

CLINICAL CASE

## PARTICULARITIES OF DIAGNOSIS AND TREATMENT IN A CASE OF SYNCHRONOUS COLORECTAL CANCER

Florentina Mușat<sup>1</sup>, M. Coțofană<sup>2</sup>, Alexandra Bolocan<sup>1,2</sup>, O. Andronic<sup>1,2</sup>, D. N. Păduraru<sup>1,2</sup>

<sup>1</sup>The University of Medicine and Pharmacy “Carol Davila”, Bucharest, Romania

<sup>2</sup>Emergency University Hospital Bucharest, Romania

Corresponding author: Octavian Andronic

Phone no.: 0040724024019

E-mail: andronicoctavian@gmail.com

### Abstract

*In literature, synchronous colorectal cancer refers to the simultaneous presence of two or more malignant lesions located along different segments of the large intestine or separated by at least 4 cm, detected either pre-, intraoperatively or after maximum 6 month since a surgery addressed to a colon tumor. The incidence of synchronous tumors is approximately 3,5% of all cases of colorectal carcinoma, while in others it reaches up to 8,4%. It is believed that this difference is mainly due to false negative results. The present paper presents the case of a 75-year-old patient, with a history of essential hypertension and type 2 insulin requiring diabetes who came to the emergency room accusing diffuse abdominal pain and bloating accompanied by the absence of intestinal transit for fecal matter over the past 6 days and an episode of vomiting. The results of the investigations correlated with the patient's symptomatology indicate the diagnosis of bowel obstruction. The exploratory laparotomy reveals an ulcero- vegetative, partially stenotic mass lesion in the sigmoid colon with a diameter of about 5/6 cm. A second ulcero-vegetative, stenotic mass was identified at the hepatic flexure of the colon with a diameter of approximately 8/7 cm. No metastatic lesions on the liver or in the abdominal cavity were noted. Right hemicolectomy with end-to-end ileotransverse-anastomosis and end-to-end colorectal anastomosis were performed. The present paper aims to expose the particular aspects in the diagnosis and treatment of bowel obstruction by synchronous tumors on a patient with abdominal symptomatology attenuated on the background of neurological complications of diabetes.*

**Keywords:** *synchronous colorectal cancer, diabetes, bowel obstruction*

---

### Introduction

The incidence of synchronous tumors is reported in some studies as approximately 3,5% of all cases of colorectal carcinoma [1], while in others it reaches up to 8,4% [2]. It is believed that this difference is mainly due to false negative results [2]. This type of lesions is frequently encountered at an average age between 70 and 75 years and the risk of

occurrence is 1,8 times higher for males. Among the factors predisposing to the development of synchronous colorectal tumors, there are intestinal inflammatory diseases, hereditary colorectal cancer and familial adenomatous polyposis [1]. Synchronous tumors are most common in the proximal colon, particularly in the ascending colon and are often positioned in different segments of the large intestine [3]. This highlights the need for a

thorough pre- and intraoperative examination of the colon in order not to omit possible synchronous lesions. The present paper aims to expose the particular aspects in the diagnosis and treatment of bowel obstruction by synchronous tumors.

---

## Case report

A 75-year-old patient, with a history of essential hypertension and type 2 insulin requiring diabetes came to the emergency room accusing diffuse abdominal pain and bloating accompanied by the absence of intestinal transit for fecal matter over the past 6 days and an episode of vomiting. Clinical examination identifies abdominal distension, diffuse abdominal pain on palpation, without signs of peritoneal irritation. Regular laboratory examination revealed a value of leukocytes of  $11,15 \times 10^9/L$  (normal range:  $4-10 \times 10^9/L$ ) as well as electrolyte imbalances. Following the radiological examination, multiple jejunal and ileal hydroaeric levels are described. The ultrasonography evaluation reveals distended portions of the small intestine, the absence of the peristalsis in the right iliac fossa and the right flank and a fluid collection of 15 mm between the ileal segments of the bowel and respectively of 5-6 mm under the liver. The results of the investigations correlated with the patient's symptomatology indicate the diagnosis of bowel obstruction.

The exploratory laparotomy reveals an ulcero-vegetative, partially stenotic mass lesion in the sigmoid colon with a diameter of about 5/6 cm. A second ulcero-vegetative, stenotic mass was identified at the hepatic flexure of the colon with a diameter of approximately 8/7 cm. No metastatic lesions on the liver or in the abdominal cavity were noted. Right hemicolectomy with end-to-end ileotransverse-anastomosis and end-to-end colorectal anastomosis were performed.

---

## Discussion

### Diagnosis

In literature, synchronous colorectal cancer refers to the simultaneous presence of two or

more malignant lesions located along different segments of the large intestine or separated by at least 4 cm, detected either pre- / intraoperatively or maximum after 6 month from a surgery addressed to a colon tumor [4]. There have been described cases with 3 [5], [6], 4 [7],[8] and even 6 [3] synchronous colorectal lesions. Solitary colorectal cancer has been found to be more common in men, as is the case of synchronous lesions (175 males of 249 patients with synchronous lesions) , especially those located on the left side of the colon [8]. In the presented case, two mass lesions, one of them causing stenosis of the sigmoid colon and the other one of the hepatic flexure, were identified. Since the patient's deteriorated condition did not allow a preoperative colonoscopy to be performed, both masses were identified intraoperatively by palpation step by step of the whole distended and occluded colic frame.

Colonoscopy is an increasingly used investigation, both pre- and intraoperative due to the benefits offered [9]. It allows confirmation or invalidation of a diagnosis, while avoiding unnecessary interventions, especially for the high-risk group of patients associating co-morbidities and a thorough examination that can result in detection of difficult to see or palpate masses. A study [10] that enrolled 316 patients suffering of colorectal cancer revealed the presence of synchronous lesions (polyps and carcinomas) in 39,2% of cases, most of them being diagnosed by preoperative colonoscopy, while 5,4% of patients had synchronous colon cancer. The same study showed that intraoperative colonoscopy is a valuable tool as 12 of 51 patients who underwent this procedure had synchronous cancer or clinically significant polyps. Even though this procedure prolongs the duration of surgery and increases the risk of infections, it can avoid the need for a subsequent operation [10]. There are cases where preoperative colonoscopy cannot provide useful information about the existence of synchronous tumors due to the presence of a stenotic carcinoma. Synchronous tumors with small dimensions or those located near the main mass may also be difficult to see [11].

Diagnosis of bowel obstruction can be determined based on history of the patient,

clinical examination and imagistic findings. Although computed tomography allows for a diagnosis of certainty as well as identification of potential synchronous tumors, it is not always accessible. In this case, the clinical and paraclinical arguments indicate the diagnosis of bowel obstruction whose malignant cause was evidenced by exploratory laparotomy, noting that the abdominal symptomatology was attenuated on the background of neurological complications of diabetes. The surgeon has the duty to consider the risk, although low, of the existence of one or more synchronous masses and, consequently, carefully examine the colon by all available means, especially if a preoperative colonoscopy was not possible.

#### *Relation between diabetes mellitus and colorectal cancer*

One study showed that of 12 adenocarcinomas discovered at diabetic patients, 9 were located in the right side of the colon [12]. On the other hand, another study showed that distal colon cancer is more likely to occur in type 2 diabetic patients than proximal colon cancer (of 78 diabetic patients 67 had distal colon cancer and 11 the proximal form), especially in males [13]. Our paper describes the case of a male diabetic patient with 2 synchronous masses, one on the proximal part and the other on the distal part of the colon, who underwent an emergency procedure for bowel obstruction. Therefore, we suggest that multiple lesions should be closely looked for, especially in diabetic patients even in case emergency bowel resections. Also, a postoperative colonoscopy in this type of cases would be useful in detecting incipient lesions missed during primary intervention.

Another interesting observation from a study that enrolled 1216 patients with colorectal cancer, 416 of whom were associating diabetes, is that the dimension of the tumors was bigger in the group with high levels of blood glucose (44 mm comparing to 38 mm,  $p=0,05$ ), taking into account that cells with high rate multiplication need more substrate for energy[14].

#### *Treatment*

The surgical treatment approach for synchronous colorectal tumors remains

controversial. In order to remove any tumors that have not been diagnosed and to prevent the development of metachrone tumors, some authors propose radical interventions, such as total colectomy with ileorectal anastomosis. On the other hand, other authors recommend application of the conservative strategy for patients with advanced age and the radical strategy for patients who are less than 60 year-old and who had non-metastatic cancer [15].

Depending on the location of the tumor, there are 2 groups of patients: according to a study [1] which enrolled 884 patients diagnosed with colorectal cancer, 87% of them had tumors located in the same segment or adjacent segments of the colon, whereas in 13% of cases tumors were located remotely, on different portions. For patients in the first group, one may choose to perform a hemicolectomy or an extended colectomy, with the anastomosis of the distal and proximal segments and/or a stoma. For the second group, the surgeon may choose either to perform 2 separate resections accompanied by 2 anastomoses which involve a high risk of leakage, or a (sub-) total (procto-) colectomy. One should decide the surgical treatment based on patient preferences, number and location of the tumors, extent of resection and the degree of feasibility of anastomoses or of the stoma. In the presented case, the patient may be included in the second category because a right hemicolectomy with end-to-end ileo-transverso-anastomosis and a sigmoidectomy with end-to-end colo-recto-anastomosis were performed.

#### *Complications*

Synchronous colorectal cancer is an independent risk factor for severe complications requiring additional interventions (anastomoses leakage, abscess, hemorrhage, ileus). However, synchronous cancer does not associate a significantly higher mortality than a solitary cancer [2].

---

## **Conclusions**

Synchronous malignant lesions are a rare type of pathology, which can be easily omitted especially in surgical emergency cases. Diagnosis and intra-/postoperative management

can be challenging. This case is an example of establishing the diagnosis of bowel obstruction by synchronous tumor following a thorough examination and palpation of the whole distended colic frame. It is important to note that, in the presence of an unbalanced diabetes mellitus, the symptomatology of the patient was attenuated so the bowel obstruction probably had been installed long before presenting to the emergency room.

## References

- [1] van Leersum et al., "Synchronous colorectal carcinoma: a risk factor in colorectal cancer surgery," *Dis. Colon Rectum*, vol. 57, no. 4, pp. 460–466, 2014.
- [2] T. Kato et al., "Clinical characteristics of synchronous colorectal cancers in Japan," *World J. Surg. Oncol.*, vol. 14, no. 1, 2016.
- [3] A. K. Y. Lam, S. S. Y. Chan, and M. Leung, "Synchronous colorectal cancer: Clinical, pathological and molecular implications," *World J. Gastroenterol.*, vol. 20, no. 22, pp. 6815–6820, 2014.
- [4] W. J. Cunliffe, P. S. Hasleton, D. E. F. Tweedle, and P. F. Schofield, "Incidence of synchronous and metachronous colorectal carcinoma," *Br. J. Surg.*, vol. 71, no. 12, pp. 941–943, 1984.
- [5] J. Cheng, X. Liu, X. Shuai, M. Deng, J. Gao, and K. Tao, "Synchronous triple colorectal carcinoma: A case report and review of literature," *Int. J. Clin. Exp. Pathol.*, vol. 8, no. 8, pp. 9706–9711, 2015.
- [6] C. C. Yeh, S. C. Hsi, C. P. Chuu, and Y. H. Kao, "Synchronous triple carcinoma of the colon and rectum," *World J. Surg. Oncol.*, vol. 11, 2013.
- [7] N. Carlomagno, A. Calogero, M. Saracco, M. Santangelo, C. Dodaro, and A. Renda, "Simultaneous quadruple carcinoma of colon case report and literature review," *Ann. Ital. Chir.*, vol. 85, no. 5, pp. 495–500, 2014.
- [8] H. Fukatsu et al., "Clinical characteristics of synchronous colorectal cancer are different according to tumour location," *Dig. Liver Dis.*, vol. 39, no. 1, pp. 40–46, 2007.
- [9] K. H. Katsanos et al., "The role of colonoscopy in the management of intestinal obstruction: A 20-year retrospective study," *BMC Gastroenterol.*, vol. 10, 2010.
- [10] M. S. Kim and Y. J. Park, "Detection and treatment of synchronous lesions in colorectal cancer: The clinical implication of perioperative colonoscopy," *World J. Gastroenterol.*, vol. 13, no. 30, pp. 4108–4111, 2007.
- [11] A. K. Y. Lam, R. Carmichael, P. Gertraud Buettner, V. Gopalan, Y. H. Ho, and S. Siu, "Clinicopathological significance of synchronous carcinoma in colorectal cancer," *Am. J. Surg.*, vol. 202, no. 1, pp. 39–44, 2011.
- [12] S. A. Tomiyama R, Kinjo F, Hokama A, "Relationship Between Diabetes Mellitus and the Site of Colorectal Cancer," *Am J Gastroenterol.*, vol. 98, no. 4, pp. 944–5, 2003.
- [13] S.-W. Oh et al., "The comparison of the risk factors and clinical manifestations of proximal and distal colorectal cancer," *Dis. Colon Rectum*, vol. 51, no. 1, pp. 56–61, 2008.
- [14] T. Y. Ota, S. Ishihara, K. Yasuda, K. Kawai, K. Hata, H. Nozawa, H. Yamaguchi, E., Joji Kitayama and Watanabe, "Prognostic Impact of Diabetes Mellitus on Colorectal Cancer," *Biol. Med.*, vol. 8, no. 4, p. 299, 2016.
- [15] R. Frago, E. Ramirez, M. Millan, E. Kreisler, E. Del Valle, and S. Biondo, "Current management of acute malignant large bowel obstruction: A systematic review," *American Journal of Surgery*, vol. 207, no. 1. pp. 127–138, 2014.