CLINICAL VIGNETTE

Right Ventricular Metastasis of Hepatocellular Carcinoma

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A 71-year-old female presents for elective cryoablation of a left adrenal metastasis complicated by hypertensive emergency and NSTEMI with incidental discovery of a right ventricular (RV) pedunculated mass. The patient has a past medical history of hepatitis C virus (HCV) cirrhosis complicated by metastatic hepatocellular carcinoma (HCC) requiring multiple RFA, non-obstructive CAD, and hyperlipidemia. Her oncologic history is significant for metastasis to brain, lung, and left adrenal requiring Y-90 radioembolization, cryoablation, and systemic sorafenib therapy. Upon cardiology follow-up, a new RV pedunculated mass was discovered on TTE (Figure 1). Initial differential diagnosis included HCC metastasis, infective endocarditis, and benign tumor. At this time, she reported mild progressive dyspnea but denied any other new heart failure symptoms. Pertinent physical exam findings include worsening 2/6 LLSB systolic ejection murmur, lack of RV heave or PMI displacement, JVP of 6 cm, absence of crackles and lower extremity edema, Temperature 35.8° C (96.4° F), and BP 120/78. Labs were notable for ESR 43 mm/hr, CRP 0.4 mg/dL with negative bacterial and fungal blood cultures.

Advanced imaging with cardiac MRI showed a 5.8 x 3.5 cm lobular mass along the RV free wall with a large intraluminal component and small polypoid component prolapsing through the tricuspid valve (Figure 2). There was interval increase from previous chest CT imaging. The pedunculated mass showed evidence of narrowing of the RV outflow tract with flow exenteration in the infundibulum. Diagnosis of cardiac metastasis was confirmed with high suspicion. In addition, a right upper lobe pulmonary artery embolus secondary to right ventricular mass was identified. Eventually the patient succumbed to metastatic disease.

Discussion

Intracardiac metastases are infrequent, and discontinuous ventricular extension is exceedingly rare.[1] In metastatic HCC, involvement is usually isolated to the lung, peritoneum, bone, or adrenals.[1] Most cardiac metastases affect the right atrium and originate with renal cell carcinoma, melanoma, thyroid carcinoma, or testicular carcinoma.[1,2] HCC carries particular affinity for hematogenous spread and vascular extension.[1] Review of 81 Nigerian patients with HCC showed that 44% of patients had post-mortem evidence of tumor thrombi or metastasis to the heart.[3] Additional post-mortem evaluation suggest 2.7-4.1% of patients with metastatic HCC have atrial involvement.[4,5] Overall cardiovascular incidence may be underestimated; however, development of new cardiovascular symptoms in advanced HCC may necessitate further imaging with echocardiography or cardiac MRI.[5] Use of a multidisciplinary treatment approach including radiation, systemic chemotherapy, and surgical removal of cardiac metastasis may provide clinical benefit but must be used on a case by case basis.

Figures

Figure 1. Transthoracic echocardiogram with a pedunculated mass traversing the tricuspid valve.

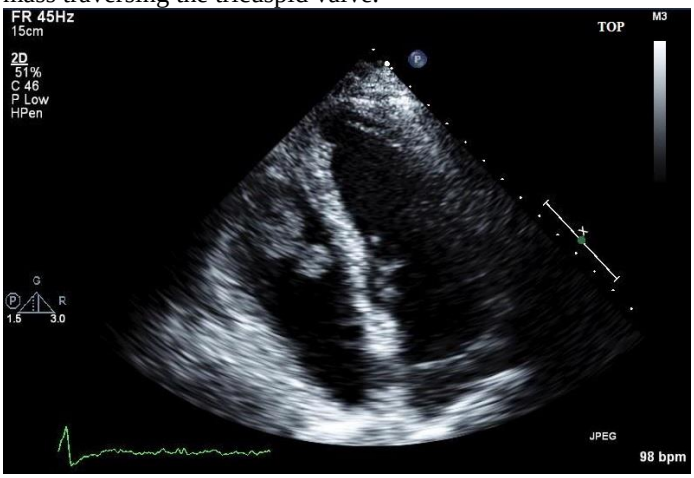
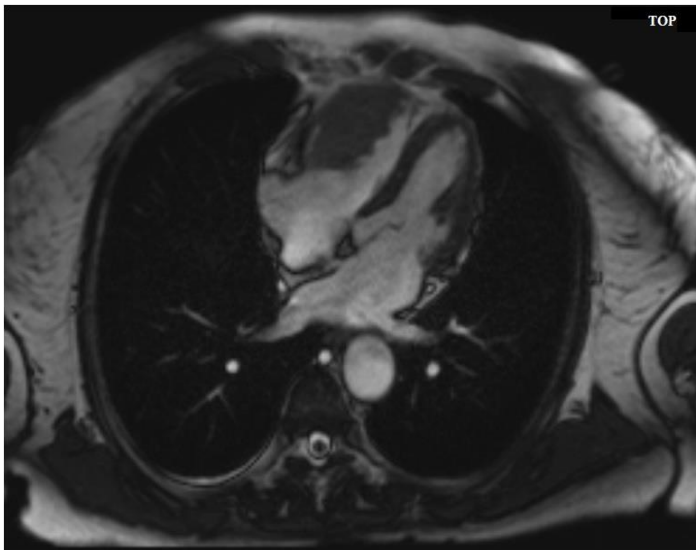


Figure 2. Cardiac MRI with lobular mass along the RV free wall.



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