Recurrent Renal Cell Carcinoma Post Radical Nephrectomy: A Case Report

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Background
Renal Cell Carcinoma (RCC) constitutes 80 to 85% of primary renal neoplasms. At presentation, up to 25% of patients with RCC will have evidence of metastases or locally advanced disease. [1] Patients will rarely present with any symptoms since the majority of patients are incidentally diagnosed due to radiologic procedures performed for other indications. The classic triad of RCC (flank pain, hematuria, and a palpable abdominal mass) is only present in 4% of patients, and when present, is strongly suggestive of locally advanced disease. [2]

The highest rates of RCC are seen in the Czech Republic and North America. [3] In North America, the incidence of RCC is 63,000 new cases, and approximately 14,000 people die from RCC each year. [4] RCC is the 6th most common cancer in men and the 8th most common cancer in women in the United States. [5] RCC is 50% more common in males with the average age of diagnosis being 64. [6] Risk factors for RCC include smoking, hypertension, obesity, renal cystic disease, occupational exposures, and genetic factors. [7] Of these, obesity and smoking are the most consistent. Factors that have been reported to reduce the risk of RCC development include moderate alcohol, fruit, vegetable, and fatty fish consumption. [8]

Several subtypes of RCC have been identified, with clear cell carcinoma being the most common, accounting for 75 to 85% of tumors. This subtype typically has a deletion of chromosome 3p25 and arises from the proximal tubule. [9] Macrocopically, the tumor may have solid or cystic features. A more favorable prognosis has been associated with a round tumor shape and a well-defined tumor margin in comparison to the presence of a sarcomatoid pattern, which carries an overall poor prognosis. Clear cell carcinoma can occur sporadically but also has a strong genetic association with von Hippel-Lindau disease. [10]

Other subtypes of RCC include papillary or chromophobe (10 -15%), choriocarcinoma (5 -10%), oncocytic (3-7%) and collecting duct carcinoma (Bellini’s duct) [very rare]. RCC is considered the most lethal of urological cancers because a patient without intervention has a stage IV metastatic disease has a 5-year survival rate of 23% in comparison to 96% for stage I disease. [11]

History and Physical

History of Present Illness: The patient is a 73-year-old Caucasian male presenting with an asymptomatic right renal mass.

- Initially presented to the emergency department on 9/6/15 for abdominal pain and a small bowel obstruction
- Incidentally found out that he had a right adrenal gland mass

Past Medical and Surgical History: In 2007, he had an episode of abdominal pain. A CT scan showed a 12 cm lesion on the left kidney (Figure 1).

- Past Medical History: Hypertension, Atrial fibrillation, Hypothyroidism, Chronic kidney disease, and Memory loss
- Past Surgical History: Open cholecystectomy (1981), Left Open Radical Nephrectomy and Left Adrenalectomy was performed via midline incision (2007), and Ventral wall hernia repair with mesh (2009)
- 12 cm tumor confined within the renal capsule, and it invaded the renal vein (negative margins)
- Pathology revealed renal cell carcinoma, clear cell subtype

Family History: 1st degree relative with prostate cancer

Social History: Patient denies tobacco and recreational drug use

Physical Exam: Patient had a midline abdominal scar from his nephrectomy and a right upper quadrant abdominal scar from his cholecystectomy

- Vital signs were stable
- Review of Symptoms was noncontributory

Discussion
The patient was under routine surveillance after the removal of the left kidney in 2007, with no evidence of metastatic disease on imaging until his RCC recurrence in 2015. RCC has many treatment options. The need for care for localized RCC is still evolving. Since our patient has metastatic disease, adjuvant therapy is the ideal treatment method. This includes surgical resection prior to chemotherapy or immunotherapy. Current focus on therapies that target vascular endothelial growth factor receptor (VEGF-R) and mammalian target of rapamycin (mTOR). [12] Since this patient presented with a solitary metastatic RCC lesion, the treatment of choice is surgical resection if feasible. With adrenal remnant (solitary metastatic lesion), the patient’s 5-year survival rate at 51%, whereas the 5-year survival rate with adjuvant targeted therapy is estimated to be 18%. [13] Current research indicates that there is no improvement in survival outcome with adjuvant therapy after resection of a solitary metastatic RCC lesion. [14]

This patient had a medical oncologist, urologist, and endocrinologist who prepared the patient for adrenalectomy by starting preoperative steroids. He was counselled on long term steroid replacement therapy. He was committed for a right adrenalectomy with possible conversion to open if necessary.

References

Operative Approach
1. Once informed consent was obtained, the patient was placed in a 60° modified flank position.
2. After creating pneumoperitoneum, a 12 mm trocar was inserted at the 6th intercostal space above the 12th rib. The rest of the ports were inserted under direct vision as shown above.
3. The liver was released as much as possible and retracted.
4. In order to visualize the inferior vena cava and the renal vein, the duodenum was Kocherized medially. Dissection was proceeded cranially to the right adrenal vein, which was subsequently clipped and divided.
5. Once the adrenal vein was excised, the adrenal gland was circumferentially mobilized. Arterial blood supply was controlled using a vessel sealer.
6. The adrenal gland was removed and sent to pathology.