Cardiac Cavernous Hemangioma Mimicking Pericardial Cyst: Atypical Echocardiographic Appearance of a Rare Cardiac Tumor

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Cavernous hemangioma is a rare tumor with infrequent cardiac involvement. Preoperative or antemortem diagnosis may be difficult. Several prior case reports have described echocardiographic findings of cavernous hemangioma. We report here a 50-year-old white female patient with this tumor. Transesophageal echocardiography detected a mass with an echocardiographic appearance not previously described for cavernous hemangioma. The tumor appeared as a large echolucent unilocular cystic mass, leading to an erroneous preoperative diagnosis of pericardial cyst. This previously unreported finding should be recognized by echocardiographers in the evaluation of cardiac masses. (J Am Soc Echocardiogr 1997;10:579-81.)

Cavernous hemangioma is an uncommon neoplasm with rare cardiac involvement. Preoperative or antemortem diagnosis may be difficult. Several case reports have described echocardiographic findings of cavernous hemangioma. None have previously described echocardiographic findings reported here. These unusual findings led to the erroneous preoperative diagnosis of pericardial cyst.

Case Report

A 50-year-old white female patient with multiple sclerosis was transferred to our institution for evaluation of an extracardiac mass identified by echocardiography. The patient had been treated for mild heart failure symptoms and unknown arrhythmia since 1976. Over several months before admission she had increased dyspnea, more frequent palpitations, and episodes of near syncope. Holter monitoring elsewhere showed sinus rhythm with rare supraventricular and ventricular ectopic beats. Two-dimensional echocardiography showed a 4 to 5 cm cystic unilocular mass adjacent to the right atrium. Magnetic resonance images elsewhere were interpreted as displaying a 4 cm soft tissue density within the right atrium.

Cardiovascular examination was notable only for a soft systolic ejection murmur along the left sternal border. Transesophageal echocardiography showed a 4.5 cm echolucent unilocular cystic mass adjacent to the right atrium and atrioventricular groove (Figures 1 and 2). Partial compression of the right atrium was present. A somewhat vague echodense material was present within the structure (Figure 2). Color flow Doppler echocardiography did not show flow within the mass or flow disturbance within the right atrium. This mass was believed to represent a pericardial cyst with atypical location.

Surgery was undertaken because of patient symptoms. Thoracoscopy with drainage of the cyst was initially planned. The pericardium appeared normal. No pericardial cyst could be identified. The decision was made to proceed with thoracotomy. A large, firm, solid tumor (Figure 1) involving myocardium was seen to arise from the region of the atrioventricular grove, adjacent to the right atrium. The right atrium was opened. Tumor was found both within the right atrium and within the right ventricle. The tumor was excised, along with part of the right atrial and right ventricular free walls.

Pathologic examination showed cavernous hemangioma. Areas of capillary hemangioma and lymphangioma were also detected.

DISCUSSION

Hemangiomas are exceedingly rare cardiac tumors. They were first reported in 1893.[1] Approximately 50 cases have subsequently been described.[2] These tumors may involve myocardium, endocardium, or pericardium at various locations in the heart.[3] A variety of symptoms have been attributed to these tumors including chest pain, dyspnea, palpitations, right heart failure, symptoms of pericarditis, and sudden death. The nature of presenting symptoms has

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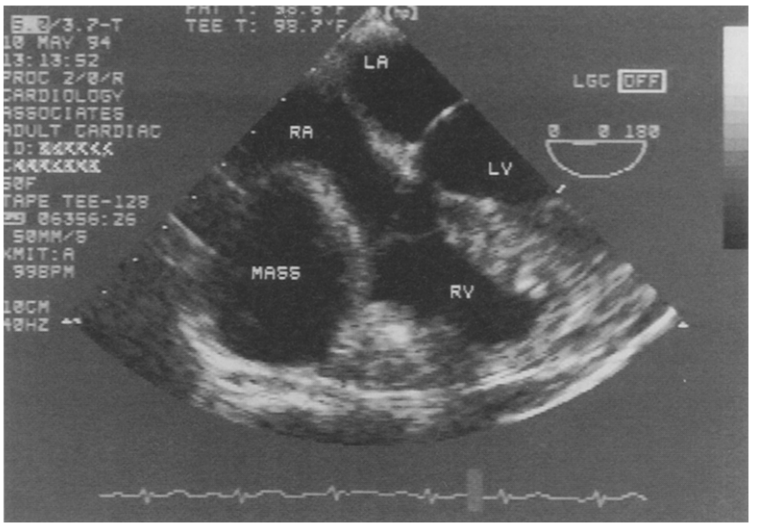

Figure 1 Transesophageal echocardiogram with multiplane probe in transverse plane. Right atrium *(RA)*, right ventricle *(RV)*, left atrium *(LA)*, and left ventricle *(LV)* are shown. Adjacent to right heart is a large echolucent unilocular mass causing partial compression of RA.

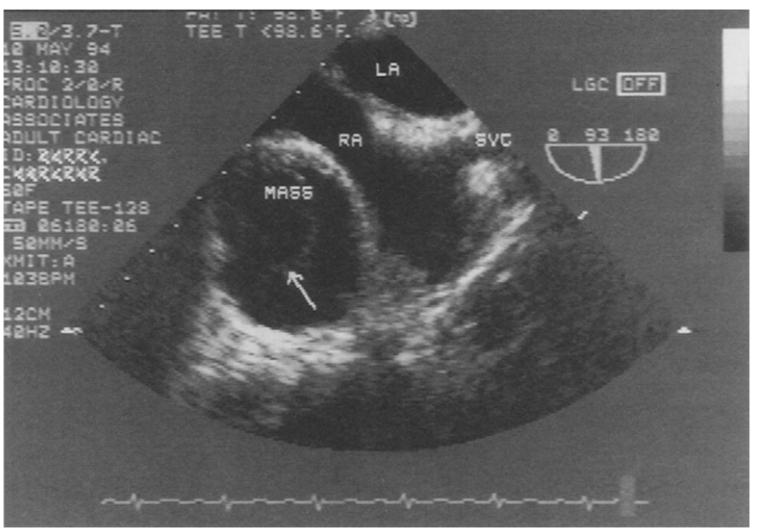

Figure 2 Transesophageal echocardiogram with multiplane probe at 93 degrees. Mass is seen to cause partial compression of right atrium *(RA)*. Somewhat vague, echodense curvilinear target is seen within mass, possibly representing trabeculum within hemangioma. *LA,* Left atrium; *SVC,* superior vena cava.

been related to the size and location of the tumor.[4,5] Our patient's dyspnea on exertion and near syncopal episodes were attributed to right atrial compression by the mass.

Preoperative or antemortem diagnosis of cavernous hemangioma has been difficult. Angiography may show a "tumor blush." Fluoroscopic detection of a nonpulsatile mass or detection of an intracavitary muscular bulge after contrast ventriculography may also suggest cardiac tumor. These angiographic findings are not specific for cavernous hemangioma.[3-6]

The utility of echocardiography in the diagnosis of cavernous hemangioma has been evaluated. No uniform echocardiographic criteria for hemangioma have been recognized. In fact, echocardiographic descriptions of cardiac hemangioma have been varied. Both Brizard et al.[5] and Soberman et al.[2] found that a solid echodense bulge of the interventricular septum into the right ventricular cavity corresponded to the presence of cavernous hemangioma.

Others describe large multiloculated masses with multiple trabeculae and numerous large or small

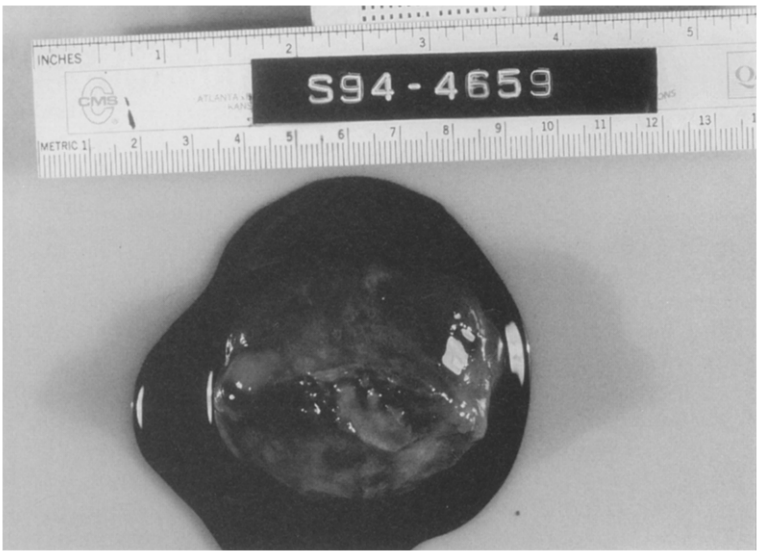

Figure 3 Gross appearance of cardiac cavernous hemangioma excised from this patient.

echo-free spaces.[7,8] A "cavernous appearance with partial calcification" was believed to be typical for hemangioma by Gengenbach et al.[7] Other authors report cases with intermediate appearance. These masses were more uniformly echodense structures with smaller echolucent zones and no distinct trabeculae.[9,10]

The echocardiographic appearance of cavernous hemangioma in the present case differs from all prior echocardiographic descriptions of this tumor. The mass was not echodense, nor were multiple loculations or echo-free spaces present. Rather, it presented as a unilocular cystic structure (with only a vague, curvilinear echodense structure within), leading to an erroneous preoperative diagnosis of pericardial cyst. This finding broadens the spectrum of potential echocardiographic presentations of cavernous hemangioma. The potential appearance of this tumor as a unilocular cystic structure should now be recognized.

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