Two Unusual Cases of Right Atrial Metastasis of Hepatocellular Carcinoma; One of Them Masquerading as a Myxoma

Richard Kang, MD[1]; Maritess Dejesus, MD[2]; Renu Khode, MD[1]

1. HCA Healthcare/USF Morsani College of Medicine GME/HCA Florida Brandon Hospital; 2. HCA Healthcare/USF Morsani College of Medicine GME/HCA Florida Oak Hill Hospital

Introduction

- We present two cases of right atrial metastasis of hepatocellular carcinoma (HCC).
- Patient A did not have a previous diagnosis of liver disease. Histologic analysis of cardiac "myxoma" revealed metastatic HCC.
- Patient B was previously diagnosed with HCC and presented with right atrial metastasis five years after primary diagnosis.
- Both cases highlight the importance of diagnosing this uncommon secondary cardiac malignancy.

Case Presentation

- Patient A was a 77 y/o male with history of coronary artery bypass grafting and aortic stenosis who presented with 3 weeks of shortness of breath. Transesophageal echocardiogram (TEE) revealed a right atrial mass described as a large, pedunculated, solid, mobile mass measuring 3 x 2.6 cm which was clinically suspected to be a myxoma (Figure 1). Intraoperatively, surgeon noted that the mass in the right atrium was "very large and of mixed components" and "looked like it was coming from the inferior vena cava (IVC) itself". Gross examination of the "myxoma" revealed a 22-gram, 5 x 2.5 x 1.5 cm, yellow-tan mass with a yellow-gray, cut surface.
- Histologic examination revealed neoplastic cells with relatively uniform appearance forming nests with abundant delicate capillary vasculature (Figure 2, 3). Positive staining with HepPar 1, arginase 1 (Figure 4), glypican 3, along with a vast negative panel confirmed the diagnosis of a metastatic HCC. The diagnosis was confirmed by review at a reference institution. While the tumor was being worked up, the patient's condition continued to deteriorate. A decision was made to withdraw life support, and he passed away six days after surgery.
- Patient B was a 78 y/o male with past medical history of hepatocellular carcinoma status post partial hepatectomy 5 years prior who was found to have a 7.2 x 4.5 x 3.8 cm atrial mass after presenting with worsening fatigue and shortness of breath for 5-6 weeks.

Case Presentation (Continued)

- Computed tomography (CT) scan of abdomen/pelvis showed hepatocellular carcinoma arising from right hepatic lobe with direct invasion of the hepatic veins, IVC, and right atrium with additional metastatic lesions in the spleen and right adrenal gland. Patient underwent surgical resection of the cardiac mass and received immunotherapy consisting of atezolizumab and bevacuzimab. He was recently admitted with symptoms of exertional dyspnea, weakness and hypotension and discharged after treatment.

Figures

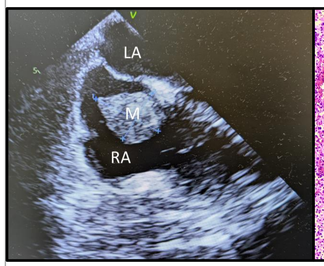

Figure 1. Echocardiogram (LA – left atrium; M – mass; RA – right atrium)

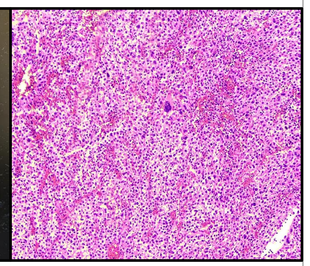

Figure 2. Right Atrial Metastatic HCC (H&E, 10x)

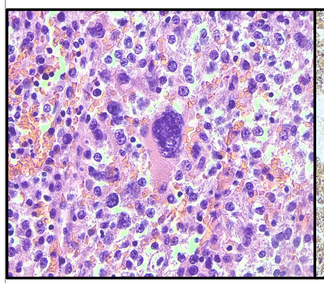

Figure 3. Right Atrial Metastatic HCC (H&E, 40x)

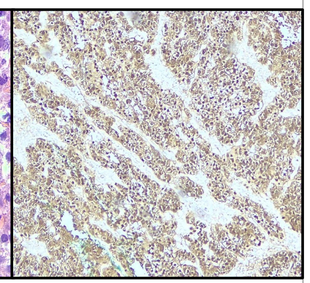

Figure 4. Right Atrial Metastatic HCC, (Arginase-1, 10x)

Discussion

- Hepatocellular carcinoma is the most common primary liver cancer, and the most common extrahepatic metastatic sites are lung, abdominal lymph nodes, and bone [1]. Cardiac involvement is rare and has an extremely poor prognosis, with one study reporting longest survival to be 4 years and 3 months after detection of HCC metastasis [2].
- Cardiac myxomas are the most common type of primary cardiac tumor seen in adults (incidence of 0.2%). They are usually found in the left atrium and are classically associated with the triad of constitutional, embolic and obstructive cardiac symptoms [1].
- Metastatic tumors are the most common cardiac malignancy and commonly originate from melanoma, lymphoma, leukemia and carcinomas of the lung, breast and esophagus [3].
- The diagnosis of cardiac metastasis of HCC may be overlooked because the symptoms are neither apparent nor specific [4] Some manifestations include bilateral leg edema (IVC thrombosis) or pulmonary embolism [4]. When a patient with history of HCC complains of dyspnea, chest tightness, syncope, hypotension or other signs of pulmonary embolism, cardiac metastasis should be considered.
- Metastases are known to occur years after liver resection and systemic treatment which highlights the importance of post-treatment surveillance [5]. Multimodality imaging may be required to detect cardiac metastases from HCC, and TEE-guided endomyocardial biopsy is usually required for definitive diagnosis [5]. Treatment guidelines for cardiac metastasis of HCC are unclear; treatment commonly consists of combination of palliative surgical resection, chemotherapy and radiation [5].
- Patient A's presentation of HCC metastasis specifically masquerading as a myxoma is extremely rare (to the best of our knowledge, this is the fifth such case) [2, 6-8]. Other cases report discovery of metastatic cardiac lesions in patients with or without prior history of HCC.

Conclusion

- The heart is a rare site of HCC metastasis with poor clinical prognosis and no clear treatment guidelines.
- To the best of our knowledge, this is the fifth case documenting a "myxoma" which was found to be HCC metastasis in a patient with no prior diagnosis of HCC.
- Continued surveillance of patients with prior history of HCC may be warranted as cardiac metastasis may occur years after prior treatment.

References & Acknowledgements

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