

Intestinal Metastases from Renal Cell Carcinoma:

A Rare Cause of Intestinal Obstruction and Bleeding

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Abstract

Intestinal metastases from renal cell carcinoma (RCC) are rare. Clinical presentation includes intestinal obstruction, bleeding, or perforation. Management should be aggressive, since the prognosis of RCC is unpredictable and metastasectomy can extend patient survival. We present a patient with intestinal obstruction and bleeding caused by intestinal metastases from renal cell carcinoma and summarize the surgical procedures employed. The relevant literature is briefly reviewed.

Key Words: Small bowel obstruction, gastrointestinal bleeding, renal cell carcinoma, intestinal metastases.

Introduction

RENAL CELL CARCINOMA (RCC) is a neoplasm with unpredictable sequelae (1). Although many patients with RCC will develop metastases during the course of their disease, bowel metastases are extremely rare and only a few cases have been reported in the literature (2–11) (Table). We present a patient with intestinal metastases from RCC who was admitted to the hospital with intestinal obstruction and intestinal bleeding. He was successfully treated by intestinal resection. The diagnostic and therapeutic problems are discussed and the relevant medical literature is briefly reviewed.

Case Report

A 65-year-old man was admitted to our hospital complaining of pain in the posterior thoracic wall and left scapula, as well as fatigue and dyspnea. He had a history of RCC in the left kidney and had undergone a left nephrectomy two years previously. The tumor had in-

vaded the renal fascia, and neoplastic emboli were observed within the lymph vessels.

Clinical evaluation revealed tenderness on palpation of the thoracic spine, the left scapula and the right femur. Routine laboratory findings were normal except for a hematocrit of 27%. Bone scan showed increased uptake in the thoracic spine, left scapula and right femur, findings consistent with metastatic disease. During his hospitalization the patient experienced vomiting, abdominal dilatation and melena. Emergency abdominal CT scan showed a marked dilatation of the small intestine and the presence of multiple masses in the lower abdomen adjacent to the loops of the small intestine, which probably caused the intestinal obstruction (Fig. 1). The patient underwent exploratory laparotomy. At surgery, a significant dilatation of the small intestine was observed; some intestinal loops were strangulated in the pelvis. Neoplastic masses were found in the omentum, within the small bowel mesentery and in the intestinal wall, protruding at some places within the intestinal lumen (Fig. 2). The omentum and the terminal part of the ileum (approximately 80 cm) were resected and an end-to-end anastomosis was created. Histology showed metastatic lesions in the omentum and in the wall of the small bowel (Fig. 3). Many of these lesions extended into the adjacent mesentery; two of these metastases were hemorrhagic and protruded within the intestinal lumen (Fig. 2).

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TABLE
Reports of Bowel Metastases of Renal Cell Carcinoma

Author	Ref#	Age (yrs)	Sex	Site of Bleeding	Site of Obstruction	Treatment	T
Hashimoto	11	57	M	Duodenum	—	PPPD	11 years
Ohmura	7	62	M	Duodenum	Duodenum	Embolization- Local resection	5 years
"	"	82	F	Colon (hepatic flexure)	—	Right hemicolectomy	13 years
Deguchi	8	58	M	Terminal ileum	—	Enterectomy	3 years
Heymann	3	40	F	Descending colon	Descending colon	Left hemicolectomy	3 years
"	"	56	F	Cecum	—	Right hemicolectomy	6 months
"	"	64	M	Duodenum	—	Complex procedure [@]	8 years
Van der Poel	2	54	M	Cecum	—	Iliocecal resection	2.5 years
Robertson	6	70	M	Duodenum (ampulla of Vater)	—	Whipple procedure	13 years
Mascarenhas	12	50	M	Stomach	—	Gastrectomy	4 years

[@] gastroenterostomy + vagotomy (first) and ligature of the pancreaticoduodenal artery, hemigastrectomy, duodenectomy, choledochojejunostomy, and pancreatic duct ligation

PPPD = pylorus preserving pancreaticoduodenectomy; T = duration of the disease to complication

(This table includes patients treated surgically.)



Fig. 1. Abdominal CT scan showing small-bowel dilatation and the presence of masses (arrow) in the intestinal wall.

Postoperative course was uneventful and the patient was discharged on the 12th postoperative day. Unfortunately, he died 9 months later from generalized metastatic disease.



Fig. 2. Operative specimen showing the presence of intraluminal hemorrhagic masses.

Discussion

In approximately one-third of patients with RCC, metastases are present when the primary diagnosis is made (12); moreover, 30–50% of patients with initially localized RCC will develop metastases during the course of their disease (13). Thus, the phenomenon of metastasis will complicate the natural course of RCC in more than 60% of patients (14). However,



Fig. 3. Histology showed the presence of metastatic cells in the intestinal wall (H & E \times 150).

bowel involvement in metastatic disease is uncommon, with only a few reported cases in the international literature (2–12). In a retrospective study of 101 patients with RCC who underwent surgical resection of metastatic lesions (152 procedures), the most common locations of metastases were the lung ($n=54$), bone ($n=42$), lymph nodes ($n=18$), cerebrum ($n=12$) and other less common sites, such as the spinal canal, thyroid, testis, etc. (2). The bowel was involved in only one patient. Interestingly, ileocecal resection was the third procedure performed on this patient during the course of the disease (2).

The most common clinical presentation of intestinal metastases of RCC is intestinal bleeding (resulting from the invasion of intestinal vessels by the neoplastic disease) (3) and/or intestinal obstruction (as occurred in our patient). Interestingly, it has been reported that gastrointestinal bleeding due to metastatic RCC may be due to metastasis in the pancreas invading the duodenum (4) and metastasis in the ampulla of Vater (5, 6). Intestinal obstruction may be due to the presence of mass(es) within the intestinal wall; however, intussusception of the metastatic lesion as a cause of intestinal obstruction has also been reported (7, 8). Small bowel perforation is a less common presentation of intestinal metastases from RCC (9); it is probably the result of necrosis of the metastatic lesion involving the intestinal wall.

Surgery is justified not only as a palliative procedure, but also because of the unpredictable prognosis for renal carcinoma with secondary disease. Treatment must be individually tailored. The tumor and the involved in-

testinal section should be removed. Morbidity and mortality for this procedure is at an acceptable level (2). Surgery is indicated not only as a life-saving procedure to manage metastasis-related complications, e.g., intestinal obstruction, gastrointestinal bleeding (as occurred in our patient), but also as an elective procedure which aims to resect the metastatic lesion. Surgery can offer a survival benefit for patients with metastatic RCC (2), and this benefit may not be related to the number of metastases (i.e., solitary vs. non-solitary lesions) (2). Regarding the prognosis, the shorter the interval between the primary tumor resection and the diagnosis of metastases, the shorter the disease-specific survival (2).

In selected cases, intestinal bleeding can be controlled by superselective embolization of mesenteric tumor supply arteries (10). In these cases, the physician should keep in mind that embolization for control of hemorrhage in the small bowel carries a significant risk of bowel infarction.

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