Case Report

An Octogenarian Case of Sequential Laparoscopic Surgery for Synchronous Isolated Splenic Metastasis From Cancer of the Cecum

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Introduction: Because splenic metastasis from colorectal cancer is usually a result of metastasis from widely disseminated disease, cases with resectable isolated splenic metastasis are uncommon.

Case presentation: We report here a case of synchronous isolated splenic metastasis from cecal cancer that was treated with sequential laparoscopic splenectomy after short-term observation following laparoscopic ileocecal resection. Both postoperative courses were uneventful, allowing the patient to be discharged early. Two years have passed, without recurrence, since the second operation.

Conclusions: There are very few case reports on synchronous isolated splenic metastasis from colorectal cancer. Sequential laparoscopic resection might contribute to obtaining an uneventful postoperative course, especially in elderly patients such as ours.

Key words: Colorectal neoplasm – Spleen – Neoplasm metastasis – Laparoscopy

Because splenic metastasis from colorectal cancer (CRC) is usually a manifestation of widely disseminated disease, resectable cases with isolated splenic metastasis tend to be rare.1 Only a few cases with synchronous isolated splenic metastasis from CRC have been reported.2,3 Because synchronous splenic metastasis is so uncommon, therapeutic strategies are yet to be established. Some reports suggest that splenectomy can lead to the opportunity for long-survival in patients with isolated splenic metastasis.4,5 However, they do not report the surgical approach or the timing of resection of primary site and spleen. Laparoscopic surgery is increasingly being performed, and its minimal...
invasiveness is increasing the opportunities for its choice for elderly patients. We report a case in an octogenarian with synchronous isolated splenic metastasis from cancer of the cecum undergoing a scheduled sequential laparoscopic splenectomy after short-term observation following laparoscopic ileocecal resection.

Case Presentation

An 83-year-old woman with an old myocardial infarction as past history presented with abdominal pain and palpable mass. Additional examinations resulted in a diagnosis of cancer of the cecum with synchronous isolated splenic metastasis. We planned to perform laparoscopic ileocecal resection for the cecal cancer first, followed by splenectomy after short-term observation following laparoscopic ileocecal resection.

Fig. 1 Contrast-enhanced CT scan of the abdomen showing a low-density mass in the spleen (arrow).

The patient’s postoperative course after laparoscopic ileocecal resection was uneventful. Pathologic examination showed pT4N2M1, stage IV. During observation, XELOX therapy was scheduled; however, it was discontinued after the first cycle because of severe diarrhea as an adverse event. Three months later, computed tomography (CT) of the chest, abdomen, and pelvis, and fluorodeoxyglucose–positron emission tomography revealed no new lesions but splenic metastasis, so the patient was admitted for a second surgery. Although her serum carcinoembryonic antigen level was 14.6 ng/mL, it was lower than the level of 42.4 ng/mL recorded before the first surgery. Blood biochemical tests revealed no other abnormal values. Abdominal contrast CT showed a single low-density lesion of the spleen measuring 35 mm (Fig. 1). A fluorodeoxyglucose–positron emission tomography scan showed high metabolic activity in the spleen (Fig. 2). A second laparoscopic surgery was then performed to remove the splenic metastasis, 4 months after the first surgery. It was performed with the patient in the supine position, via 4 ports. No findings were observed that were indicative of disease dissemination in the abdominal cavity. The spleen was separated from the retroperitoneum, and the splenic artery and vein were simultaneously closed off using a liner stapler (Endo GIA, Covidien, Japan). The resected spleen in the collection bag was removed through the umbilical port wound, extended to 5 cm. The operation time was 105 minutes, and the amount of bleeding was 56 mL. Histopathologic examinations showed a well-differentiated adenocarcinoma. The splenic tumor was diagnosed

Fig. 2 Fluorodeoxyglucose–positron emission tomography CT showing a hypermetabolic focus in the spleen (arrow).
as a splenic metastasis from cancer of the cecum (Fig. 3). This time the postoperative course was also uneventful. Serum carcinoembryonic antigen level normalized after splenectomy. No adjuvant chemotherapy was performed in consideration of her age and toxicities. Imaging surveys have revealed no evidence of relapse of disease in the 2 years that have elapsed since the splenectomy.

Discussion

Malignant tumors, including CRC, rarely spread to the spleen, except for blood tumors. Berge reported splenic metastasis at a rate of 7.1% of from malignant tumors in autopsy cases; and when there are metastases to 5 or more organs, histologic splenic metastasis is observed in 50% of them. Metastatic CRC involving the spleen is usually considered to be a manifestation of systemic disseminated disease. It is therefore quite rare to find isolated metastasis to the spleen. Abdou et al reviewed 31 cases of isolated splenic metastasis from CRC obtained from English-language literature published in PubMed from 1969 to 2015. Most of the cases were metachronous metastasis, and 5 cases were synchronous metastasis. To our knowledge, only 6 cases of synchronous isolated splenic metastasis from CRC have been reported in the English-language literature.

Although no consistent opinion of treatment has been established, splenectomy is likely to result in long-term survival. The postoperative 5-year survival rate was reported to be 56.8% in cases of splenectomy in Japan. However, liver metastasis or peritoneal metastasis often appears within 1 year after splenectomy: isolated splenic metastasis might be an early indicator of multiorgan metastasis. Zhao et al reported on a 73-year-old patient treated with chemotherapy using 4 cycles of the XELOX regimen after laparoscopic primary tumor resection, followed by secondary laparoscopic splenectomy and 4 more cycles of XELOX for isolated synchronous splenic metastasis from cancer of the hepatic flexure of the colon. To our knowledge this is the first reported case treated with sequential laparoscopic resection for synchronous splenic metastasis from CRC.

The timing of splenectomy for synchronous isolated splenic metastasis remains controversial because it is rare, and malignant tumors might have already spread to other organs. There is no consensus on whether simultaneous or sequential resection is better for synchronous liver metastasis from CRC, but some reports suggest that surgery after waiting improves the liver recurrence rate. In our case, sequential laparoscopic resection was planned considering the described properties of splenic metastasis. During the observation period, we also initiated a XELOX regimen in response to pathologic findings. Although she discontinued therapy because of toxicity problems, she underwent sequential laparoscopic splenectomy without postoperative complications. In patients older than 80 years with CRC, there are fewer perioperative complications in the laparoscopic group, and there is also no difference in the 3-year survival rate and disease-free survival between laparoscopic and open surgery. Laparoscopic splenectomy that includes hand-assisted laparoscopic splenectomy is increasingly common for benign splenic disease and splenic tumor. Reports of 6 cases of laparoscopic splenectomy for splenic metastasis from various organs note that the survival range was from 2 months to 11 years and that a laparoscopic approach did not increase the rate of complications. For our case, sequential laparoscopic resection might have contributed to obtaining an uneventful postoperative course by reducing surgical invasiveness due to operating twice rather than once.

In conclusion, we performed laparoscopic surgeries on both primary and splenic metastatic lesions in an 83-year-old woman. Both postoperative courses were uneventful. To our knowledge, this is
the second case treated with sequential laparoscopic surgery for synchronous isolated splenic metastasis from CRC. Sequential laparoscopic resection is likely to contribute to the realization of an uneventful postoperative course, especially in elderly patients of this type.

References

1. Abi Saad GS, Hussein M, El-Saghir NS, Termos S, Sharara AI, Shamseddine A. Isolated splenic metastasis from colorectal cancer. Int J Clin Oncol 2011;16(4):306–313
2. Abdou J, Omor Y, Boutayeb S, Elkhannoussi B, Errihani H. Isolated splenic metastasis from colon cancer: case report. World J Gastroenterol 2016;22(18):4610–4614
3. Zhao H, Zhong W, Chen D, Cheng X. Synchronous isolated splenic metastasis from cancer of hepatic flexure of colon: a case report. Medicine (Baltimore) 2019;98(14):e15016
4. Takada T, Takami H. Solitary splenic metastasis of a carcinoid tumor of the lung eight years postoperatively. J Surg Oncol 1998;67(1):47–48
5. Lopez Monclova J, Targarona Soler E, Peraza Solis Y, Vidal Gonzalez P, Balague Ponz C, Rodriguez Luppi C et al. Laparoscopic approach for isolated splenic metastasis: comprehensive literature review and report of 6 cases. Surg Laparosc Endosc Percutan Tech 2013;23(1):21–24
6. Marymont JH Jr, Gross S. Patterns of metastatic cancer in the spleen. Am J Clin Pathol 1963;40:58–66
7. Warren S, Davis AH. Studies on tumor metastases, V: the metastases of carcinoma to the spleen. Am J Cancer 1934;21:517–533
8. Berge T. Splenic metastases: frequencies and patterns. Acta Pathol Microbiol Scand A 1974;82(4):499–506
9. Kurumiya Y, Kobayashi S, Sugawara G. A case of long-term survival after splenectomy for metachronous solitary splenic metastasis of cecal carcinoma: a study of 75 cases of elderly patients of this type. Jpn Surg Assoc 2014;75(1):134–139
10. Kaibori M, Iwamoto S, Ishizaki M, Matsui K, Hamada Y, Yoshioka K et al. Delayed hepatic resection for synchronous liver metastases from colorectal cancer [in Japanese]. Gan To Kagaku Ryoho 2010;37(8):1497–1501
11. Yoshidome H, Kimura F, Shimizu H, Ohtsuka M, Kato A, Yoshitomi H et al. Interval period tumor progression: does delayed hepatectomy detect occult metastases in synchronous colorectal liver metastases? J Gastrointest Surg 2008;12(8):1391–1398
12. Yoshimatsu K, Ito Y, Kono T, Maeda H, Imaizumi R, Koike T, Sano M et al. Efficacy of laparoscopic surgery for elderly patients with colorectal cancer over 80 years old. Gan To Kagaku Ryoho 2019;46(13):2506–2508
13. Hinoi T, Kawaguchi Y, Hattori M, Okajima M, Ohdah H, Yamamoto S et al. Laparoscopic versus open surgery for colorectal cancer in elderly patients: a multicenter matched case-control study. Ann Surg Oncol 2015;22(6):2040–2050
14. Misawa T, Yanaka K. Splenectomy: operation [in Japanese]. Kanemura Shuppan 2010;64(5):623–630
15. Sekimoto M, Ikeda M, Nishimura J, Takemasa I, Mizushima T, Yamamoto J et al. Laparoscopic splenectomy: surgical therapy [in Japanese]. Nagai Shoten 2011;105(6):564–571
16. Takeuchi T, Desaki R, Ohkura Y, Noda N, Yuasa H, Ito F. A case of a metachronous solitary splenic metastasis from a cecal cancer. Jpn Surg Assoc 2013;74(4):1071–1074