

Considerations upon a case of synchronous primary malignancies: adenocarcinoma of the sigmoid and clear cell carcinoma of the right kidney

A. KOZOKIC¹⁾, V. ŞURLIN²⁾, B. PETROVIC¹⁾, V. PETROVIC¹⁾,
 G. PRVANOVIC¹⁾, I. BERARU²⁾, SIMONA CHEREGI²⁾

¹⁾Health Center Kladovo, Serbia

²⁾Research Center for Microscopic Morphology and Immunology,
 University of Medicine and Pharmacy of Craiova

Abstract

Synchronous primary colon and renal cancer is a rare but real clinical entity reported with variable incidence. An 81-year-old man admitted for abdominal pain and melena is diagnosed with right colic tumor by colonoscopy and with simultaneous right kidney tumor by CT-scan. The patient is adequately prepared and scheduled for laparotomy. Both tumors are resected in the same surgical session with curative intent – right hemicolectomy and right radical nephrectomy. The patient recovered well and was discharged after 10 postoperative days. The microscopic examination indicated an adenocarcinoma in the sigmoid and a clear cell renal carcinoma in the kidney. Immunohistochemical staining did not find any compatibility between those tumors. The patient started chemotherapy and is under appropriate oncologic follow-up. Modern investigations allow detection of simultaneous malignancies making possible the planned simultaneous resection of both. Histopathologic examination will proof the diagnosis of primary different malignancies.

Keywords: colon adenocarcinoma, clear cell renal carcinoma, synchronous primary malignancies.

Introduction

Synchronous primary malignancies represent two malignant tumors in the same patient with completely different histological aspect. They could involve different organs or systems and their discovery must be simultaneous or in a very little interval from one to another. Synchronous renal and colon cancers are already reported in the literature. The aim of this study is to report such a case and to review the literature.

Materials, Methods and Results

An 81-year-old man was admitted for melena, intermittent abdominal pain and loss of appetite. General physical examination revealed a palpable tumor in the left iliac fossa, with irregular surface, fading contours and painful at palpation. No other physical remark was made. The patient did not have any particular antecedents. Laboratory data – moderate anemia, normal values for white blood cells count, for blood urea, glycemia and urine analysis. Colonoscopy revealed a 5 mm polyp in the rectum and a necrotic, stenosing tumor in the sigmoid colon. Abdominal CT-scan revealed gallbladder lithiasis and a right renal tumor, heterogenous, with hypodense areas inside. Pulmonary X-ray was normal. After correction of anemia the patient was scheduled for surgery with the intent of resecting both tumors as no other localization of the disease was found. Both tumors were successfully

ablated performing a left colectomy and a right radical nephrectomy (Figures 1 and 2).



Figure 1 – Surgical specimen: sigmoid with necrotic tumor.

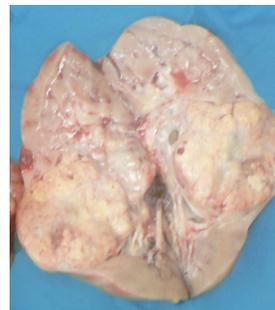


Figure 2 – Surgical specimen: right kidney with tumor at the upper pole.

The patient recovered well after surgery and was discharged in the 10th postoperative day. The histological examination revealed that the renal tumor was a clear cell renal carcinoma, G₂ (Figure 3). The sigmoid tumor was an adenocarcinoma (Figures 4 and 5) with invasion of the muscular layer (Figures 6 and 7), without any metastases in the harvested lymph nodes.

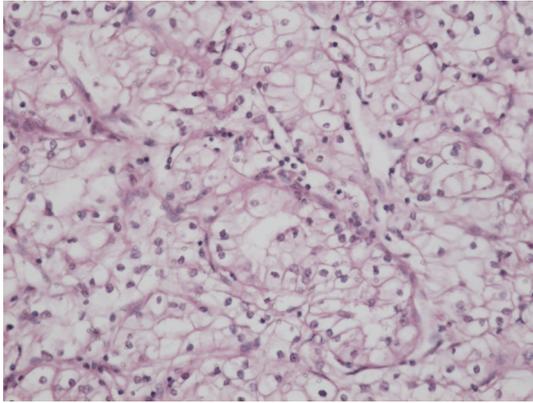


Figure 3 – Renal carcinoma with clear cells (HE stain, ×200).

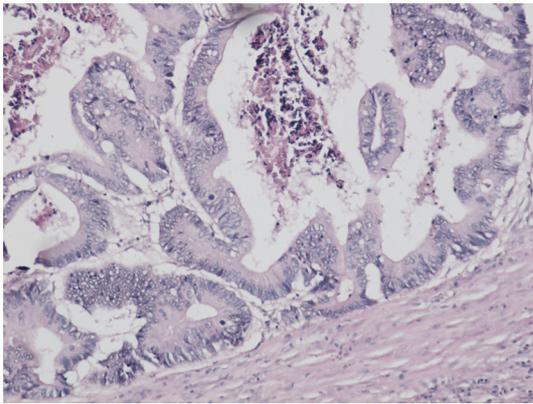


Figure 4 – Colic adenocarcinoma in the mucosal and submucosal layers (HE stain, ×100).

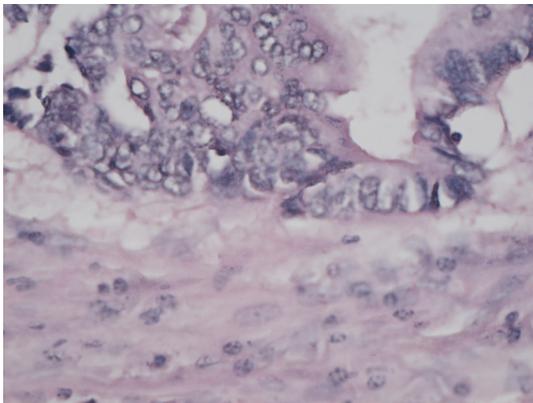


Figure 5 – Colic adenocarcinoma in the mucosal and submucosal layers: detail (HE stain, ×400).

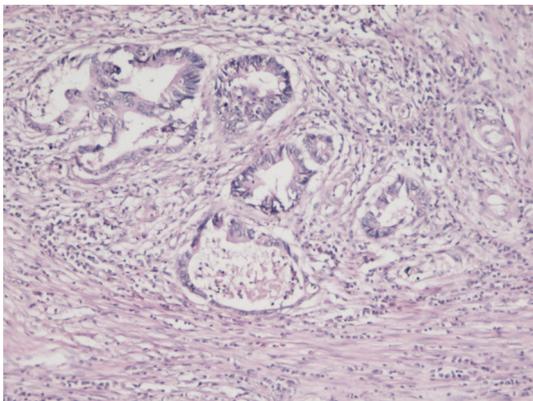


Figure 6 – Colon adenocarcinoma with invasion in the muscular layer (HE stain, ×100).

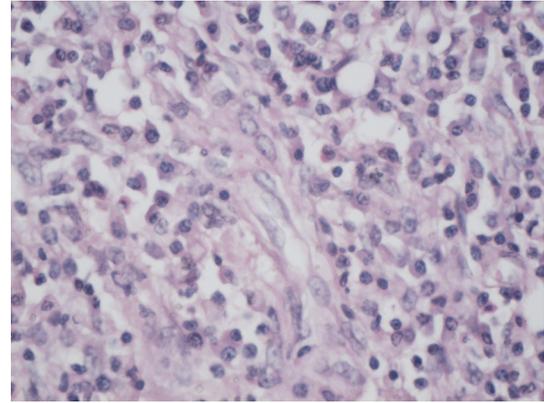


Figure 7 – Colon adenocarcinoma with invasion in the muscular layer: detail (HE stain, ×400).

Immunohistochemical staining did not reveal any similarity between those tumors. The patient is in adequate follow-up from the oncology department, currently under chemotherapy.

Discussion

The incidence of the synchronous primary malignancies of kidney and colon is difficult to assess. The term “synchronous” implies simultaneity, but Beisland C *et al.* [1] extend the time interval to the discovery of the second malignancy up to 90 days.

In autopsy studies, colon cancer appears in cases of renal cell carcinoma with a reported incidence of 4% [2] or 9% [3]. In the latter, the incidence of synchronous colon and renal tumors is 0.1%. Synchronous asymptomatic renal carcinoma is found in 0.03–0.5% of patients with colorectal carcinoma [4]. O’Boyle KP and Kemeny N [5] reported six cases of synchronous colon and renal carcinomas among an estimated 1200 patients with colon cancer during a six-year period representing an incidence of 0.5%. In the Halak M *et al.* [6] series there are five cases of synchronous tumors in a series of 103 consecutive colon carcinomas with an incidence of 4.85%, the highest reported until today.

The etiology of multiple primary malignant tumors is complex including genetic and environmental risk factors common to both tumors. Risk factors may act individually or in combination and are represented, as in many other malignancies, by tobacco, pollution, ultraviolet light, therapeutic chemotherapy and radiotherapy, endocrine factors etc. Regarding the genetic factors, synchronous colon and renal primary tumors were described in Lynch II syndrome. This consists in association of hereditary non-polyposis colorectal cancer with malignant tumors of other viscera, among which is the kidney [7]. In our case, familial antecedents of the patient excluded the hypothesis of a Lynch II syndrome.

The discovery of the renal cancer was purely incidental during the CT-scan performed for the staging of the colic tumor. As in other series of synchronous colon and renal cancers, the RCC was symptomatic, its finding was incidental [6]. Routine performance of ultrasound and CT-scan for the staging of the colon cancer disease actually allows such detection with higher incidence.

As in most of the cases reported in the literature, there was simultaneous resection of both malignancies in one surgical session. Both were radical surgical gestures. The usual approach is by open laparotomy, more comfortable to the surgeons involved. However, some authors proved that simultaneous laparoscopic resection of both malignancies is feasible with very low morbidity and zero mortality. We found only three cases of synchronous laparoscopic resection of colorectal and renal cell carcinomas in the literature. A hand-assisted laparoscopic approach was used in the first case (for radical nephrectomy) [8] and a total laparoscopic approach in the second [9]. In the third case, the left colic cancer was obstructive. The obstruction was solved initially by endoscopic insertion of a self-expanding metallic stent followed by the laparoscopic resection of both tumors [10].

Sato S *et al.* [11] discussed the prognosis of synchronous renal and colon cancers. They reported that association of other primary malignancies at the time of nephrectomy for renal cell carcinoma was an independent prognostic factor for overall survival after the operation. He found that patients with localized renal cell carcinoma (T_{1,2}) and coexistent other cancer had poorer overall survival than those with localized renal cell carcinoma alone.

Clear cell renal carcinoma is the most common subtype of the renal carcinoma [12]. Its mean survival varies with the age of presentation and the stage of the tumor.

Synchronous renal metastasis of a colon cancer is possibly isolated but is generally observed in cases of advanced disease [13]. Colon metastasis of a renal cell carcinoma is also possible but is a very rare event [14]. However, the clinician should be aware of the possibility of synchronous renal and colon cancer in his preoperative evaluation of the patient.

☒ Conclusions

Synchronous renal cell carcinoma and colon adenocarcinoma is a recognized clinical entity, with low incidence. The discovery of the renal tumor is mostly incidental during the staging of the colon cancer. The treatment is usually a single stage surgical resection generally by laparotomy and occasionally by laparoscopy. The histopathologic report is of outmost importance because it proves the difference between those tumors. Genetic studies are to be performed in future

cases to elucidate if this phenomenon is due to common risk factors or genetic causes.

References

- [1] BEISLAND C, TALLERAAS O, BAKKE A, NORSTEIN J, *Multiple primary malignancies in patients with renal cell carcinoma: a national population-based cohort study*, BJU Int, 2006, 97(4):698–702.
- [2] HAJDU SI, THOMAS AG, *Renal cell carcinoma at autopsy*, J Urol, 1967, 97(6):978–982.
- [3] HAJDU SI, HAJDU EO, *Multiple primary malignant tumors*, J Am Geriatr Soc, 1968, 16(1):16–26.
- [4] Capra F, Scintu F, Zorcolo L, Marongiu L, Casula G, *Synchronous colorectal and renal carcinomas. Is it a definite clinical entity?*, Chir Ital, 2003, 55(6):903–906.
- [5] O'BOYLE KP, KEMENY N, *Synchronous colon and renal cancers: six cases of a clinical entity*, Am J Med, 1989, 87(6):691–693.
- [6] HALAK M, HAZZAN D, KOVACS Z, SHILONI E, *Synchronous colorectal and renal carcinomas: a noteworthy clinical entity. Report of five cases*, Dis Colon Rectum, 2000, 43(9):1314–1315.
- [7] LYNCH HT, LEMON SJ, KARR B, FRANKLIN B, LYNCH JF, WATSON P, TINLEY S, LERMAN C, CARTER C, *Etiology, natural history, management and molecular genetics of hereditary nonpolyposis colorectal cancer (Lynch syndromes): genetic counseling implications*, Cancer Epidemiol Biomarkers Prev, 1997, 6(12):987–991.
- [8] KIM SH, PARK JY, JOH YG, HOE HE, *Simultaneous laparoscopic radical nephrectomy and laparoscopic sigmoidectomy for renal cell carcinoma and colonic adenocarcinoma*, J Laparoendosc Adv Surg Tech A, 2004, 14(3):179–181.
- [9] NAPOLITANO C, SANTORO GA, VALVANO L, SALVATI V, MARTORANO M, *Simultaneous totally laparoscopic radical nephrectomy and laparoscopic left hemicolectomy for synchronous renal and sigmoid colon carcinoma: report of a case*, Int J Colorectal Dis, 2006, 21(1):92–93.
- [10] NG SS, YIU RY, LI JC, CHAN CK, NG CF, LAU JY, *Endo-laparoscopic left hemicolectomy and synchronous laparoscopic radical nephrectomy for obstructive carcinoma of the descending colon and renal cell carcinoma*, J Laparoendosc Adv Surg Tech A, 2006, 16(3):297–300.
- [11] SATO S, SHINOHARA N, SUZUKI S, HARABAYASHI T, KOYANAGI T, *Multiple primary malignancies in Japanese patients with renal cell carcinoma*, Int J Urol, 2004, 11(5):269–275.
- [12] CZAPLICKI M, BORKOWSKI A, WESOLOWSKI S, KUZAKA B, WALECKI S, MILEWSKI JB, *Late results of surgical treatment of renal clear-cell carcinoma*, Int Urol Nephrol, 1986, 18(1):37–43.
- [13] AMOROSO A, DEL PORTO F, GARZIA P, ILARDI M, CLEMENZIA C, D'AMATO A, MONTESANI C, ROSSI FANELLI F, *The infrequent association of synchronous renal and colonic malignancies*, Eur Rev Med Pharmacol Sci, 1999, 3(3):111–114.
- [14] AKSU G, FAYDA M, SAKAR B, KAPRAN Y, *Colon cancer with isolated metastasis to the kidney at the time of initial diagnosis*, Int J Gastrointest Cancer, 2003, 34(2–3):73–77.

Corresponding author

Valeriu Şurlin, MD, PhD, 1st Clinic of Surgery, University of Medicine and Pharmacy of Craiova, Emergency County Hospital of Craiova, 35 Petre Carp Street, 200391, Craiova, Dolj, Romania; Phone +40740–182 346, e-mail: vsurlin@gmail.com

Received: November 15th, 2010

Accepted: December 20th, 2010