Cardiac Imaging

Hydatid Cyst in the Right Atrium and Pulmonary Hypertension Secondary to Cystic Embolism

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We describe a patient who developed pulmonary hypertension associated with a right atrial hydatid cyst and discuss our management.

A 24-year-old man was admitted to our hospital because of breathlessness and fatigue. He had a history of a pulmonary hydatid cyst operation two years previously. On physical examination he had marked respiratory difficulty, with a respiratory rate of 22 breaths per minute, and his jugular veins were mildly distended. The ECG showed right bundle branch block with signs of right ventricular hypertrophy. Transthoracic echocardiography showed normal systolic function, right atrial, ventricular and pulmonary artery enlargement, and third degree tricuspid regurgitation. Pulmonary artery systolic pressure was estimated to be 100 mmHg. There was a mobile, multi-lobular mass in the right atrium, attached to the right atrial free wall (Figure 1A).

For better delineation of the mass and atria, three-dimensional transthoracic echocardiography was performed. This revealed a 4 × 3 cm multi-lobular, heterogeneously echogenic and mobile mass, attached to the right atrial free wall and not connected to the tricuspid valve (Figure 1B). Subsequently, pulmonary computed tomography angiography revealed bilateral diffuse cystic lesions in the lung. Additionally, a mass that was associated with the cystic embolism was detected in the distal pulmonary artery. A non-enhancing mass, which was associated with a cystic lesion, dilated pulmonary arteries and branches, was found by magnetic resonance imaging (Figure 2). The patient underwent surgery for cyst excision and pulmonary endarterectomy (Figure 3).

Hydatid cyst is a significant health problem in underdeveloped and developing countries, particularly among sheep breeders.[1] Hydatidosis is a parasitic infection caused by the larval stage of Echinococcus granulosus. The liver (70%) and lungs (25%) are the organs most affected. Although cardiac involvement is seen only in 0.2-3% of the cases, early diagnosis and treatment are important.[2] The mostly affected sites of the heart are the left (75%) and right ventricles (18%), and the interventricular septum, whereas the pericardium, left and right atria are the least affected.[3] In primary cardiac hydatidosis, larvae usually reach the myocardium through the coronary circulation, via the pulmonary circulation or a patent foramen ovale – although the intestinal lymphatic vessels, the thoracic duct, the superior and inferior vena cava, and the haemorrhoidal and pulmonary veins may be involved.[4] Clinically, if the course is not asymptomatic a variety of cardiac sequelae, including sudden cardiac death, massive pulmonary embolism and pulmonary hypertension,

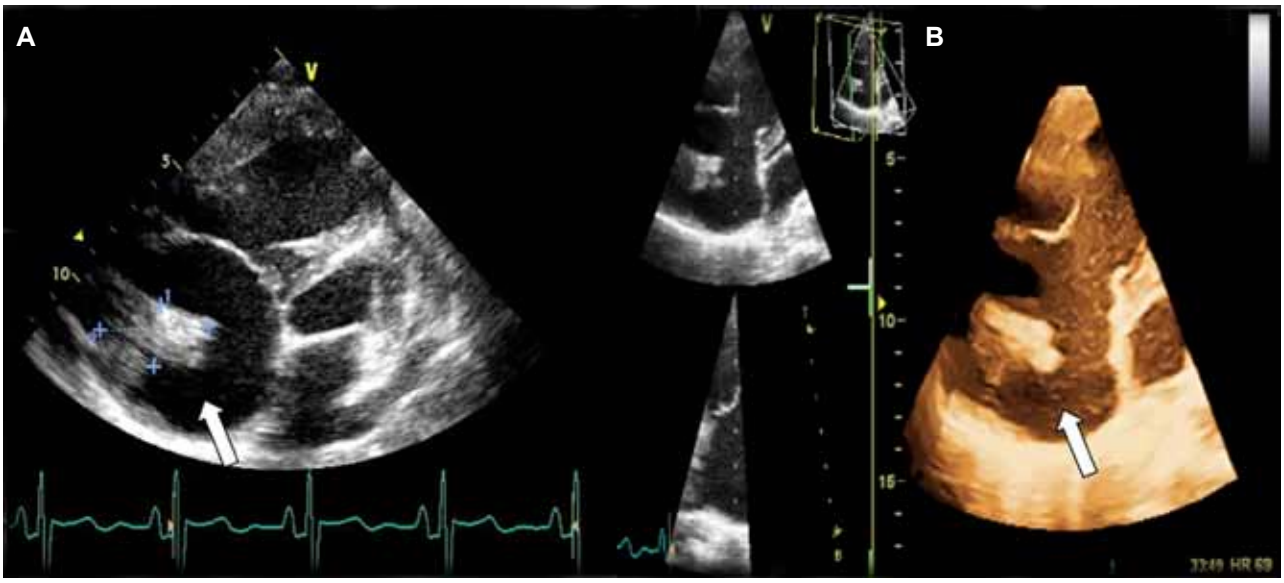

Figure 1. A. A 4 × 3 cm multi-lobular mass in the right atrium, attached to the right atrial free wall (arrow). B. Three-dimensional echocardiography shows a mass that originates from the right atrial free wall (arrow).

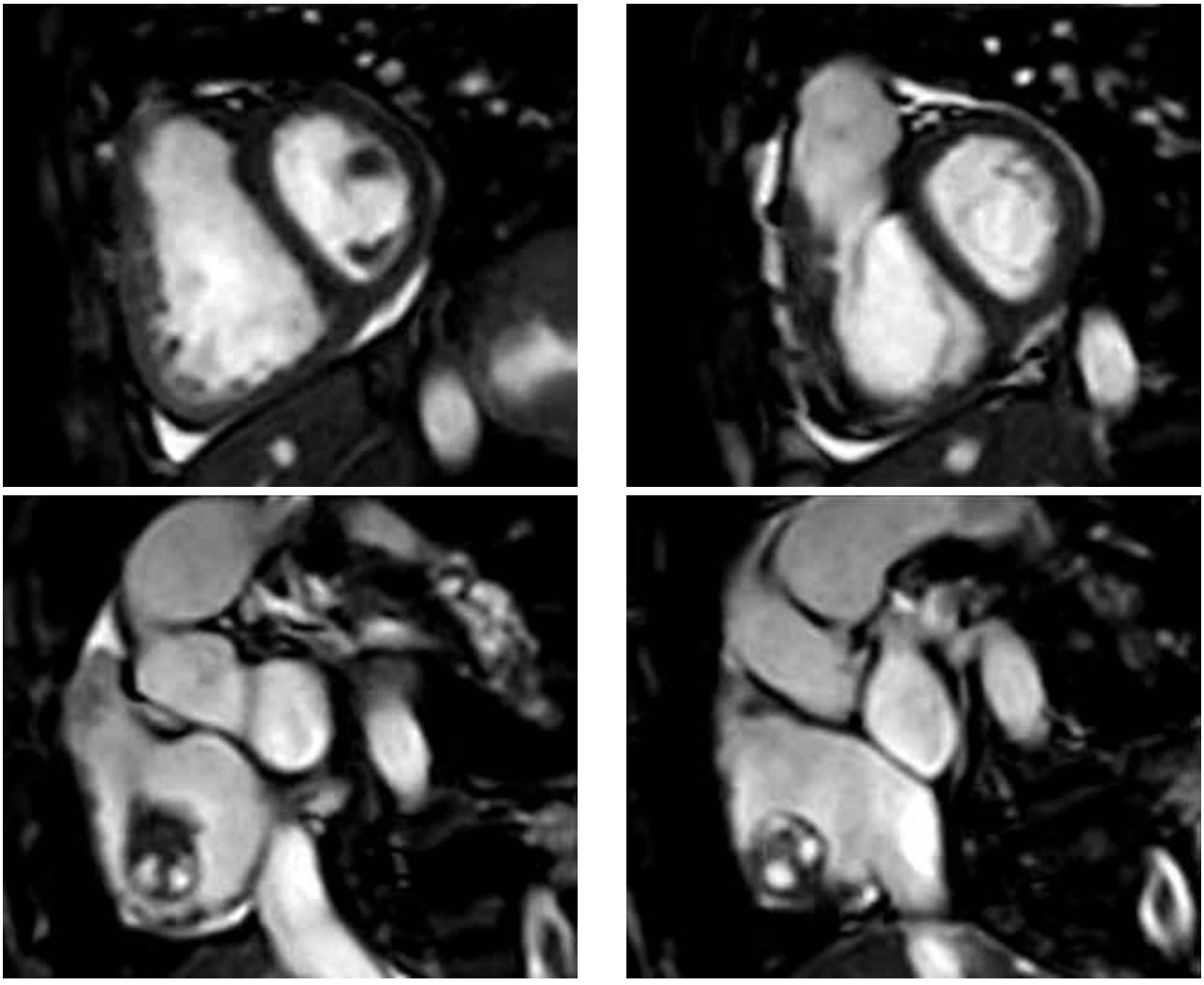

Figure 2. A non-enhancing mass associated with a cystic lesion was detected by magnetic resonance imaging.

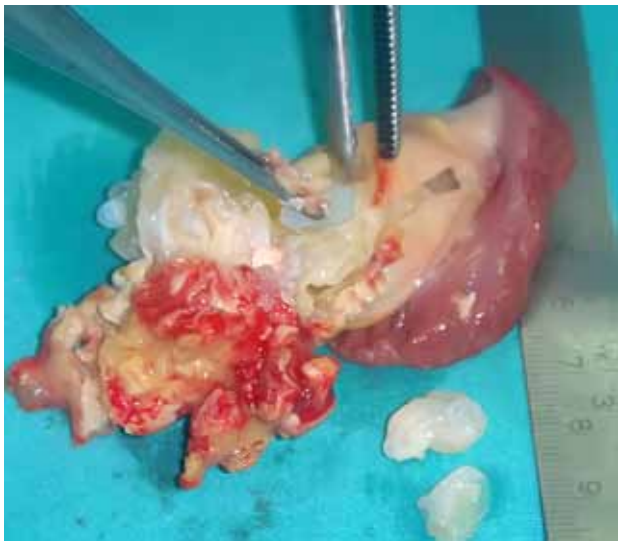

Figure 3. Operation specimen showing girl vesicle involving the cyst.

may be encountered.[5] A pulmonary cyst in combination with cardiac hydatidosis can be explained by the presence of small clefts in the vascular walls through which the parasites pass.

Echocardiography, computed tomography, or magnetic resonance are the imaging modalities for the recognition of cardiac hydatidosis.[6] Advanced imaging modalities, such as three-dimensional echocardiography and magnetic resonance, can help prevent an anaphylactic reaction secondary to rupture of the cyst, and acute pulmonary embolism during operation.

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