

## Three-dimensional echocardiographic diagnosis of intracardiac masses

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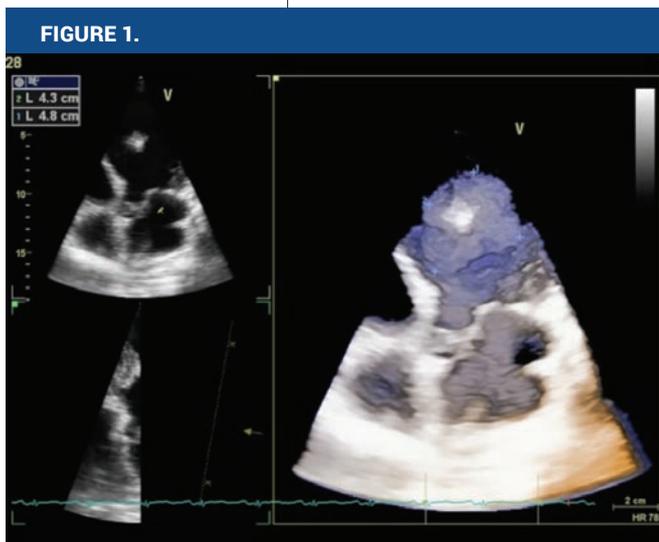
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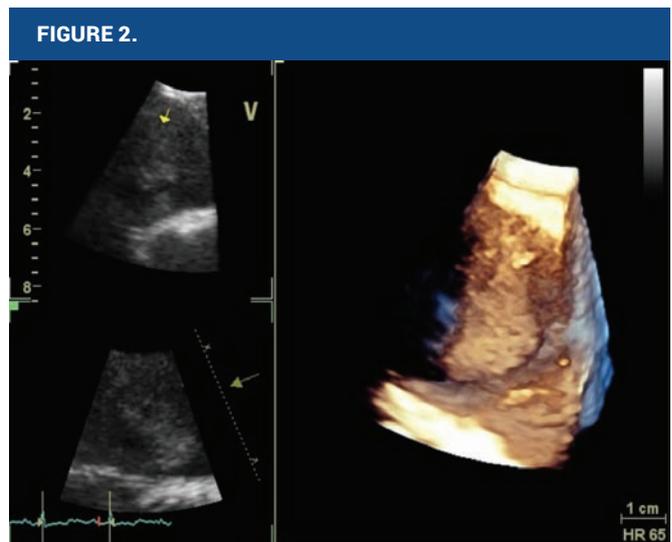
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Echocardiography is a fundamentally important procedure for the evaluation of intracardiac masses, and can reliably identify mass location, shape size, attachment and mobility. Intracardiac masses can easily be detected by transesophageal echocardiography (TEE). Detection of intracardiac masses often represents a difficulty for transthoracic echocardiography (TTE) due to its smaller dimension or location in the left atrial appendage or the right



Three-dimensional TTE showing a large left ventricle thrombus.



Three-dimensional TTE showing a right ventricle thrombus.

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atrium that cannot be adequately analysed by this technique. Diagnostic problems also occur in some patients with a poor „echo window“ and in patients on mechanical ventilatory support. Echocardiography can usually distinguish between the three principal intracardiac masses: thrombus, tumor and vegetation. Three-dimensional (3D) echocardiography provides better understanding and assessment of intracardiac masses than 2D echocardiography, improves the diagnostic capabilities of cardiac echocardiography in the assessment of the location, composition, size, and relationship to adjacent structures of intracardiac masses.<sup>1-4</sup>

Imaging plays a pivotal role in the diagnosis and surgical planning of cardiac masses treatment. Clinical features, such as patient age, location, and imaging characteristics of the mass will determine the likely differential diagnosis. Thrombi are formed within heart chambers due to trauma, endocarditis, myocardial infarction, dilated cardiomyopathy, mitral stenosis and atrial fibrillation, polycythaemia, thrombocytosis and systemic lupus erythematosus. Thrombi are more commonly found in left-sided heart chambers than in the right (Figure 1 and Figure 2). Cardiac tumors are found in 0.001% to 0.28% of cases in pathoanatomic studies. Primary tumors are far less common than metastatic tumors in the heart, and benign primary cardiac tumors occur more frequently. Approximately 75% of cardiac tumors are benign, and the most common cardiac tumor is the myxoma. Myxomas are found in the atria in 90% of cases, three times more commonly in LA than in RA. Vegetations can be found on native or artificial valves

