Cardiopulmonary echinococcosis: MR assessment

Sir,

The right ventricular echinococcosis is a rare localization. It can either be asymptomatic or can give cardiac symptoms. The complications of cardiac echinococcosis are pulmonary embolism, acute pericarditis, constructive pericarditis, and anaflactic reactions. Magnetic resonance imaging is helpful in some patients and in showing cardiac anatomy in any plane before surgery.

A 37-year-old male patient was admitted to the hospital with complaints of chest pain and clinical findings of arrhythmia. Chest X-ray revealed bilateral, multiple pulmonary opacities of various sizes with well-defined smooth contours. On CT these pulmonary masses were found to have fluid density (1–5 H.U.). In addition to the pulmonary masses, a suspicious cystic mass was seen on the anterior right ventricular wall (Fig. 1). Chest MRI was performed to further delineate this cardiac mass. On MRI the cardiac mass was hypointense on T1-weighted and hyperintense on T2-weighted images. Axial and parasagittal T1-weighted gradient-echo sequences with surface coil demonstrated that the mass (46 × 47 mm) was arising from the right ventricular wall and protruding into the right ventricular cavity (Fig. 2). Two-dimensional echocardiogram confirmed this right ventricular cystic mass. The patient underwent elective surgery with the initial diagnosis of pulmonary embolization from rupture of the right ventricular wall cyst. The cyst was found to have a communication with the right ventricular cavity. After repairing the septal leaflet of the tricuspid valve, the cavity was closed. Histopathologically, the cyst content was confirmed to be an echinococcosis granulosus.

The primary echinococcosis of the heart is exceptionally uncommon, the incidence ranging from 0.02 to 2% of all human hydatidosis. The right ventricle is only occasionally involved, accounting for 8% of cardiac echinococcosis. The most frequent localizations of echinococcosis are the liver (65%) and the lung (25%). After infection, the embryo usually reaches the myocardium via coronary circulation from the left side of the heart. The cyst is then formed within a period of 1–5 years. The cardiac echinococcosis can either be asymptomatic or according to the localization, can give cardiac symptoms such as arrythmia and atypical chest pains. The electrocardiogram usually shows alterations on the ST segment and T wave, similar to patients with coronary artery disease and subepicardial ischemia. The most useful serologic tests are latex agglutination test and immunoelectrophoresis [1].

Chest radiographs may sometimes show deformation of the cardiac silhouette, especially with the huge cysts. The CT examinations may be useful in showing the intracardiac cystic mass. However, echocardiography is the common method of choice for the diagnosis of cardiac cysts. The ability of MRI to provide a global view of the cardiac anatomy in any plane with high contrast between flowing blood and soft tissue ensures an important role in the diagnosis and preoperative assessment of cardiac echinococcosis [2]. In addition, where echocardiography is not helpful, such as in obese patients or patients with a chest deformity or in the evaluation of complications, MRI has an important role in the diagnosis of cardiac echinococcosis. The cardiac cyst reveals low signal intensity on T1-weighted images and high signal intensity on T2-weighted images. The presence of a low signal intensity rim on T2-weighted images is considered as representing the cyst wall. Daughter cysts may have low or high signal intensity depending on their contents [3].

Fig. 1. Axial CT shows the cardiac mass *(arrow)* on the anterior right ventricular wall. Additionally, multiple, different-sized nodules are present in the right lower lung field

Fig. 2. Axial gradient-echo image with surface coil shows the mass *(arrow)* to represent a cyst

References

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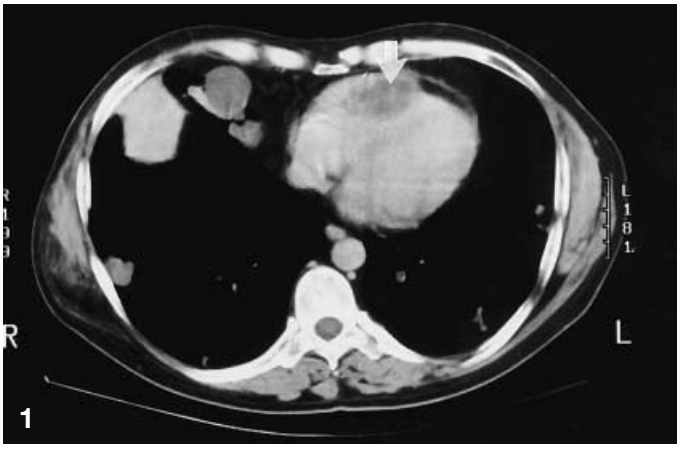

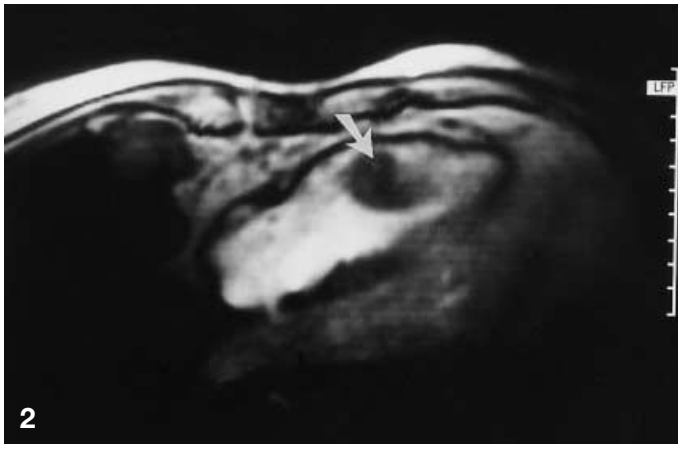

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