Case report

Concomitant colon cancer and abdominal aortic aneurysm treated by two-step endovascular aneurysm repair (EVAR) followed by laparoscopic sigmoidectomy

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Abstract

Concomitant gastrointestinal malignancy and abdominal aortic aneurysm (AAA) pose treatment difficulties. Herein we present the clinical features and treatment course of a 69-year-old male patient with AAA and sigmoid colon cancer. The maximum aneurysm diameter exceeded 50 mm, and it was evident from immediately after the bifurcation of the renal arteries. Due to the possibility of rupture, sigmoidectomy was preceded by endovascular aneurysm repair (EVAR). After confirming blood flow from the collateral arteries to the descending and sigmoid colon, a laparoscopic sigmoidectomy with lymph node dissection was safely performed one month after EVAR. The postoperative recovery was uneventful, and the patient was discharged 11 days after the second operation. Based on these findings and the literature, EVAR followed by the resection of colon cancer provides the safest order of treatments, especially when the patient has no cancer-related symptoms.

Key words: abdominal aortic aneurysm, colon cancer, stent graft

(Received: March 13, 2018; Accepted: March 20, 2018)
sigmoidectomy. No adhesion around the treated aortic aneurism was observed, and the patient’s postoperative recovery was uneventful.

**Discussion**

CRC and AAA is not an infrequent medical condition; however, a definitive treatment strategy has not been established, partially due to the variety of disease presentations and patient symptoms. Urgent interventions are often required when patients show severe symptoms of malignancy, such as complete obstruction or mass bleeding; however, if these conditions are controllable, the treatment order has to be carefully determined.

Lin and colleagues previously reported the clinical course of patients undergoing different treatment strategies for concomitant AAA and CRC. Their study retrospectively analyzed 108 patients grossly categorized into three groups based on the following treatments: AAA repair followed by resection of colon cancer, resection of
CRC followed by AAA repair, or simultaneous intervention. The open repair of AAA followed by CRC, separated by 115 days, was associated with 42% of morbidity and 19% of 30-day postoperative mortalities, suggesting that a long interval before treating the CRC could result in unacceptably high mortality rates. In contrast, EVAR followed by resection of CRC, with a separation of 12 days, was associated with a low morbidity rate (17%) and no mortalities among 12 treated patients. This result strongly suggests that EVAR should be used to treat concomitant AAA and CRC whenever feasible.

The risk of aneurysm rupture increases during any required waiting time for AAA repair after colorectal surgery: the 2 out of the 46 patients critically suffered from the ruptured AAA. Furthermore, among the patients who underwent EVAR after colorectal resection, 8% (2/11 patients) developed ischemic colitis requiring emergency surgery. Thus, treating CRC before AAA should be considered only when the symptoms of malignancy are difficult to control.

Simultaneous (one-step) open-surgery repair of AAA and resection of CRC is associated with greater operative blood loss and longer operation times compared to CRC resection then AAA repair, and may not be suitable for patients with deteriorated general conditions. In contrast, Amato et al. reported on the adequate safety of the one-step intervention if EVAR and a laparoscopic approach are used instead of open surgery, although the number of presented patients was quite small, and further accumulation of such cases is necessary to obtain more robust results.

In the present case, the patient had no symptoms related to his colon cancer. In contrast, the AAA of 5 cm in diameter was the main risk factor for rupture during the interval between cancer resection and AAA repair. Therefore, the patient and surgical team chose EVAR before sigmoidectomy. We consider that the laparoscopic approach for this patient further lessened the invasiveness of surgery and resulted in the uneventful postoperative recovery. Theoretically, the placement of artificial devices and resection of gastrointestinal tract (whether one-step or two-step) is associated with a significant risk of infection to the implanted devices, although the actual rate of infection, at least early after surgery, may not be as high as anticipated due to intensive use of antibiotics, cautious surgical maneuvers, or a preoperative bowel preparation. Furthermore, EVAR techniques might have some advantage because the device is free from direct contamination of microbes posed by opening of the aneurysm. Further experience with this new technique and accumulation of additional data will elucidate possible safety concerns and clarify the risk of long-term consequences.

In conclusion, a patient with concomitant asymptomatic CRC and AAA was treated by EVAR followed by laparoscopic sigmoidectomy without complications. The safety of this treatment should be confirmed in a larger number of cases.

Financial support: None

Conflict of interest: None

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