014; 24: S16-S7.

17. Tejedor P, García-Oria M, Bodega I, Peraza J, Baquedano J, Serrano Á, et al. Gastrojejunocolic fistula in a 49 year-old male. Pol Przegl Chir. 2012; 84: 163-6.

18. Matar HE, Sagriotis I, Nair MS, Navaratnam R, Stoker DL. Malignant gastro-colic fistula presenting with upper extremity deep vein thrombosis. BMJ Case Reports. 2011; 2011: bcr1120103491.

19. Lee WJ, Horton KM, Fishman EK. Gastrocolic fistula due to adenocarcinoma of the colon. Clin Imaging. 1999; 23: 295-7.

20. Singh V, Wadleigh R. Gastrocolic fistula as a complication of colon carcinoma--a case report. Acta Oncol. 1997; 36: 817-8.

21. Dehal A, Graff-Baker AN, Vuong B, Fischer T, Klempner SJ, Chang S-C, et al. Neoadjuvant chemotherapy improves survival in patients with clinical T4b colon cancer. J Gastrointest Surg. 2017; 22: 242-9.

22. Schmoll HJ, Van Cutsem E, Stein A, Valentini V, Glimelius B, Hauskermans K, et al. ESMO Consensus Guidelines for management of patients with colon and rectal cancer. A personalized approach to clinical decision making, Ann Oncol. 2012; 23: 2479-516.