Managing of a complex case of synchronous bilateral kidney tumors associated with Hodgkin lymphoma


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Abstract

Introduction: Renal cell carcinoma is one of the most common tumors in adults, accounting for approximately 3% of all cancers. Association of renal tumors and other neoplasia is a rare event. Surgical treatment strategy of synchronous bilateral renal tumors and the value of lymph node dissection are subjects of debate.

Objective: To present the management of a complex case of synchronous bilateral kidney tumors associated with Hodgkin lymphoma.

Materials and method: We present the case of a 64 years-old woman admitted for abdominal pain, loss of appetite and weight. Abdominal CT showed a massive left kidney tumor with lateroortic, interaortic caval and laterocaval lymph node enlargement and extension in the subhepatic inferior vena cava, and a 4 cm upper pole tumor of the right kidney. No distant metastases were revealed on the thoracic CT. The surgical strategy involved a left radical nephrectomy, caval thrombectomy and extensive lymph node dissection as the first step. We made an anterior transperitoneal triradiate incision with bilateral coloparietal dissection. First we went on the right side in order to approach the thrombosed inferior vena cava. The left renal artery is ligated near the aorta. We applied a tourniquet on the suprarenal caval vein just above the tumor thrombus, on the infrarenal cava vein and on the right renal vein. Next we incised the inferior vena cava at the ostium of the left renal vein with the extraction of the thrombus and caval wall suture. Then we moved to the left side and standard perifascial nephrectomy and en bloc thrombectomy was performed. After that we performed an extensive periaortocaval lymph node dissection. Considering that we had no restant tumor tissue, and there was a wide exposure of the right kidney, we decided to perform a right superior polar nephrectomy in the same intervention, with electrothermal bipolar sealing system and a fat flap compression of the tumor bed.

Results: Postoperative creatinine rose to 2.5 mg/dl and then slowly decreased to a normal value. Histopathological examination sowed bilateral clear cell carcinoma Fuhrman II and III and Hodgkin lymphoma in the LND specimen. Consequently specific treatment for Hodgkin lymphoma (chemotherapy with an EVA protocol - etoposide, vinblastine and doxorubicin) was initiated. Favorable response and oncological outcome were registered at 1 year follow-up.

Conclusions: Although synchronous bilateral renal tumors surgical strategy usually involves two consecutive operations, first addressed to the largest tumor, a concomitant operation is possible in selected cases. LND in RCC has a double role, diagnostic and therapeutic and must be performed. Proper treatment of two simultaneous neoplasia could provide healing or increase the patients’ survival.

Key words: synchronous bilateral kidney tumors, Hodgkin lymphoma, LND, RCC
Introduction and objectives
Renal tumors are one of the most common tumors in adults, accounting for approximately 3% of all cases. Renal cell carcinoma, representing 85–90%, is the most aggressive urogenital cancer with a rate of mortality of 30–40% (1, 11, 12, 13). Renal carcinoma is more frequent in males with a ratio of 3:2 reaching a peak in the sixth and seventh decades of life (1, 11). Synchronous bilateral renal cell carcinoma occurs in 1% to 5% and can be sporadic or hereditary, associated with different chromosomal anomalies (von Hippel-Lindau, hereditary papillary renal cell carcinoma, hereditary clear renal cell carcinoma) (1, 10, 11). Association between renal tumors and another neoplasia is rare. Therapeutic strategy in case of synchronous bilateral kidney tumors and the role of lymphadenectomy is an important subject of debate.

The objective of this paper is to present the management of a complex case of synchronous bilateral kidney tumors associated with Hodgkin lymphoma.

Materials and method
We present the case of a 64 years old woman, obese, hypertensive, and an active smoker, admitted for abdominal pain, diminished appetite and weight loss. Abdominal CT scan showed a massive left kidney tumor with lateroaortic, interaortocaval and laterocaval lymph node enlargement and a tumor thrombus extended in the subhepatic inferior vena cava, and a 4 cm upper pole tumor of the right kidney. No distant metastases were revealed on the thoracic CT scan.

The surgical strategy involved a left radical nephrectomy, caval thrombectomy and extensive lymph node dissection as the first step. We made an anterior transperitoneal triradiate incision with bilateral coloparietal dissection. First we went on the right side in order to reach the thrombosed inferior vena cava. The left renal artery was ligated near the aorta. We applied a tourniquet on the suprarenal vena cava, just above the tumor thrombus, on the infrarenal vena cava and on the right renal vein. Next we incised the inferior vena cava at the ostium of the left renal vein with the extraction of the thrombus and caval wall suture. Then we moved to the left side and standard perifascial nephrectomy with en bloc thrombectomy was performed. Intraoperative we found a massive periaortocaval adenopathy so we performed an extensive periaortocaval lymph node dissection, from the diaphragm to the aortic bifurcation.

Considering that we had no restant tumor tissue, and there was a wide exposure of the right kidney, we decided to perform a right superior polar nephrectomy in the same intervention. We opted for “Ligasure” sealing system haemostasis of the main peritumoral vessels, we sutured the identified urinary tract lesions, and used a wide base perirenal fat flap on the tumor bed with approximation sutures of the superficial parenchyma and renal capsule.
**Results**

Postoperative creatinine rose to 2.5 mg/dl and then slowly decreased to a normal value. Histopathological examination sowed bilateral clear cell carcinoma Fuhrman II and III and Hodgkin lymphoma in the LND specimen. Consequently specific treatment for Hodgkin lymphoma (chemotherapy with an EVA protocol - etoposide, vinblastine and doxorubicin) was initiated. Favorable response and oncological outcome were registered at 1 year follow-up.

**Discussions**

RCC is associated with a multitude of risk factors like smoking (2 to 3 times higher incidence), obesity, arterial hypertension, professional exposure to aromatic hydrocarbons, heavy metals and asbestos. There is also a high risk of developing cancer for patients with chronic renal failure and chronic dialysis, among those with von Hipple Lindau disease or another form of familial renal carcinoma, tuberose sclerosis or autosomal dominant polycystic kidney disease. (5, 9, 11, 12, 13)

Recent studies of the human genome revealed multiple genetic modifications involved in oncogenesis. Part of them can be detected through cytogenetic analysis – numeric chromosomal modifications, translocations, major deletions and gene amplifications. Other subtle changes require additional techniques to study molecular genetics – in case of a single pair of nucleotides being replaced, minor deletions or some nucleotide insertions. Genetic instability is a common characteristic of cancer and it can be observed at a chromosomal level and at a nucleotidic level. Chromosome instability consists of numeric modifications, loss or gain of a part or the entire chromosome. This is due to cellular processes dysfunctions when it comes to chromosome segregation during mitosis. Modern cytogenetic research identified a series of genes involved in cancer genesis, known as oncogens, and suppressor genes whose malfunctioning leads also to tumor genesis. (12)

Most renal tumors are solitary, but can manifest bilaterally in 1 - 5% of cases and multifocally in 11% of cases. Invasion of renal vein is observed in 30% of cases. Association between renal tumor and another neoplasia is rare, but when that occurs, lymphoma, melanoma, bronchopulmonary carcinoma and colon cancer are the most frequent.

Facing this type of case with bilateral synchronous renal tumors, the urologic surgeon must establish a therapeutic plan uncommon in daily practice.

The most important problem that needs solving is choosing the right type of operation: one stage or two stage surgery. And when choosing the second one, which side should be addressed first. A conservative or a radical approach is more suitable, and lymph node dissection is in order?


### Surgical treatment in bilateral synchronous renal tumor, Stephen C

<table>
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<th>One stage</th>
<th>Two stage</th>
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<td>Bilateral nephrectomy, hemodialysis and autotransplant</td>
<td>4</td>
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Considering the side to approach first, opinions are different. Some authors think the optimal intervention should be on the most damaged side, obtaining a reduction of the tumor mass, allowing the immune system to respond better to the aggression of the residual tumor. Between the two operations, a compensatory hypertrophy of remaining normal mesenchyma is going to develop, making the partial nephrectomy easier, and decreasing the likelihood of developing tubular necrosis (6, 8, 13). Other authors consider the less affected side is to be approached first, making possible a recovery of the renal function during the pause.
between operations, avoiding dialysis (2, 3, 13).

One stage surgery is indicated in carefully selected cases.

Radical lymph node dissection does not appear to improve long term survival, but it provides better staging, so a perihilar lymph node dissection is considered to be optimal. Patients presenting palpable lymphadenopathy or described on the abdominal CT scan will be considered for radical lymph node dissection.

Most cases that associate renal cancer with lymphatic tumors described in the literature are secondary to chemotherapy. Simultaneous discovery of the two tumors is very rare.

**Conclusions**

Although the surgical strategy for synchronous bilateral renal tumors usually involves two consecutive operations, first addressing the largest tumor, a concomitant operation is possible in selected cases.

LND in RCC has a double role, diagnostic and therapeutic and must be performed.

Proper treatment of the two simultaneous neoplasia could provide healing or increase the patients' survival.

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