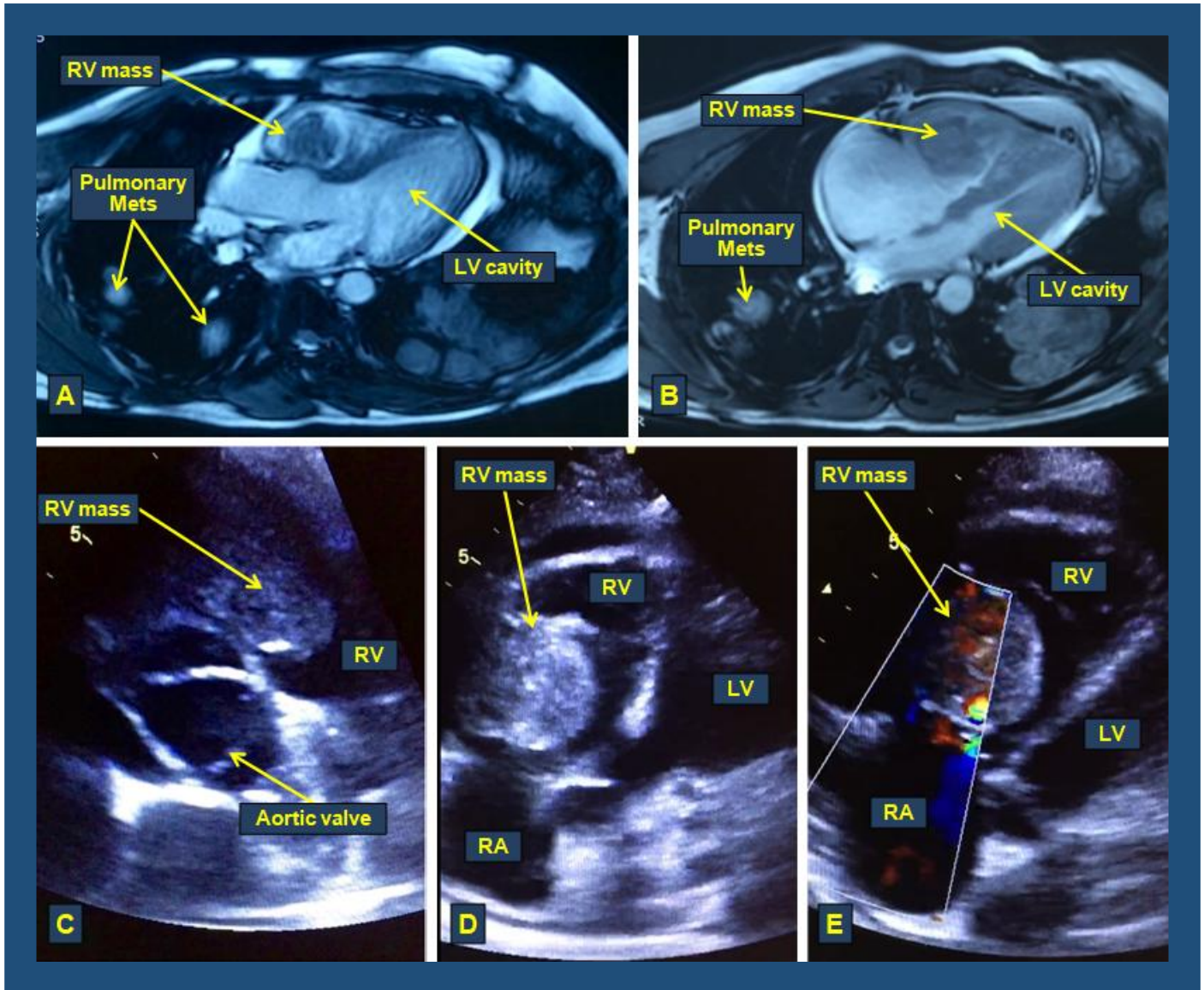


**Renal Cell Carcinoma..Cardiac Extension & Mets!**

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**Description**

The figure above shows computed tomography (CT) axial images of the chest (A & B) with a right ventricular mass, representing extension of renal cell carcinoma (Grawitz tumor) through the inferior vena cava into the right atrium (RA) and the right ventricle (RV). Pulmonary nodules representing pulmonary metastases can also be seen. The 2-dimensional echocardiography (2-

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D Echo) views reveal the mass in the in the parasternal short access view at the level of the aortic valve (C). The mass is also clearly seen along the RV base (D) in the modified subcostal view (D), with color flow Doppler imaging (E) revealing vascularity of the mass and trivial tricuspid regurgitation.

### **Discussion**

Renal cell carcinoma (RCC), which comprises about 2% of all cancers, is metastatic in 30 % of the cases upon diagnosis due to the lack of early warning signs and variable manifestations [1]. Intramyocardial metastasis of the left ventricle and interventricular septum have been reported with adequate response to pazopanib [2]. Heart failure due to nonischemic cardiomyopathy has also been reported as the initial presenting symptoms of RCC, which improved following tumor resection [3]. Heart failure as a paraneoplastic manifestation has been reported, which was reversed upon therapy with pazopanib [4]. Right-sided heart failure was also reported as a manifestation of metastatic RCC mimicking obstruction [5]. Although commonly thought of as an invasive tumor, traveling up the inferior vena cava to the right atrium, cases of cardiac mets without inferior vena cava or right atrial involvement have been reported [6]. Rarely, RCC can metastasize to the left heart, including the left atrium and coronary sinus [7], in addition to the left ventricle [8]. The primary treatment of RCC remains surgical, often in combination with chemotherapy, radiation therapy, and targeted immune therapy [9]. Classifying RCC into different risk groups helps predict outcomes and may allow better patient counseling and identify need for alternative treatment [10].

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**KEYWORDS:** Renal cell carcinoma; metastasis; cardiac tumors

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