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Colonic cancers fistulised to other segments of the gastrointestinal tract. Case series and review of literature.

Diğer sindirim yolu bölümlerine fistül oluşturan Kolonik kanserler. Olgu serisi ve literatür derlemesi.

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Abstract

Background: Occurrence of enteric fistulas caused by colon cancer is a rare. Preoperative diagnosis has some difficulty because of non-specific presentation and lack of appropriate combination of diagnostic techniques.

Methods: From November 2008 to April 2012, patients with entero-enteric fistulas caused by colon cancer were reviewed with regard to demographic variables, clinical presentation, diagnostic evaluation, intra-operative findings, type of surgical procedure and pathologic examination.

Results: There were four (3.92%) fistulas caused by colon cancer among 102 patients with adenocarcinoma of the colon. Fistulas were one colo-duodenal, one colo-gastric, one ceco-sigmoidal and one sigmoido-rectal in patients with a mean age 56.5 years. Presence of fistulas was not diagnosed preoperatively in any of the patients by using standard diagnostic techniques, i.e., endoscopy and computed tomography. Complete resection of tumor with tract of fistula was performed in all patients. Mean duration of follow-up period was 12.25 months, liver metastasis was detected in one patient, entero-cutaneous fistula in one.

Conclusions: Malignant fistula formation caused by colon cancers is a rare event. Preoperative diagnosis could be achieved by using a combination of barium enema or meal and endoscopy. Surgical treatment via oncologic en-bloc resection with negative microscopic margins is important for long-term survival.

Key words: adenocarcinoma, colon, fistula, enteroenteric, coloduodenal, cologastric

Öz

Giriş: Kolon kanserinin sebep olduğu enterik fistüller nadir görülür. Ameliyat öncesi tanı, spesifik olmayan sunum ve uygun tanı teknikleri kombinasyonu bulunmaması nedeniyle bir miktar zorluk çekmektedir.

Yöntemler: Kasım 2008 - Nisan 2012 arasında demografik değişkenler, klinik tablo, tanı değerlendirme, intraoperatif bulgular, cerrahi girişim tipi ve patolojik inceleme açısından entero-enterik fistüllü hastalar gözden geçirildi.

Bulgular: Kolon adenokarsinomalı 102 hasta içinde kolon kanserine bağlı dört fistül vardı (%3.92). Yaş ortalaması 56.5 olan hastalarda bir kolo-duodenal, bir kolo-gastrik, bir ceco-sigmoidal ve bir sigmoid-rektal fistül görüldü. Fistüllerin varlığı, standart tanı teknikleri, yani endoskopi ve bilgisayarlı tomografi kullanılarak preoperatif olarak teşhis edilemedi. Bütün hastalarda tümör-fistül dokusu rezeksiyonu yapıldı. İzlem süresi ortalama 12.25 ay, bir hastada karaciğer metastazı, bir hastada entero-kutanöz fistül saptandı.

Sonuçlar: Kolon kanserlerinden kaynaklanan malign fistül oluşumu nadir görülen bir olaydır. Ameliyat öncesi tanı, baryum lavman veya yemek ve endoskopi kombinasyonu kullanılarak başarılabilir. Onkolojik en blok rezeksiyon ve negatif mikroskobik cerrahi sınır, uzun süreli sağkalım için önemlidir.

Anahtar kelimeler: adenokarsinom, kolon, fistül, enteroenterik, koloduodenal, kologastrik

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Introduction

Colon cancers may form fistulas to the other gastrointestinal organs by direct extension showing local aggressiveness of the tumor [1, 2]. Occurrence of such complication has been reported as a very rare event in the literature [2-4]. Besides specific symptoms of the colon cancers, patients with fistulas may present with clinical findings changing according to the organs that fistula formation develops. Although preoperative diagnosis of fistula formation may be difficult due to non-specific clinical presentation, it can be diagnosed readily by endoscopic and radiologic imaging of the gastrointestinal tract in selected patients [1, 5]. Current treatment modality for such tumors includes en-bloc resection of the tumor and fistulous tract [2, 4].

In this paper, we aim to review our colon cancers forming fistulas to the other gastrointestinal organs with regard to the clinical presentation, operative findings and treatment outcomes.

Materials and methods

All patients who were surgically treated due to adenocarcinoma of the colon at our hospital from November 2008 to April 2012 were reviewed. Patients with tumor fistulation to the other gastrointestinal organs diagnosed either by pre-operatively or intra-operatively were included to the study group for further evaluation. Preoperative diagnosis of the fistulation was achieved by showing the fistulous tract during pre-operative imaging tests. Intra-operative diagnosis of the fistulation was achieved by direct exposure of the fistulous tract after the detailed exploration. Demographic variables, clinical presentation, diagnostic evaluation, intra-operative findings, type of surgical procedure and pathologic examination were collected during a detailed chart review. Follow-up was accomplished through recent clinic visits as of April 2012. The outcome measures included completeness of the resection, recurrence of the tumor and the fistula, and overall survival.

Results

Among 102 patients who were surgically treated due to adenocarcinoma of the colon, there were four (3.92%) fistulas caused by colon cancer. All patients were male with a mean age 56.5 years (range from 46 to 63 years). The main presenting symptoms were diarrhea, rectal bleeding and loss of weight more than 10 % of the ideal weight in 2, 1 and 1 patient, respectively. Imaging tests and initial disease status were given in Table. Presence of the fistulas was not diagnosed preoperatively in all patients with the help of the imaging tests.

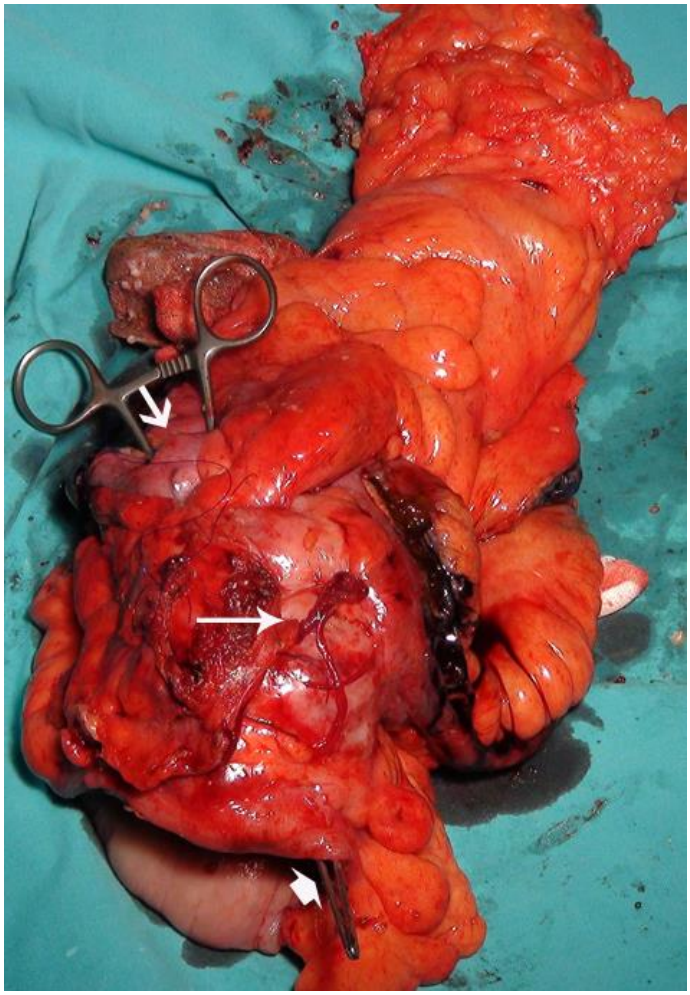
The fistulas detected intra-operatively (Figure) were detailed in Table. Complete resection of the tumor with the fistulous tract was achieved in all. Pathologic examination revealed adenocarcinoma of the colon originating from the transverse, the sigmoid and the cecum in 2, 1 and 1 patient, respectively.

Symptoms of the patients were all relieved after the surgical treatment. The mean duration of the follow-up period was 12.25 months with a range of 6 to 20 months in which there were one metastasis to the liver and one entero-cutaneous fistula. There was no mortality.

Table: Imaging techniques, intraoperative and postoperative findings of the patients.

No	Imaging / Initial disease status	Intraperative diagnosis / Surgery	Pathology / Postoperative treatment and outcome
1	Colonoscopy, CT / An obstructive lesion at the transverse colon	Colon cancer with coloduodenal fistula / Right hemicolectomy, wedge resection of the 2nd part of the duodenum and head of the pancreas	Adenocarcinoma, pT4bN1aM0 / Liver metastasis, chemotherapy, alive at the 20th month
2	Colonoscopy, upper endoscopy, CT / An obstructive lesion at the distal part of the transverse colon	Colon cancer with cologastric fistula / Transverse colectomy, subtotal gastrectomy	Adenocarcinoma, pT4bN0M0 / Chemotherapy, alive at the 6th month
3	Colonoscopy, CT / A cecal mass	Colon cancer with cecosigmoid fistula / Right hemicolectomy, sigmoid resection	Adenocarcinoma, pT4bN2aM0 / Enterocutaneous fistula, alive at the 9th month
4	Colonoscopy, CT / A mass at the sigmoid colon (18 cm from the anal verge)	Colon cancer with sigmoidorectal fistula / Extended low anterior resection, loop ileostomy	Adenocarcinoma, pT4bN0M0 / Chemoradiotherapy, ileostomy closure at 13rd month, alive at 14th month

Figure: A tumoral mass causing cecosigmoidal fistula located at the cecum (thin, white arrow). After opening of the walls of the cecum (thick, white arrow) and the sigmoid, a surgical instrument located through the fistulous tract (white arrowhead).



Discussion

It is generally accepted that it is a rare event for carcinoma of the colon to form fistulous connections with other gastrointestinal organs by direct invasion. Such connections are usually occurred secondary to primary colon cancers [1, 3, 6]. Incidence of colon cancers forming fistulas to the duodenum has been reported to be as low as 1 in 900, and mostly as case reports or case series [3]. Colo-gastric fistulas secondary to colon cancer has been reported even rarer [2, 5]. It has been shown that colo-colonic fistulas are usually a complication of inflammatory or neoplastic process. Sigmoido-cecal fistula, most probably as a complication of sigmoid diverticulitis, has been reported in a few case reports [7]. There was only one paper showing ceco-sigmoidal fistula caused by adenocarcinoma of the cecum [8]. It is generally thought that colo-colonic fistulas can be considered as rare pathologies without any clinical importance; therefore, publications with regard to this pathology are very small.

Clinical presentation varies according to status of the primary tumor, fistula itself or metastatic disease [3]. Although diarrhea, vomiting and weight loss are the most common symptoms caused by adenocarcinoma of the colon forming fistulas with upper gastrointestinal system, non-specific symptoms may sometimes cause difficulty for establishing the exact diagnosis [1-3]. Nutritional deficiency, fecal halitosis and abdominal pain were reported to be other symptoms with regard to malignant fistulation to upper gastrointestinal system [2]. Gastrointestinal bleeding has been reported as the main presenting symptom for malignant colo-duodenal fistula patients [6]. It is believed that diarrhea has been related to colonic bacterial contamination of the upper intestines rather than to a pure mechanical effect [3]. It has also been suggested that duodenal bile salts have an irritating effects on colonic mucosa resulting in diarrhea. However, colo-colonic fistulas usually have insidious presentation with nonspecific symptoms [7]. Diarrhea and rectal bleeding were the most common symptoms seen in our patients. Although such symptoms can be seen in each case of the patients with colon cancer, combination of diarrhea, nausea-vomiting with significant loss of weight should be regarded as a specific clue for formation of such fistulas [3].

Preoperative diagnosis of malignant fistulas may be difficult in some cases. Radiology with barium enema or meal is especially useful for delineating colorectal fistulas with upper gastrointestinal system. Therefore, they should be used in suspicious cases [1-3, 5, 7, 9]. Computed tomography is shown to be effective for documentation of the metastatic disease. Direct observation of the fistulous tracts by upper and lower gastrointestinal endoscopy has been accepted to be more diagnostic tool [1, 3]. It was found that a combination of radiologic imaging and endoscopy were complimentary in evaluation of the cases with malignant fistula [6, 9, 10]. However, it was impossible to diagnose these fistulas preoperatively only by using endoscopic techniques, most probably due to the lack of technical expertise. It is also thought that being reluctant to use of barium enema or meal in these cases is another point causing not to put a diagnosis preoperatively. Therefore, we offer to use a combination of radiologic imaging with barium and endoscopy in the suspicious cases.

In these patients, it was possible to diagnose these fistulas intraoperatively after the detailed exploration. Although preoperative diagnosis by imaging and endoscopic techniques can be accepted as a superior approach, showing the fistulous tract between two visceral organs can also be accepted as a diagnostic method during the surgery. However, it should be kept in mind that there may be some technical problems in cases with internal fistulas. For colonic cancers fistulised to upper gastrointestinal organs such as the stomach and the duodenum, retroperitoneal dissection of all tumoral tissues can be difficult to achieve complete resection. Care should be given to preserve the pancreatic tissues to avoid postoperative pancreatic fistulas. In colonic cancers fistulised to other part of the gastrointestinal tract, understanding of the anatomy is an important issue to perform anastomosis with regard to its number and safety.

Although surgical treatment depends on the extent of the primary tumor, the presence of the metastatic disease and the general condition of the patient, en-bloc resection of the fistulous tract with the primary tumor and fistula forming organs is the generally accepted modality [1-6]. The type of surgery may show some differences according to the localization of the tumor and the fistulous tract. A right hemicolectomy ad duodenal resection was accepted as the most appropriate surgery for colo-duodenal fistulas caused by adenocarcinoma of the colon [6].

It was also shown that prognosis and survival were usually dependent on the stage of the disease and presence of the curative resection [1, 3]. Complete resection with the primary tumor, the fistulous tract and the fistula forming organ was performed in all cases which might be responsible for the lack of mortality during the follow-up period. Therefore, it should be attempted to reach oncologic en-bloc resection with negative microscopic margins for long-term survival [6].

In conclusion, malignant fistula formation caused by colon cancers is a rare event. Although preoperative diagnosis can be achieved by using barium enema or meal and endoscopy in most of the cases, surgical treatment via oncologic en-bloc resection with negative microscopic margins is important for long-term survival.

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