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CASE REPORT

Asymptomatic Isolated Cardiac Hydatid Cyst with Pulmonary Artery Extension

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ABSTRACT

Introduction: Hydatid disease is a kind of parasitic infection which is caused by *Echinococcus granulosus*. It is commonly characterized by cystic formation. Almost all organs can be affected by the infection, however, cardiac and especially right ventricular hydatid cystic involvement, is very rare. Also pulmonary artery extension occurs rarely.
Case Report: We report herein imaging findings of a -year-old asymptomatic male patient with cardiac hydatid cyst and pulmonary artery extension. He contour lobulation of paracardiac region in the chest. A film was the only clue for making diagnosis.
Conclusion: Imaging modalities are heplful in detecting the pathology.

Hadi Sasani

INTRODUCTION

Echinococcosis is an important and commonest parasitic infection which leads to form cystic lesions. Although liver (65%) and the lungs (25%) are the most frequent sites for development of hydatid cyst (HC), however, cardiac involvement has highly rare proportion (0.5-3%).[1]

In this article, we present imaging findings of an operated asymptomatic male patient with cardiac located HC that spreading through pulmonary artery.

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CASE REPORT

In PA chest x-ray film of a 22-year-old asymptomatic male patient, an opacity was detected in the right hilar zone and lower lob which was compatible to pulmonary artery trace. Counter lobulation was observed at left paracardiac region (Figure 1). Due to this finding, echocardiography examination was done, showing a 67x65 mm sized multilocular cystic lesion with internal echogenic septations at apical level of the right ventricle. It was suggestive of presence of daughter cysts and HC infection (Figure 2). Contrast-enhanced computed tomography (CT) showed multilocular cystic lesion with contrast enhanced internal septations and mural calcification in the apical region of right ventricle adjacent to the membranous portion of interventricular septum and ½ portion of muscular septum (Figure 3). Bronchial expansion of right lower lobe with cystic appearance was considered as pulmonary spread of

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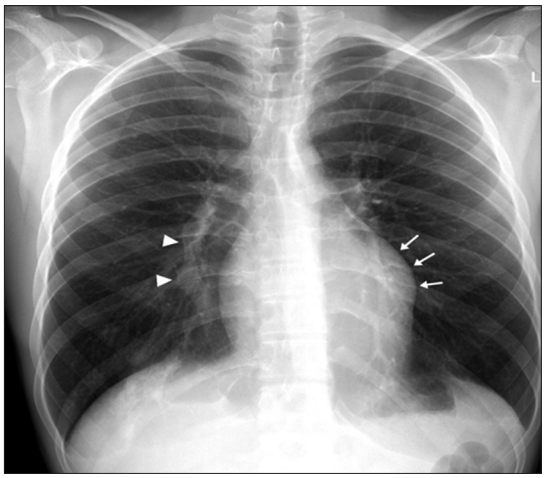

Figure 1: PA Chest graphy shows left paracardiac lobulation (arrows) and opacity in the right hilar zone and lower lob which was compatible to pulmonary artery trace (arrow heads)

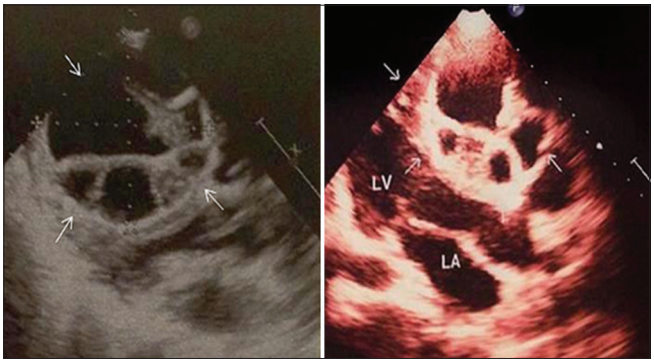

Figure 2: Echocardiography study depicts 67x65 mm sized left ventricular apical located multilocular cystic lesion with its internal echogenic septations (arrows)

HC. Ground glass and consolidation-like density changes were observed in the posterior basal segment of right lower lobe, were compatible with the watershed zone of the related pulmonary artery, suggesting an inflammation or infarction area.

Regarding to the absence of HC infection in both abdominal and cranial CT studies, this condition was suggestive to be isolated cardiac involvement. IgE level measurement was not done because of the proven imaging findings. The patient was operated and the cystic cavity was excised (Figure 4). Albendazole 800 mg/day was given to the patient post-operatively to prevent recurrences. After the therapy, the patient was discharged without any complication.

DISCUSSION

HC infection of heart is very rare condition. It most commonly involves the left ventricle (%55-60) and also can be located in right ventricle (15%), pericardium (8%), left atrium (8%), pulmonary artery (6%) and interventricular septum (5-9%).[2]

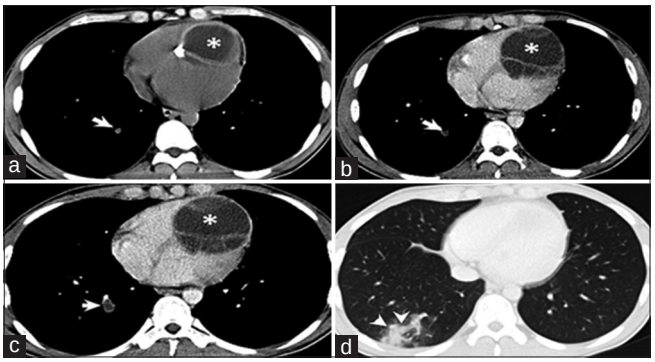

Figure 3: Contrast-enhanced CT examination shows mural calcification in right ventricle apical region adjacent to the membranous portion of interventricular septum and ½ position of muscular septum in pre-contrast images (a)contrast enhanced internal septations and cystic wall (b,c) multilocular cystic lesion (asterisk). Bronchial expansion of right lower lobe and cystic appearance suggesting pulmonary spread of HC(a-c) (Thick arrow).Ground glass and consolidation-like density in the right lower lobe posterior-basal segment which was the watershed zone of the related pulmonary artery suggesting inflammation or infarction (d) (arrowhead)

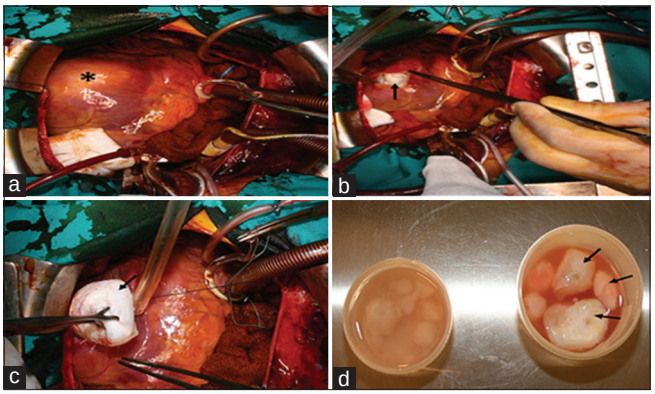

Figure 4: (a-d) Operated images of cardiac HC. Lobulation related to the cyst located at right ventricle and apical region (asterisk) and excised daughter cysts (arrows)

Development of HC inside the vascular structures, is a rare condition which usually leads to occur chronic arterial occlusion. Pulmonary arteries are the extraordinary site for this disease that mostly causes embolism from primary cardiac locations.[3]

Because of right ventricular cysts have tendency of intracavitary and subendocardial expansion, they may result in ruptures more frequently and cause pulmonary embolism, anaphylaxis and acute death. Cardiac effusion, tamponade and also pericarditis are the consequences of tear of cyst into the pericardial space. Left ventricular cysts tend to locate in subepicardial area.[4]

Depending on the site of involvement and the size of the cysts, patients may have symptoms due to mechanical effect on cardiac functions.[5] Mild, repetitive, indefinite chest pain are the most frequent concomitant complaints, however, patients with such conditions are usually asymptomatic. The cause of pain may be related to partial tear into the

pericardium or as a result of outside compression of the coronary arteries.[6]

Serological studies of cardiac HC are unreliable. Despite its their highest specificity, the sensitivity in intact cysts is low.[7]

Echocardiography and cross-sectional imaging modalities such as CT and magnetic resonance imaging (MRI) are helpful in revealing the diagnosis. These modalities are able to demonstrate cystic internal structure of the lesions and their relationship to the cardiac anatomy. The advantage of CT is to depict the mural calcifications. MRI has the best soft tissue resolution and tissue characterization. It demonstrates the definite anatomic location and details of the structures within the cyst or outside.[8]

HC may be in different forms such as single or multiple, unilocular or multilocular and also thin or thick walled. Other characteristic findings such as daughter cysts and membrane detachment and wall calcification may be present. If the lesion has solid-like appearance, it is not easy to distinguish from heart tumors.[9] MRI is capable of differentiate the pathology owing to its highest resolution. Oval-shaped lesions with T1-weighted hypointense and T2-weighted hyperintense signal properties, are the typical findings of HC on MRI. Pericyst which appears as a hypointense peripheral ring on T2-weighted images, is a characteristic finding of HC.[10]

In conclusion, in detecting HC disease, imaging findings are most of value in demonstrating the pathology as was in our case. Only observing counter lobulation at left paracardiac region in PA chest film of an asymptomatic patient, caused resulted in further investigation to clarify the pathology and also its treatment.

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