Videolaparoscopic management of a case of synchronous renal and adrenal primary tumor


ABSTRACT

Introduction: Synchronous renal and adrenal tumors are rare. In the context of renal cell carcinoma, adrenal masses are often suspected of metastasis, but other adrenal lesions with different diagnostic, therapeutic, and prognostic implications can also coexist with renal cell carcinoma.

Objective: To present the case of a patient with diagnosis of synchronous ipsilateral renal and adrenal tumor managed with videolaparoscopic radical nephrectomy.

Case presentation: Patient is a 50-year-old man that presented with symptoms of hypertensive crisis and acute coronary syndrome for which he was admitted to intensive care unit where he was managed with good response. Initial studies revealed treatment-refractory hypokalemia of 2.4 mEq/mL and serum aldosterone elevated to 52 ng/dL, meriting abdominal computed tomography scan that showed two tumors dependent on the right kidney and adrenal gland measuring 3 cm and 4 cm, respectively. Extension studies were negative for metastasis and the decision was made to perform laparoscopic right radical nephrectomy.

Discussion: There have been few published reports of synchronous ipsilateral tumors of the kidney and adrenal gland. The majority of reported cases involve renal cell

RESUMEN

Introducción: Los tumores sincrónicos renales y suprarrenales son poco comunes. A pesar de que las masas suprarrenales en el contexto de carcinoma de células renales (CCR) son a menudo sospechosas de metástasis, otras lesiones suprarrenales con diferentes implicaciones diagnósticas, terapéuticas y pronósticas pueden coexistir con el CCR.

Objetivo: Presentar el caso de un paciente que se manejó por medio de nefrectomía radical bajo técnica video-laparoscópica, con diagnóstico de tumor renal y suprarrenal ipsilateral sincrónico.

Presentación del caso: Paciente masculino de 50 años de edad que presentó cuadro de crisis hipertensiva y síndrome coronario agudo, por lo que ingresó y fue manejado en terapia intensiva con buena respuesta. Como parte del protocolo de estudios se encontró inicialmente hipokalemia de 2.4 mEq/mL, refractaria al tratamiento así como elevación de la aldosterona sérica a 52 ng/dL, por lo que se le realizó TC abdominal en la que se observó la presencia de dos tumoralaciones dependientes de riñón y glándula suprarrenal derechas de 3 cm y 4 cm respectivamente. Los estudios de extensión fueron negativos a metástasis por lo que se decidió realizar nefrectomía radical derecha por vía laparoscópica.

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carcinoma and breast cancer metastatic tumors. There is a clear relation between renal cell carcinoma and the presence of other synchronous or metachronous malignant neoplasms, the most frequent of which are breast tumors, pancreatic tumors, and colon cancer. However, the association of renal cell carcinoma with adrenal cortex carcinoma has not been well established due to its low incidence.

**Keywords:** Renal cell carcinoma, adrenal carcinoma, synchronous primary tumors, laparoscopic management, Mexico.

### INTRODUCTION

Even though metastasis or direct extension of clear cell renal carcinoma towards the ipsilateral adrenal gland is fairly common, synchronous primary kidney tumors and adrenal tumors are extremely rare. The case of a patient diagnosed with renal cell carcinoma and carcinoma of the ipsilateral adrenal cortex is presented here. There is a documented association between renal cell carcinoma and colorectal cancer. Various types of tumors present significantly more often in patients with a history of renal cell carcinoma in comparison with predicted incidence based on Surveillance, Epidemiology and End Results (SEER) data.\(^1,2\) Of these tumors, colorectal cancer is the third most frequent. In patients with a history of colorectal cancer and renal cell carcinoma there appears to be a predilection for developing new primary tumors.\(^2,3\) In patients with a history of colorectal cancer as well as renal cell carcinoma (as synchronous or metachronic diagnoses), 35\% of cases were found to present with additional malignant neoplasia, the most common of which were primary breast lymphoma, carcinoma tumors, and pancreatic tumors.\(^1,2,3\) It has been reported in the literature that laparoscopic management of this type of neoplasia is an adequate treatment option.\(^4,8\)

### OBJECTIVE

To present the case of a patient initially diagnosed with primary right synchronous renal tumor and ipsilateral adrenal gland tumor that was managed with radical nephrectomy using videolaparoscopic technique and with final histopathological report of clear cell carcinoma with sarcomatoid differentiation and adrenal cortex carcinoma.

### CASE PRESENTATION

Patient is a 50-year-old man with past medical history of type 2 diabetes mellitus of long-term progression managed with oral hypoglycemic drugs and of systemic high blood pressure diagnosed 2 years prior and managed with captopril. Present illness began with sudden onset of pulsating holocranial headache accompanied with asthenia, adynamia, and vomiting of gastric content on multiple occasions for which he was taken to the emergency room. He was admitted with symptoms of hypertensive crisis and acute coronary syndrome with BP 160/110. Patient was managed in the intensive care unit with vasodilators and responded adequately to treatment. Laboratory work-up reported hypokalemia of 2.4 mEq/mL, serum aldosterone of 53 ng/dL (reference <28 ng/dL), aldosterone in urine of 36.1 mg/24 hr, epinephrine <2 mg/24 hr, norepinephrine 67 mg/24 hr, dopamine 176 mg/24 hr, and vanillylmandelic acid 6.2 mg/24 hr. Abdominopelvic computerized tomography (CT) scan with contrast medium showed tumor of 4 cm at its largest point that was dependent on right adrenal gland and kidney tumor of >3 cm in the ipsilateral kidney unit, meriting urological interconsultation (Image 1).

Renal scintigram with DTPA was carried out to determine kidney function with glomerular filtration rate (GFR). Right kidney GFR was 28 mL/min and left kidney GFR was 68 mL/min. Bone scintigram and chest film were negative for metastasis. Elective laparoscopic
right radical nephrectomy was programmed and carried out. Complication with vascular control of renal hilum made it necessary to convert to hand-assisted technique in order to be controlled. Surgery duration was approximately 160 minutes. There was adequate postoperative progression and patient was released on day 3 after surgery. Histopathological result was renal cell carcinoma with sarcomatoid differentiation. Tumor measured 3 x 4 cm and was confined to the renal capsule. Surgical margins were negative. Adrenal cortex carcinoma tumor measuring 4 x 3 cm with capsular and vascular invasion was also reported (Image 2).

**DISCUSSION**

There is currently very little information in the medical literature on synchronous primary kidney and adrenal tumors. 1-3 The most extensive report is a retrospective review of 550 radical nephrectomies for treating renal cell carcinoma in which adrenalectomy was carried out. In 80 of those cases there was kidney tumor and ipsilateral adrenal tumor coexistence. Of those cases 56% were reported as benign lesions (hyperplasia and adenomas) and 43% presented with metastatic renal cell carcinoma tumors. 1,3 Adrenal gland lesion was reported as malignant pheochromocytoma in only one patient. 3

The presence of renal cell carcinoma with sarcomatoid differentiation is found in 1-6% of all cases of renal carcinoma and has a very low survival rate of only 10% at one year from diagnosis. 1,3 Likewise, adrenal cortex carcinoma has a survival rate of only 36% at 5 years. 2,3

The present case is important because it is a rare case of synchronous kidney tumor and adrenal tumor that was managed with laparoscopic surgery. It was carried out with the usual technique. Patient was placed in lumbotomy position and pneumoperitoneum was created with Veress needle. Four ports were placed; two were 12 mm (one at the umbilical level for lens placement) and two were 5 mm. There was difficulty in controlling the renal hilum with extracorporeal sutures and so it was decided to convert to hand-assisted technique for vascular control and later extraction of surgical specimen through said wound, and finally placement of Jackson-Pratt closed drain. Approximate total blood loss was 450 cc. There were no other intraoperative complications. Patient tolerated oral food in-
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CONCLUSIONS

The clinical case of a patient that presented with synchronous primary kidney and adrenal gland carcinoma managed with laparoscopic radical nephrectomy is presented here. Due to the infrequency of these tumors as synchronous tumors and the low survival rates reported for both types of carcinoma, the presence of this disease and its oncological follow-up is a challenge. Both laparoscopic surgical approach and conversion to hand-assisted technique for definitive vascular control were employed in this case.

BIBLIOGRAPHY