

## Synchronous Bilateral Flexure Tumor Causing Ileus and Requiring Surgical Treatment

### İleusa Neden Olan ve Cerrahi Tedavi Gerektiren Senkron Bilateral Köşe Tümörü

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#### ABSTRACT

This case report presented a simultaneous right colon tumor detected perioperatively in a patient who developed ileus due to a metastatic left colon tumor in the preoperative period. A seventy-six-year-old man was admitted with epigastric pain, nausea, and vomiting. There was tenderness and defense on deep palpation on the epigastrium. On computed tomography, there were multiple hypodense lesions on the liver, a mass at the level of the splenic flexure that obliterates the lumen. In addition, there were numerous air-fluid levels due to tumoral mass on splenic flexure. Emergency surgery was performed, and during surgery, there were tumoral masses at the hepatic flexure and splenic flexure. Palliative total abdominal colectomy with end ileostomy was performed due to megacolon. The patient died due to sudden cardiac arrest on the 1st postoperative day.

**Keywords:** Colorectal cancer; intestinal obstruction; synchronous neoplasms.

#### ÖZ

Bu olgu sunumunda, preoperatif dönemde metastatik sol kolon tümörü nedeniyle ileus gelişen bir hastada perioperatif dönemde saptanan eş zamanlı sağ kolon tümörü sunulmaktadır. Yetmiş altı yaşında erkek hasta epigastrik ağrı, bulantı ve kusma şikayetleriyle başvurdu. Derin palpasyonda epigastriyumda hassasiyet ve defans mevcuttu. Bilgisayarlı tomografide karaciğerde çoklu hipodens lezyonlar, splenik fleksura seviyesinde lümeni oblitere eden bir kitle vardı. Ayrıca splenik fleksuradaki tümöral kitleye bağlı olarak çok sayıda hava-sıvı seviyesi mevcuttu. Acil cerrahi uygulandı ve ameliyat sırasında hepatik fleksura ve splenik fleksurada tümöral kitleler görüldü. Megakolon nedeniyle palyatif total abdominal kolektomi ile uç ileostomi yapıldı. Hasta ameliyat sonrası 1. günde ani kalp durması nedeniyle kaybedildi. **Anahtar kelimeler:** Kolorektal kanser; bağırsak tıkanıklığı; senkron neoplazmlar.

#### INTRODUCTION

According to Cancer Statistics 2022, in the USA, colorectal cancer (CRC) ranks 3<sup>rd</sup> for both sexes in terms of estimated new cases and estimated deaths (1). Historically, studies have defined CRCs within three compartments of the gut: distal colon, proximal colon, and rectum (2). Proximal colon cancers include cancers located proximal two-thirds of the transverse colon, ascending colon, and cecum. In contrast, distal colon cancers are located in one-third of the transverse, descending, and sigmoid colon. On the other hand, rectal cancers include cancers located from the proximal side of the rectum up to the dentate line. The most common location of CRC is the cancers located in the rectosigmoid region (3).

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Almost all CRCs are seen in a single tumoral focus. Synchronous multiple CRCs have an incidence of 1.1-8.1% among all CRCs (4). Synchronous CRCs were defined as having more than one primary CRC at the same time, a distance of at least 5 cm between two primary tumors detected simultaneously, and a second primary tumor detected within six months of the detection of the first primary cancer (5). Detection of synchronous CRCs is essential, and if overlooked, the second tumor may appear as advanced metachronous cancer. If the second tumor is detected preoperatively, it affects the width and type of surgical resection (6).

This case report aimed to present a simultaneous right colon tumor detected perioperatively in a patient who developed ileus due to a metastatic left colon tumor in the preoperative period.

### CASE REPORT

A seventy-six-year-old man was admitted to the emergency department of a tertiary health center with epigastric pain, nausea, and vomiting for about 2 days. He had lost weight (approximately 20 kilograms—from 106 kg to 86 kg) for about four months. He had hypertension and diabetes mellitus but did not have any history of surgery. In addition, there was no history of cancer in family members.

The patient's vital signs on admission were as follows: blood pressure: 158/88 mm Hg, pulse rate: 97 beats per minute, oxygen saturation on room air: 92%, and body temperature: 37.3° Celsius. On physical examination of the abdomen, there was tenderness and defense on deep palpation on the epigastrium and a palpable solid mass on the right upper quadrant. Other system examinations were unremarkable, including the digital rectal examination.

In the laboratory, total bilirubin (1.8 mg/dL), direct bilirubin (0.8 mg/dL), alanine transaminase (60 U/L), aspartate transaminase (245 U/L), gamma-glutamyl transferase (495 IU/L), alkaline phosphatase (291 U/L), lactate dehydrogenase (3025 U/L), creatinine kinase (329 U/L), C-reactive protein (97.2 mg/L), and platelet count ( $610 \times 10^9/L$ ) were higher than normal ranges, but hemoglobin (11.1 g/dL) level was lower. In addition, serum levels of carcinoembryonic antigen (43.83 ng/mL) and cancer antigen 19-9 (221.70 U/mL) were higher. Abdominal ultrasonography (USG) showed only multiple solid hypoechoic lesions on the liver.

The patient was admitted to internal medicine with a prediagnosis of malignancy. Endoscopy showed antral gastritis with esophagitis, and colonoscopy revealed a tumoral obstruction in the sigmoid colon that did not allow proximal passage of the colonoscope. On day 1 of the follow-up, the patient had severe abdominal pain and distension. Oral intake stopped, and nasogastric decompression was performed due to the risk of aspiration. Additionally, enema treatment was started twice a day. On the report of the computed tomography (CT), there were multiple hypodense lesions in the liver (Figure 1a) and obstructive masses at the level of the splenic flexure (Figure 1b) and the level of the hepatic flexure (Figure 1c). In addition, there were numerous air-fluid levels due to tumoral mass on splenic flexure (Figure 2). Despite laxative therapy and decompression therapy, the patient has increased abdominal distension, no gas stool, and continued vomiting; emergency surgery was

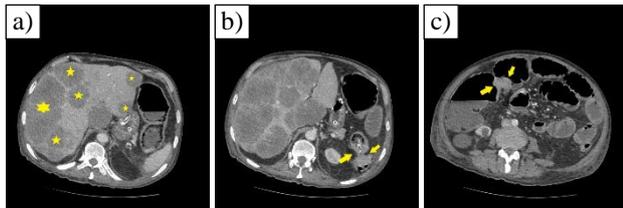
planned. During exploration, there were tumoral masses at the hepatic and splenic flexure. In addition, multiple hepatic metastases were present. Palliative total abdominal colectomy with end ileostomy was performed due to a megacolon (Figure 3). The patient was followed up in the intensive care unit during the postoperative period. Oral feeding was stopped, and intravenous fluid replacement was started. The patient died due to sudden cardiac arrest on the 1<sup>st</sup> postoperative day.

Tumor pathology in the hepatic flexure was compatible with moderately differentiated adenocarcinoma; its dimensions were 60\*45\*8 mm (pT3, Figure 4a, 4b, and 4c). Tumor pathology in the splenic flexure was consistent with moderately differentiated adenocarcinoma; its dimensions were 70\*45\*20 mm (pT3, Figure 5a, 5b, and 5c). Both proximal and distal surgical margins were negative. MLH1, MSH2, MSH6, and PMS2 nuclear positive staining was observed in neoplastic cells, but no loss of expression was detected (proficient mismatch repair, pMMR).

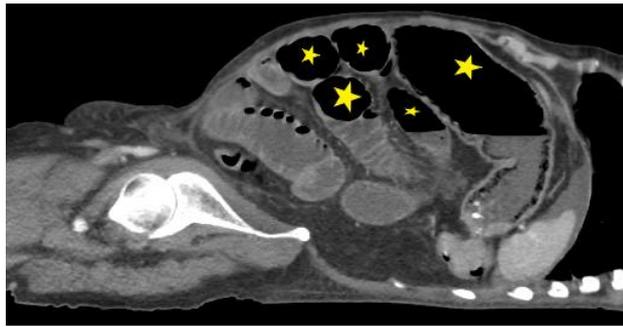
### DISCUSSION

Synchronous CRCs constitute 1.1-8.1% of all CRCs, and their preoperative detection directly affects surgical treatment and prognosis (7). Synchronous CRCs are more common in men and are seen in the older population than in patients with solitary CRC (8). Synchronous CRCs develop on a genetic or environmental common etiology. Studies of molecular colorectal carcinogenesis have shown that chromosomal instability, microsatellite instability (MSI), and gene methylation have been identified in many of the predisposing factors for synchronous cancers (9). It has been determined that the rate of MSI is higher in synchronous CRCs than in solitary tumors (10).

The diagnosis of CRC begins with a careful history and physical examination, including a rectal exam (11). It is also essential to question family history. It is a simple test, a screening test over 50 years that screens for occult blood in stool in cases with suspected colon cancer (12). Screening colonoscopy should be performed in cases with positive stool occult blood tests. Screening colonoscopy should also be planned in patients with a negative stool occult blood test and a family history with symptoms suggestive of colon cancer. In cases where a mass is seen in screening colonoscopy and the CRC, diagnosis is confirmed pathologically, abdominal CT, MRI, and PET-CT should evaluate the extent/stage of cancer (13). Appropriate treatment (surgery/neoadjuvant therapy) should be planned for the patient, considering the genetic pattern. This algorithm is the usual way of diagnosing CRC. However, detecting synchronous CRCs is essential in terms of prognosis and surgical treatment decisions. It is stated that synchronous tumors show a worse prognosis than solitary tumors (14). For synchronous CRCs, the most critical factor affecting the surgical technique, the width of the resection, and thus the quality of life after the operation is the localization of the tumors. Some studies stated that synchronous CRCs were mainly located in the right colon (15). However, studies also noted that left colon localization or localization in different colon segments is more frequent (16). In the present case, the patient with high carcinoembryonic antigen and cancer antigen 19-9 was admitted with epigastric



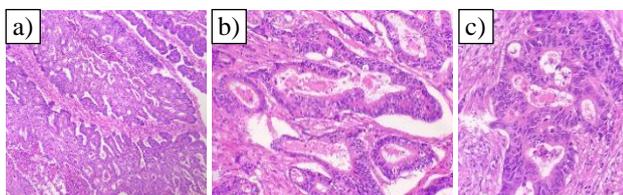
**Figure 1.** On the axial view of computed tomography, there were; **a)** multiple metastatic foci in the liver (yellow asterisks), **b)** a totally-obstructive tumoral mass at the level of the splenic flexure, and **c)** the hepatic flexure (yellow arrows)



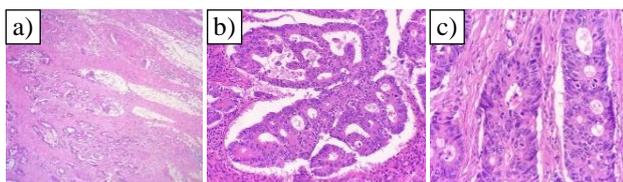
**Figure 2.** On the sagittal view of computed tomography, there were multiple air-fluid levels (yellow asterisks)



**Figure 3.** Resection material; the tumor on the hepatic flexure (black arrow), and the splenic flexure (red arrow)



**Figure 4.** Pathological image of the tumor located at hepatic flexure; **a)** neoplastic glands displayed cribriform pattern (H&E, x100), **b)** neoplastic glands (H&E, x200), **c)** neoplastic glands (H&E, x400)



**Figure 5.** Pathological image of the tumor located at splenic flexure; **a)** neoplastic glands invading into subserosal adipose tissue (H&E, x40), **b)** neoplastic glands with a cribriform pattern (H&E, x200), **c)** neoplastic glands (H&E, x400)

pain, nausea, and vomiting. Colonoscopy and CT showed a tumoral mass at the level of the sigmoid colon. But different from preoperative evaluation, the patient had an obstructive tumor at the level of the splenic flexure. In addition, he had an obstructive tumor at the level of hepatic flexure, which was detected incidentally.

Surgical treatment of CRCs localized to the same colon segment is radical anatomical resection of the localized segment. However, studies have reported that different preferences from past to present are still accepted regarding the surgical technique for tumors located in different segments. Some authors have recommended wide resections for synchronous CRCs to avoid future recurrent surgeries due to metachronous tumors due to overlooked tumors (17). Recent studies have stated that multiple colon resections in solitary synchronous CRCs did not show a different result from wide resections regarding postoperative complications, length of hospital stay, and survival (18). We performed a total abdominal colectomy due to double-segment obstruction and ileus. Mechanical bowel obstruction due to a distal tumor is an essential condition that complicates the detection of a synchronous CRC. It is challenging to diagnose proximal tumors in tumors that do not allow proximal passage of the colonoscope. In such cases, intraoperative colonoscopy or triple contrast computed tomography is recommended (19). Although tomography helps diagnose a synchronous tumor, palpation of all colon segments and tumor investigation are important during exploration. In this case, we detected a synchronous tumor at the hepatic flexure.

**CONCLUSION**

Colorectal cancer is a worldwide health problem. While most CRC cases present with a solitary tumor, it should be kept in mind that synchronous CRCs may be seen in very few cases. Synchronous CRCs are primarily seen in CRC cases with distal total obstruction that does not allow proximal passage of the colonoscope. In these cases, it is essential to evaluate all colon segments with tomography. Surgery type was chosen due to surgical urgency, patient’s condition and performance status, and surgeon’s experience. Total colectomy with a diverting stoma is a surgical option that can be applied in synchronous CRCs presenting with ileus in emergency conditions.

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