Concomitant Renal Cell Carcinoma and Hematologic Malignancy in Immunosuppressed Patients

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ABSTRACT

Objectives: Treatment of a renal mass in patients with hematologic malignancy or on immunosuppression can be complex and is not well defined. Surgical excision or thermal ablation of renal mass is generally recommended in view of concern for tumor progression in immunosuppressed patients. We report our management decision experience in patients and literature review on concomitant renal and hematologic malignancy.

Materials and Methods: A retrospective medical record review of patients with renal cell carcinoma (RCC) and a hematologic malignancy over 3 years at our University Hospital was performed. Data were collected including patient's demographics, renal tumor and hematologic malignancy characteristics (stage, pathologic subtype, time of diagnosis, treatment type and prognosis). Surgical and medical management of each malignancy was reviewed and perioperative and overall outcomes are reported.

Results: In total, 6 patients were identified with RCC and a hematologic malignancy of which 4 were on immunosuppressive therapy. A total of 5 patients had leukemia and 1 patient had multiple myeloma. Most kidney tumors were stage I, 83%; and 80% were Fuhrman grade II. There was equal distribution of clear cell and papillary-type RCC. All but 1 patient had undergone nephron-sparing surgery. Overall, 50% of our patients died within 1 year after renal surgery for pT_1a tumors from causes that are unrelated to renal cancer.

Conclusions: Our small cohort showed significant mortality in patients with hematologic malignancy on immunosuppression, who had their renal mass treated with surgical excision or thermal ablation. However, this mortality was not secondary to surgical procedure itself. The prognosis of the hematologic malignancy might dictate the management of RCC.

Key Indexing Terms: Renal cell carcinoma; Leukemia; Concomitant malignancies. **[Am J Med Sci 2016;351(5):480–484.]**

INTRODUCTION

Renal cell carcinoma (RCC) accounts for 2-3% of all adult cancers and approximately 12 new cases are diagnosed for every 100,000 population per year.[1] The presence of simultaneous primary malignancies is rare. However, published data suggest that patients with RCC are at increased risk of a second primary cancer.[2,3] The authors report on the management of a small cohort of patients with RCC and a concomitant hematologic malignancy. There is very little information in the literature about the optimal treatment strategy for renal mass management in the above group of patients. Typically, renal mass is managed by surgical excision or thermal ablation in view of fear of tumor growth and spread in immunosuppressed patients. However, there is little evidence in the literature supporting the above aggressive treatment approach. The literature on the management of renal mass in immunosuppressed patients with concomitant hematologic malignancy was reviewed.

MATERIALS AND METHODS

A retrospective medical record review was conducted of patients with a history of RCC and a hematologic malignancy from January 2010-July 2013 at a university hospital. Of 6 patients, 5 patients were referred by the heme-oncologist for an incidentally detected renal mass during evaluation for hematologic malignancy. Data were collected including patient demographics (age, sex and race), renal tumor characteristics (size, pathologic subtype, time to treatment of tumor and manner by which patient was diagnosed with renal mass) and hematologic malignancy characteristics (type, treatment and remission status). In addition, perioperative and overall treatment outcome was reviewed. Protocol approval was obtained from the institutional review board.

RESULTS

In total, 6 patients with concomitant RCC and a hematologic malignancy, 4 of whom were on immu-

TABLE 1. Patient characteristics.

Patient	Age (years)	Sex	RCC stage; pathologic subtype (grade)	Hematologic malignancy
1	51	M	pT1a; clear cell (Fuhrman II)	ALL
2	69	M	pT1a; papillary	AML
3	67	M	pT1a; papillary (Fuhrman II)	PLL
4	60	M	pT1a; papillary (Fuhrman II)	AML
5	69	M	pT1a; clear cell (Fuhrman II)	CLL
6	56	F	pT2a; clear cell (Fuhrman III)	MM

ALL, acute lymphocytic leukemia; AML, acute myeloid leukemia; CLL, chronic lymphocytic leukemia; MM, multiple myeloma; PLL, T-cell prolymphocytic leukemia.
Patient characteristics along with respective hematologic malignancies.

nosuppression, were identified. Table 1 contains patient demographics and cancer characteristics. The mean age of patients was 62 years (range: 51-69). All patients were White and most were men. A total of 4 patients were diagnosed with a hematologic malignancy initially and the renal mass was discovered at a later date. The renal masses were discovered for a variety of reasons (renal failure, pneumonia, cancer workup, etc.). Of the remaining 2 patients, 1 patient was discovered to have a renal mass during the evaluation of a musculoskeletal injury and later diagnosed with a hematologic malignancy and the other patient was found to have a large renal mass and skeletal lesions that were determined to be due to multiple myeloma. Neither of the 2 patients were immunosuppressed at the time of diagnosis.

The patients were immunosuppressed or there was a plan to immune suppress them related to treatment for their hematologic malignancy and were referred by heme-oncologist for renal mass management. After thorough discussion between urologists and heme-oncologist about renal and hematological disease prognosis, patient comorbidities and treatment morbidity, a management plan was formulated. All the above patients underwent interventional treatment for the renal tumors because of the concern for renal tumor progression. In general, the chemotherapy treatments for the hematologic malignancy were held during the perioperative period and resumed after recovery from surgery. Treatment summary is tabulated in Table 2. It is noteworthy that none of the patients had renal tumor recurrence or metastasis.

Each patient underwent surgical treatment for their renal mass via different techniques (partial nephrectomy, radical nephrectomy and laparoscopic cryoablation). No preoperative renal biopsies were performed. Most (83%, 5 of 6) kidney tumors were stage I. There was equal distribution of clear cell and papillary RCC subtypes in this cohort and of all reported tumor grades, 80% (4 of 5) were Fuhrman grade II. None of the following reported patients died of renal cancer–specific related cause. The 2 of 3 patients who died had a history of bone marrow transplantation (BMT) before renal surgery. The following is the summary of each patient's treatment history.

Patient 1

A 51-year-old male was diagnosed with acute lymphoblastic leukemia (philadelphia chromosome positive) and underwent chemotherapy with cyclophosphamide, vincristine, adriamycin and dexamethasone. He subsequently developed renal failure and an ultrasound scan revealed a small renal mass, for which urology was consulted. The chemotherapy regimen was changed to dasatinib, vincristine and steroids, and the renal failure resolved with conservative management. A computed tomography (CT) scan of the abdomen with intravenous contrast revealed an enhancing, solid renal mass measuring 2.5 cm and suspicious for renal malignancy. He finished the chemotherapy regimen and underwent robotic-assisted partial nephrectomy. Pathology revealed a pT_1a clear cell RCC, Fuhrman grade II with negative margins. Then 2 weeks postoperatively, he came to the hospital in urinary clot retention that necessitated cystoscopy and clot evacuation. He was discovered to have an active bleed from a pseudoaneurysm at the kidney tumor resection site and he underwent successful selective angioembolization. He eventually recovered from this episode. As the patient had Philadelphia chromosome–positive acute lymphocytic leukemia, and as he was at high risk for relapse, he underwent reduced-intensity allogeneic stem cell transplant with fludarabine and melphalan conditioning from a 10/10 matched unrelated donor. He returned to the hospital 2 months posttransplant and died of bacterial and fungal septicemia and eventually died after hospitalization at the age of 52 years. He was not under active treatment besides the management for sepsis at his time of his demise. Abdominal imaging at that time showed a resolving hematoma, but there was no evidence of abscess or infection of the treated kidney.

Patient 2

A 69-year-old male underwent a CT scan to evaluate a musculoskeletal injury and a 3.2-cm enhancing renal mass was discovered. He was referred to urology department and after discussing treatment options, laparoscopic cryoablation was decided. During the preoperative workup, blood count revealed pancytopenia for which he was referred to hematology department.