METASTATIC RENAL CELL CARCINOMA AS A RARE CAUSE OF DUODENAL OBSTRUCTION AND GASTROINTESTINAL BLEEDING

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Renal cell carcinoma (RCC) is the most common primary malignant kidney tumor in adults. The clear cell subtype is most common and has a potential to metastasize to almost any site. Small intestine metastases of RCC are very rare. We report a case of a 58-year-old male patient with duodenal obstruction and gastrointestinal bleeding induced by a metastasis from clear-cell RCC (ccRCC). Although rare, small intestine metastasis from RCC in a patient with medical history of RCC should be considered as a possible cause of acute abdomen. Upper gastrointestinal endoscopy with deep duodenoscopy and tissue examination should be performed whenever clinically feasible.

Key words: carcinoma, renal cell; neoplasm metastasis; duodenal obstruction; gastrointestinal bleeding

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INTRODUCTION

Renal cell carcinoma (RCC) accounts for approximately 2%-3% of all malignancies, with a worldwide increasing incidence of about 2% over the last two decades (1). Although there are multiple histologic subtypes of RCC, there are three main RCC types: clear cell (ccRCC), papillary (pRCC) and chromophobe (chRCC). Moreover, 90% of all RCC cases are ccRCC (1). ccRCC is well known for its propensity to metastasize to unusual sites even 17.5 years from initial surgery (2). The most common sites of metastasis are lungs (75%), bones (20%), lymph nodes (11%), liver (18%), and brain (8%) (3). Occurrences of metastatic disease from RCC to the small intestine are quite uncommon, with just a few cases reported in the literature (4).

We present a case of gastrointestinal bleeding and small intestine obstruction caused by a duodenal RCC metastasis in a 58-year-old man with a history of ccRCC, treated seven years earlier by left radical nephrectomy.

CASE REPORT

A 58-year-old Caucasian male was hospitalized due to nausea and frequent vomiting. Immediately before admission, he had hematemesis. He did not report black tarry stools. Seven years before, he had undergone radical left nephrectomy with concurrent ipsilateral adrenalectomy for a ccRCC. After the surgery, the patient was not treated with any additional therapy, since at the time, this pathology was considered to be of low risk (T2N0Mx). Four years before, he had presented with retroperitoneal lymph node metastases, for which he had undergone retroperitoneal lymph node dissection. Seven months before admission, the patient was diagnosed with a metastasis in the right adrenal gland and contralateral radical adrenalectomy was performed. At admission, the patient was afebrile, pale, heart rate 120 bpm, blood pressure 14/9 kPa and respiratory rate 12 breaths/minute. Abdominal examination revealed a non-distended soft abdomen. Abdominal sounds were normal. Digital rectal examination was also normal. Laboratory investigations at admissi-

on were significant for microcytic hypochromic anemia with hemoglobin 10 g/dL, hematocrit 32%, MCV 70.9 fL and MCH 22.2 pg/. White cell count (12.4x109 /L) and C-reactive protein (55 mg/L) were elevated. Serum potassium was 3.6 mEq/L. The rest of his blood investigations were within the normal limits. By introducing nasogastric tube, two liters of black liquid was extracted.

Abdominal x-ray showed normal air-fluid levels without evidence of bowel obstruction or perforation. The patient underwent initial upper gastrointestinal endoscopy, which showed a mass in the third portion of the duodenum causing severe obstruction (Fig. 1). There were no signs of active bleeding and biopsy of the lesion was obtained to reveal a metastatic clear-cell renal cell carcinoma (mccRCC) (Fig. 2).

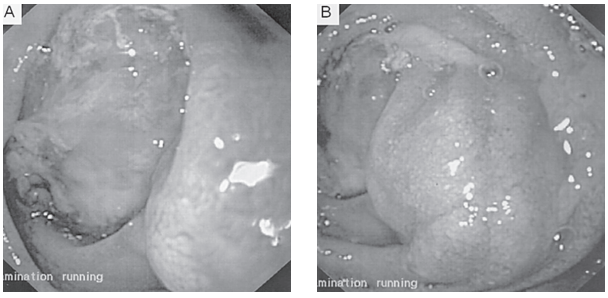

Fig. 1. (A, B) *Upper gastrointestinal endoscopy (a mass of the third portion of the duodenum with total obstruction).*

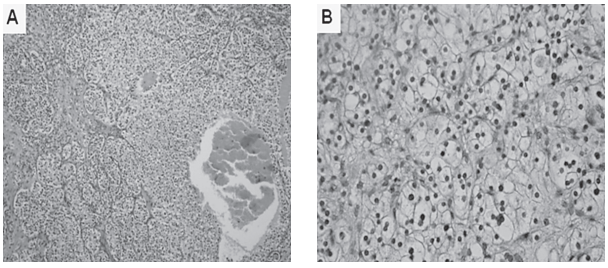

Fig. 2. Histology: (A) *renal clear cell adenocarcinoma (hematoxylin and eosin (H&E), 100x); (B) renal clear cell adenocarcinoma (hematoxylin and eosin (H&E), 400x).*

Abdominal computed tomography showed a large expansive mass lesion in the anatomical position of the right kidney, with a diameter of 11.8 cm. The lesion was pressing upon the liver and dislocating the right kidney caudally. Another solid expansive mass with craniocaudal diameter of 7.6 cm and transverse diameter of 4.1 cm intruded the duodenum from the left nephrectomy bed.

After case assessment, the patient underwent surgery. Gastroenteroanastomosis and partial resection of the tumor were performed. The patient was hospitalized on several more occasions due to gastrointestinal bleeding from the metastatic tumor. Bleedings were stopped endoscopically by thermocoagulation and hemoclips. Posthemorrhagic anemia was treated with 20 red blood cell units. He died eleven years after the initial diagnosis of RCC and four years after the diagnosis of duodenal metastasis.

DISCUSSION

Renal cell carcinoma accounts for the majority of adult renal malignancies. RCC can metastasize *via* lymphatic or hematogenous route, and by peritoneal dissemination or direct invasion to the adjacent anatomic structures (5). The mechanism of adjacent invasion was responsible for metastases in the case reported. Due to different sites to which RCC can metastasize, clinical examination can be difficult, which can prolong the diagnosis and treatment.

Synchronous metastatic disease can be found in approximately one-third of patients, whereas another 20% experience recurrence or develop metastatic RCC after nephrectomy (6, 7). RCC metastasizes to the gastrointestinal tract in 4% of cases and accounts for 7.1% of all metastatic tumors to the small intestine (8, 9). Other common types of primary tumors that can metastasize to the duodenum are lung cancer, malignant melanoma, and breast cancer (10). Isolated case reports exist of obstruction due to metastases from the ovary, prostate, colon, cecum, synovial sarcoma, germ cell tumor of the testis, and other tumors of the genital tract (10).

Duodenal metastasis from RCC may present with abdominal pain, nausea, weight loss, jaundice, anemia, gastrointestinal bleeding, duodenal obstruction, perforation and duodenal intussusceptions (11). The most common clinical presentation is gastrointestinal bleeding, resulting from the invasion of intestinal vessels by the neoplastic disease and/or intestinal obstruction (12, 13).

The 5-year cancer specific survival rate of ccRCC was 91% for TNM stage I, decreasing to 32% for TNM stage IV (14).

Our patient developed metastatic RCC in retroperitoneal lymph nodes four years after nephrectomy. Seven years after nephrectomy, a metastatic lesion was detected in the duodenum intruded from the left nephrectomy bed. In addition to gastrointestinal bleeding, our patient had nausea, anemia, and duodenal obstruction. This matches a subset of symptoms of duodenal metastasis from RCC. The patient died from disseminated malignant disease eleven years after the initial

diagnosis of RCC and four years after the diagnosis of duodenal metastasis.

In conclusion, metastatic RCC should be considered on differential diagnosis in patients presenting with small intestine obstruction and gastrointestinal bleeding who have a previous history of RCC resection. Patients need to be evaluated with radiologic and endoscopic procedure, especially with deep duodenoscopy.

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SAŽETAK

METASTAZA ADENOKARCINOMA BUBREGA KAO RIJEDAK UZROK DUDENALNE OPSTRUKCIJE I GASTOINTESTINALNOG KRVARENJA

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Adenokarcinom bubrega je najčešći zloćudni tumor bubrega u odrasloj dobi. Karcinom bubrega svijetlih stanica je najčešći i ima potencijal metastaziranja gotovo na bilo koje mjesto. Metastaze u tanko crijevo su rijetke. Prikazali smo slučaj 58-godišnjeg bolesnika s duodenalnom opstrukcijom i gastrointestinalnim krvarenjem uzrokovanim metastazama adenokarcinoma bubrega svijetlih stanica. Iako su rijetke, metastaze adenokarcinoma bubrega u tanko crijevo u bolesnika s ranijom anamnezom tumora bubrega trebaju se razmotriti kao uzrok mogućeg akutnog abdomena. Gornju endoskopiju s dubokom duodenoskopijom i biopsijom tkiva treba učiniti kadgod je moguće.

Ključne riječi: **adenokarcinom bubrega, tumorske metastaze, opstrukcija duodenuma, krvarenje iz probavnog sustava**