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Recurrent Renal Cell Carcinoma Post Radical Nephrectomy: A Case Report

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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 renal mass) is only seen in 9% of patients, and when present, is strongly suggestive of locally advanced disease. [2, 3] The highest rates of RCC are seen in the Czech Republic and North America. [4] In North America, the incidence of RCC is 63,000 new cases, and approximately 14,000 people die from RCC each year. [5] RCC is the 6th most common cancer in men and the 8th most common cancer in women in the United States. [6] RCC is 50 % more common in males with the average age of diagnosis being 64. [7-10] Risk factors for RCC include smoking, hypertension, obesity, renal cystic disease, occupational exposures, and genetic factors. [11] 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. [12]

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. [13] Macroscopically, the tumor may have solid or cystic features. A more favorable prognosis has been associated with the rare multilocular variant 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. [11]

Other subtypes of RCC include papillary or chromophilic (10-15 %), chromophobe (5-10 %), oncocytic (3-7 %) and collecting duct carcinoma (Bellini's duct) (very rare). RCC is considered the most lethal of urologic cancers because a patient without intervention who has stage IV metastatic disease has a 5-year survival rate of 23% in comparison to 96% for stage I disease.[14]

History and Physical

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

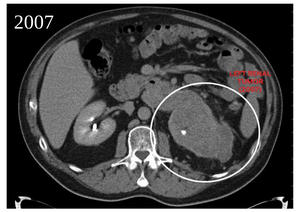


FIGURE 1: 12 cm tumor replacing the entire left kidney in 2007. No evidence of metastatic disease.

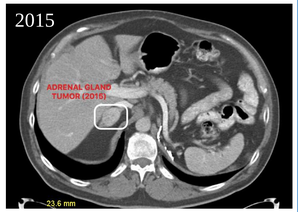


FIGURE 2: 3.1 cm lesion found in the right adrenal gland in 2015. Note that the left kidney is absent.

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.

History and Physical (Continued)

Labs and Images: CT scan without contrast from the initial emergency department visit incidentally showed a **3.1 cm low-density right adrenal nodule** indicative of a lipid rich adenoma in addition to a right lung lower lobe 8 mm rounded nodule that was nonspecific and present on previous imaging

Repeat CT scan with contrast done on 10/7/15 showed a **2.9 x 2.4 cm enhancing lesion involving the right adrenal gland** most consistent with metastatic disease (Figure 2) and a 8 mm nodule in the right lower lobe, which was suspected to be metastatic disease

CT guided core biopsy done on 12/30/15 revealed **metastatic renal cell carcinoma**

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 several treatment options. The standard of care for localized RCC is surgical resection. Since our patient has metastatic disease, adjuvant therapy is the ideal treatment method. This includes surgical resection prior to chemotherapy or immunotherapy. Current focus is on therapeutics that target vascular endothelial growth factor receptor (VEGF-R) and mammalian target of rapamycin (mTOR). [15] Since this patient presented with a solitary metastatic RCC lesion, the treatment of choice is surgical resection if feasible. With adrenalectomy(solitary metastatic lesion), the patient's 5-year survival rate at is estimated to be 51%, whereas the 5-year survival rate with adjuvant targeted therapy is estimated to be 18%. [16] Current research indicates that there is no improvement in survival outcome with adjuvant therapy after resection of a solitary metastatic RCC lesion. [15]

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

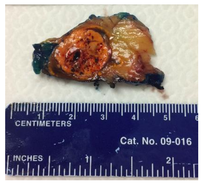


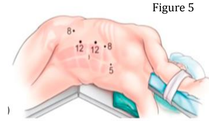
FIGURE 3: This is a cross section of the gross specimen sent to pathology. The adrenal gland mostly comprised of tumor.

FIGURE 4: This is a sectioned sample showing the tumor next to the small remainder of healthy adrenal tissue still present.

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 port was inserted at the lateral border of the rectus abdominus muscle across from the 12th rib. The rest of the ports were inserted under direct vision as shown above.

Figure 5



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 resected.
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.

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