

Three-dimensional imaging of left ventricular hemangioma

A 30-year-old asymptomatic man with chronic hepatitis B was evaluated for an incidentally visualized intracardiac mass on abdominal ultrasonography. Two-dimensional (2D) transthoracic echocardiography (TTE) revealed a structurally normal heart except for the presence of homogeneously echodense, round, mobile mass (2.0×2.8 cm) within the left ventricular cavity (Fig. 1a, Video 1a). No flow abnormalities were detected with Doppler analysis. On three-dimensional (3D) TTE, the mass appeared to be attached to the interventricular septum (Fig. 1b, Video 1b). Transesophageal echocardiography (TEE) was performed for superior visualization of anatomical details of the mass. On 2D TEE imaging with xPlane, the mass was well-demarcated and attached to the interventricular septum with a faintly visible stalk, and there was no infiltration of the myocardial wall (Fig. 2a, Video 2a). On real-time 3D TEE, the surface

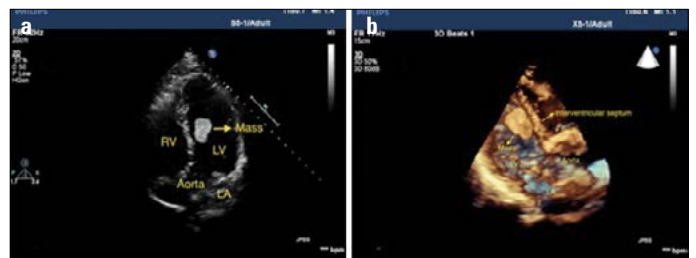


Figure 1. (a) Apical five-chamber view showing a homogeneously echodense, round, mobile mass within the left ventricular cavity. (b) Real-time three-dimensional transthoracic echocardiography showing a left ventricular mass and interventricular septum.

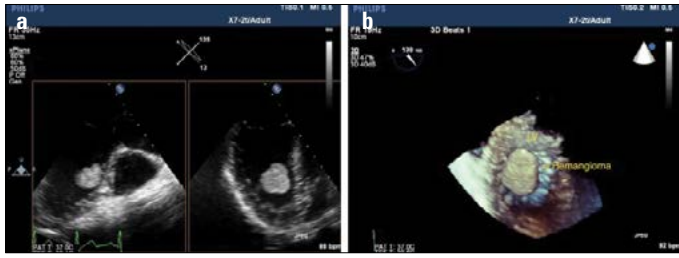


Figure 2. (a) Two-dimensional transesophageal echocardiography image with xPlane shows a faintly visible stalk of the left ventricular mass. (b) Real-time three-dimensional transesophageal echocardiography shows the surface of the mass as slightly irregular.

of the mass was visualized as slightly irregular (Fig. 2b, Video 2b). Surgical resection of the mass was performed, and histopathological examination revealed a mixed-type hemangioma with capillary and cavernous features.

Cardiac hemangiomas are extremely rare benign cardiac tumors accounting for only 2%–3% of all benign primary cardiac tumors. They can present at any age and can be located in any part of the heart and pericardium. 2D echocardiography is the primary imaging modality; however, 3D echocardiography is increasingly being used in routine practice, and it can be used as complementary imaging modality in the evaluation of cardiac masses. Real-time 3D TEE enables better visualization of masses and adds incremental value by characterizing the morphology of the tumor. It reveals the presence or absence of the echolucent areas, papillary excrescences, small tumor particles, and thrombus formation on

the surface of the tumors. This case illustrates that 3D echocardiography is a helpful, noninvasive, and real-time technique that may provide better visualization of an unusual mass in the left ventricle.

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Video 1. a, b. (a) Apical five-chamber view showing a homogeneously echodense, round, mobile mass within the left ventricular cavity. (b) Real-time three-dimensional transthoracic echocardiography showing a left ventricular mass and interventricular septum.

Video 2. a, b. (a) Two-dimensional transesophageal echocardiography image with xPlane shows a faintly visible stalk of the left ventricular mass. (b) Real-time three-dimensional transesophageal echocardiography shows the surface of the mass as slightly irregular.

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