Recurrent renal cell carcinoma presenting as a solitary left ventricular mass

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A 73-year-old male with a remote history of renal cell carcinoma presented with an asymptomatic left ventricular mass. Biopsy of the mass revealed a late recurrence of his renal cell carcinoma. Given the size and location of the mass, resection was not possible. Treatment with pazopanib was initiated with good clinical response.

Key Words: renal cell carcinoma, left ventricular mass, pazopanib

Introduction

Per the American Cancer Society, renal cell carcinoma (RCC) accounts for ~5% of all cancers in men and ~3% in women in the United States. Most patients present with local disease and definitive surgical management with partial or radical nephrectomy is the gold standard.[1] Late recurrence of renal cell carcinoma > 5 years after nephrectomy for local disease is not uncommon and occurs in up to 15% of patients.[2] Prognosis after late recurrence is variable and depends on several factors, including whether the patient is able to undergo metastatectomy.[3] The MSKCC score, a validated prognostic tool that incorporates time to recurrence, lactate dehydrogenase, hemoglobin, corrected calcium and performance status, can be used to risk stratify patients and help to predict survival.[1]

RCC most frequently metastasizes to the liver, bone, brain, lymphatics, or lung.[3] Cardiac metastases are uncommon and almost always occur with involvement of the vena cava and right heart.[4] Only rare case reports of left ventricular metastatic RCC in the absence of right heart involvement exist in the literature and no standard treatment exists. Surgery has been reported to be a viable option in some patients, however, for those patients who are inoperable there is limited

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information about the best course of treatment.[4] Targeted systemic therapies for metastatic RCC such as tyrosine kinase inhibitors (TKIs) or mTOR inhibitors have been proposed, but data for their use in this situation are lacking.[5]

Here, we describe a rare case of a late recurrence of renal cell carcinoma presenting as a solitary left ventricular mass that was successfully treated with pazopanib, a TKI.

Case report

An asymptomatic 73-year-old male presented to his local hospital for a wellness exam. His past medical history included renal cell carcinoma treated with radical right nephrectomy in 2000 and a solitary recurrence to the right lung treated with metastatectomy in 2004, with no further evidence of disease. Additional history included resolved West Nile virus encephalopathy in 2012 and hairy cell leukemia in remission after treatment with cladribine in 2013. A routine EKG was performed as part of his wellness exam, and T-wave abnormalities were noted. Results of a subsequent stress test were concerning for inferior wall ischemia so the patient was referred for cardiac catheterization. The procedure was negative for obstructive coronary artery disease, but revealed a large vascular mass in the left ventricular apex. Presence of the mass was confirmed by cardiac MRI, Figure 1. No additional lesions were seen on staging studies.

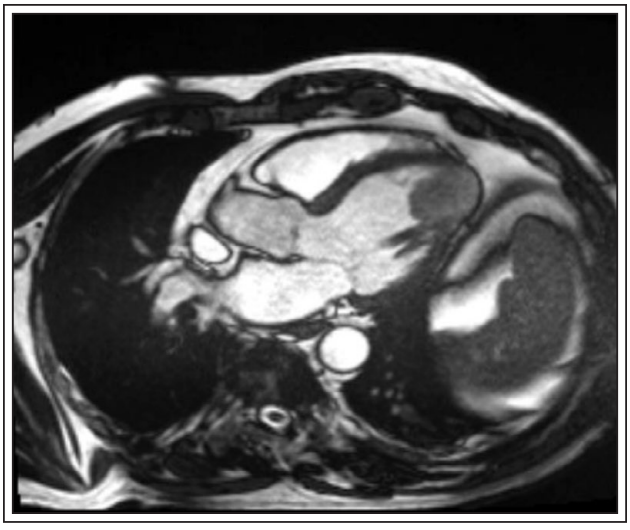

Figure 1. Cardiac MRI revealing a 4.3 cm x 2.6 cm x 2.0 cm lobulated mass emanating from the apical left ventricular myocardium. The mass displays brisk internal enhancement and exuberant delayed enhancement.

The patient was transferred to our institution for cardiothoracic surgery evaluation. However, given the size and location of the mass, complete resection was felt to be unsafe. A biopsy was performed via mini thoracotomy. The pathology was consistent with metastatic renal cell carcinoma.

The patient was referred to medical oncology and treatment with pazopanib 800 mg daily was started. The patient initially tolerated the treatment well, but after 2 months developed hypertension requiring a dose reduction to 400 mg daily. Follow up cardiac MRI after 6 months of treatment revealed that the left ventricular apical mass had decreased in size from approximately 3.6 cm to 2 cm in size and was no longer enhancing, consistent with response to therapy. He remains on systemic TKI therapy.

Discussion

Intracardiac tumors are uncommon and most often occur as a result of metastasis of a primary malignancy. Tumors that are most likely to spread to the heart include melanoma, germ cell, thymoma, lymphoma, lung, and leukemia.[6] Cardiac metastases of renal cell carcinoma are rare and almost always involve the vena cava or right atrium; the mechanism of this typical pattern of spread is thought to be intraluminal spread via the renal vein.[7] Approximately 10% of patients with RCC will have tumor thrombus involving the renal vein and 1% will have extension into the right atrium.[7] In contrast, less than 10 cases of isolated left ventricular RCC metastases have been reported.

The presentation of cardiac metastases varies based on their location. Intracavitary masses can cause systolic or diastolic murmurs, heart failure, or pericardial effusions. EKG findings are often non-specific and echocardiogram is the diagnostic modality of choice.[8] Once a mass has been identified, additional imaging with CT or MRI may be used to better characterize the location, size, and composition. Transvenous or transesophageal biopsy may be undertaken if histopathologic diagnosis is required.[6]

The treatment of intracardiac metastases is dependent on the tumor type, location, and symptoms. Surgical resection may be considered in select cases, however, patients with widespread metastatic disease often require systemic therapy.[6] Guidelines for metastatic renal cell carcinoma recommend therapies including metastatectomy, tyrosine kinase inhibitors such as pazopanib or sunitinib, the mTOR inhibitor temsirolimus, bevacizumab plus interferon, or clinical trial.

Pazopanib was FDA approved for the treatment of advanced renal cell carcinoma in 2009 after a

randomized, phase III trial showed an improvement in progression free survival when compared with placebo (9.2 months versus 4.2 months, hazard ratio [HR], 0.46; 95% CI, 0.34 to 0.62; p < .0001).[9] A subsequent head-to-head trial showed non-inferiority of progression free survival with pazopanib versus sunitinib, with better health-related quality of life reported in the pazopanib arm.[10]

Our patient presented with an asymptomatic late recurrence of RCC in his left ventricle. Metastatectomy was not attempted due to the extensive nature and surgical inaccessibility of the mass. Systemic therapy with pazopanib was initiated and the patient continues to have a good clinical response after 6 months. He has tolerated the therapy well with expected side effects. Our experience demonstrates that a TKI can successfully be used to treat a solitary intracardiac RCC metastasis. □

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