

# Complications after colorectal anastomosis in a patient with metastatic rectal cancer treated with systemic chemotherapy and bevacizumab

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**B**evacizumab (Avastin; Genentech, San Francisco, Calif.) is the first humanized monoclonal antibody targeting vascular endothelial growth factor receptor to be approved in combination with systemic chemotherapy for the treatment of advanced colorectal cancer.<sup>1</sup> Despite its survival advantage for patients with metastatic colorectal cancer, this drug can delay healing of the wound and anastomosis.<sup>2</sup>

Because the half-life of bevacizumab is 20 (11–50) days, which the drug monograph makes clear, bevacizumab should be stopped 28 days before a surgical procedure to minimize complications.<sup>2</sup> Scappaticci and colleagues<sup>2</sup> reported a 13% rate of wound complications in patients who underwent laparotomy less than 28 days after the last dose of bevacizumab, together with a rapidly decreasing risk of complications after that time.

For many reasons, patients with metastatic colorectal cancer are more likely than others to require emergency surgical procedures.<sup>3</sup> Because bevacizumab is used in a growing number of people with metastatic colorectal cancer, surgeons will have to operate increasingly frequently on this high-risk population.

The purpose of this case report is to highlight the need for special precautions when a laparotomy is mandatory in patients treated with bevacizumab.

## Case report

A healthy 59-year-old man, a nonsmoker, complained of diarrhea, hemochezia and anal pain. Evaluation revealed a nearly obstructing posterior rectal adenocarcinoma with multiple bilateral liver metastases.

An endoluminal stent was installed at the colorectal junction, and systemic chemotherapy with folinic acid, fluorouracil and irinotecan plus bevacizumab was started. The patient tolerated the treatment well, but after 7 cycles, the peripherally inserted central line catheter was removed because of infection. The chemotherapeutic agents were switched to capecitabine and irinotecan plus bevacizumab.

After 4 months of revised chemotherapy, partial intestinal occlusion developed owing to stent migration secondary to regression of the rectal tumour. Also, computed tomography (CT) showed that the liver metastases had almost completely disappeared.

After bowel preparation, the patient underwent a low anterior resection of the rectum with a primary colorectal anastomosis. Total mesorectal excision was performed, and the endoluminal stent was removed easily. Anastomosis was well vascularized, air tight and tension-free. An intra-arterial catheter was left in the

gastroduodenal artery for future delivery of hepatic chemotherapy.

On postoperative day 8, the patient complained of diffuse abdominal pain, which was secondary to anastomotic leakage (Fig. 1). Because of peritonitis, the patient underwent laparotomy, and a pinpoint posterior anastomotic leak was found. There was no evidence of anastomotic ischemia or tension, and no explanation was found for this complication. After lavage of the abdominal cavity, a protective loop ileostomy and pelvic drainage were performed. The patient recovered without complication.

## Discussion

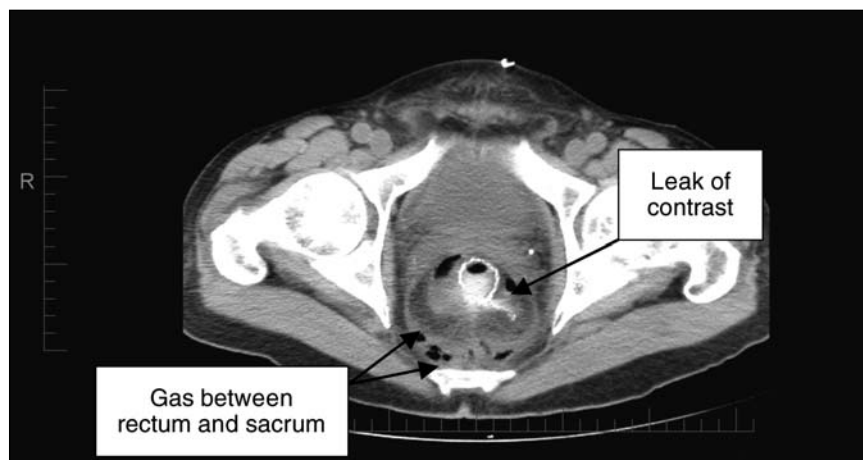
We believe that the anastomotic complication in our patient was secondary to the use of bevacizumab and that it is potentially preventable by a conservative surgical approach when emergency laparotomy is mandatory in patients with metastatic colorectal cancer. The use of bevacizumab is not an absolute contraindication to an emergency procedure, but it is certainly a contraindication for an elective one. If possible, surgery should always be delayed for at least 28 days after the last dose of bevacizumab.

Some old paradigms are shifted by modern surgery, but bowel preparation,

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**FIG. 1.** Pelvic computed tomography scan performed 8 days after anterior resection of the rectum for rectal cancer. A small leak can be seen, located behind the anastomosis, and abnormal gas and fluid are present in the space between the anastomosis and the sacrum.

diverting stomas and drains should probably be used liberally in this fragile population. Moreover, any procedure that is not required to improve the patient's condition in the short-term should not be undertaken. In this case, our enthusiastic installation of an intra-arterial catheter was probably a high-risk manoeuvre.

When a surgical operation cannot be delayed, the surgeon must pay particular attention to the patient's preoperative

preparation. At first, side effects of bevacizumab should be controlled: measurements of blood pressure, coagulation and platelet count should be normal. Thromboembolic events should be prevented, and antibiotic prophylaxis should generally be used.

Intraoperatively, the most conservative approach is probably the best: great care should be paid to hemostasis; resection should be the least extensive possible; and

primary anastomosis of large bowel (especially on the left side) should be protected with a stoma. For difficult abdominal wall closure after clean surgery, the use of sub-fascial resorbable Vicryl mesh should be considered to lower the risk of eventration.

Finally, surgeons should keep in mind that a postoperative complication in this population will probably delay the administration of chemotherapy, which is certainly not in the best interest of the patient.

**Competing interests:** None declared.

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