



Cardiac Hydatid Cyst: A Case Report

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Abstract

Hydatid disease commonly involves liver but in rare cases, it can involve cardiac structures. A 75-yr-old farmer from Parsabad-Moghan, northwestern Iran was presented to the Emergency Room of Tehran Imam Khomeini Hospital, Tehran, Iran with dyspnea and without chest pain in 2014. A lesion compatible with hydatid cyst was found in echocardiography and confirmed by serology and MRI. Surgical treatment was done but the patient was died in recovery room because of cardiac arrhythmia. In endemic areas, hydatid cyst should be considered in differential diagnosis of heterogeneous echogenic lesions even if the serologic tests are negative. Physician can use cardiac MRI to earn valuable information about the lesion and its relation to other structures. However, with all of these assessments, surgical removal of cardiac cysts may have some complications.

Keywords: Hydatid cyst, Parasite, Iran

Introduction

Hydatid disease is a zoonosis parasitic infection caused by *Echinococuse granulosus*, *E. multilocularis*, or *E. vogeli*. Dogs and cats are primary carriers of this parasite. Human can be infected as an intermediary carrier when eat unwashed or uncooked vegetables or swallow the parasite eggs. Embryo of the parasite inserts into blood circulation from intestine and can involve every organ (1). This infection commonly involves liver through portal vein, but if embryos bypass the liver, they reach the lungs via the inferior vena cava. They can also involve other organs like heart. The frequency of cardiac involvement is lesser than 2% (2, 3). Intracardiac tumors, congenital cysts and aneurysms are in differential diagnosis of this lesion (4, 5). Left ventricle is the most common site of cardiac involvement (1).

The diagnosis of cardiac hydatid disease is based on the combination of clinical suspicion, serologic tests and cardiac imaging. Echocardiography is highly sensitive and specific in diagnosis of hydatid cysts (6) and positive serological tests can help the diagnosis of this disease.

Here we introduce a rare case of hydatid cyst with cardiac involvement and discuss the important points about the disease.

Case presentation

A 75-yr-old farmer man from Parsabad-Moghan, northwestern Iran was presented to the Emergency Room of Tehran Imam Khomeini Hospital with dyspnea and without chest pain in 2014. He had progressive exertional dyspnea (function class II) since 6 months ago. However, his symptoms were deteriorated in past 4 days. He had diabetes and hypertension since 5 yr ago and was on oral agents. His family and social history were negative.

In physical examination, oral temperature was 36.5, blood pressure 145/90 mmHg, respiratory rate 22/ min and pulse rate 87/ min. In his primary laboratory tests, white blood cell count was 7300/ μ l (lymphocyte: 31% and neutrophil 57%), hemoglobin: 12.8 g/dl, platelet: 191000 / μ l, Na: 142, K: 4.5, urea: 57, creatinine: 2.3, blood sugar 145 mg/dl, HbA1C was 8.5. However, he had no

history of renal diseases. Electrocardiogram had no ischemic change and Troponin I was in normal range. In cardiac echocardiography, left ventricle (LV) ejection fraction was 35%, RV size was normal with mild to moderate RV systolic dysfunction, LV size was normal with moderate to severe LV systolic dysfunction and there was a very large multi-lobular echo-density attached to apico-lateral LV wall. Chest MRI revealed a 39*38 mm cystic mass with multiple septa and calcification in apex of heart that suggest myocardial Hydatid cyst with bulging in pericardia and local thickening of pericardium due to very late lesion (Fig. 1-3).

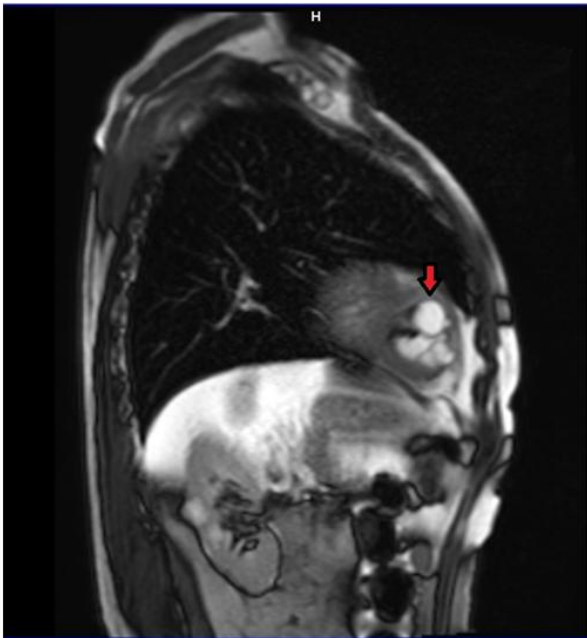


Fig. 1: Chest MRI showed a cystic mass with multiple septa and calcification in apex of heart with bulging in pericardia and local thickening of pericardium due to very late lesion (Vertical view) (Source: Shahid Rajaie Hospital MRI center, Tehran, Iran)

In abdominal CT scan, a hypo dense 6*6 mm lesion was seen in liver 4a zone. ELISA test was 14.9 (cut off=5). Albendazole 400 mg/ PO every 12 h was started and cardiac surgery done. Unfortunately, the patient faced cardiac arrhythmia in recovery room and despite medical team efforts died. The lesion was sent to pathology laboratory and the diagnosis confirmed.

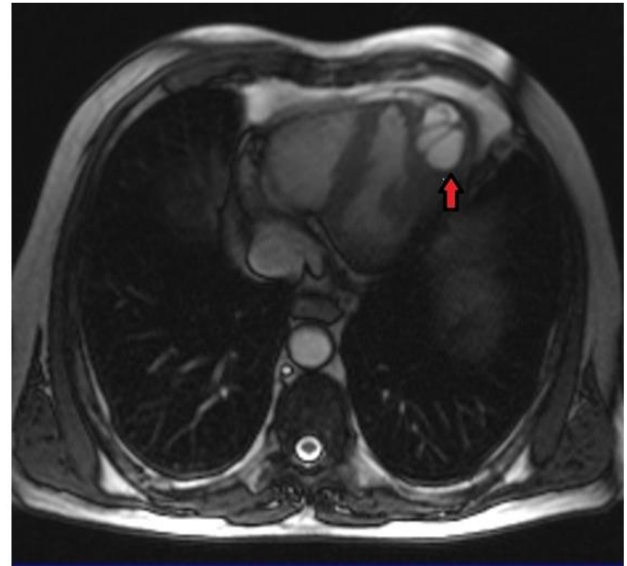


Fig. 2: Chest MRI showed a cystic mass with multiple septa and calcification in apex of heart with bulging in pericardia and local thickening of pericardium due to very late lesion (Horizontal view) (Source: Shahid Rajaie Hospital MRI center, Tehran, Iran)

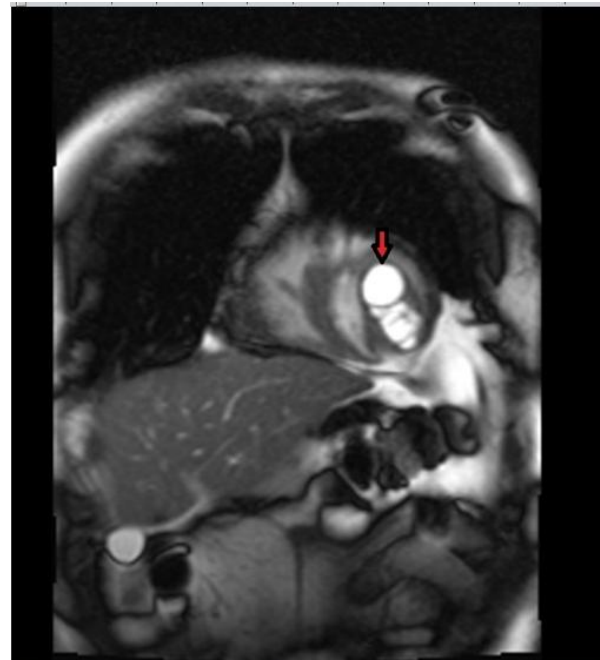


Fig. 3: Chest MRI showed a cystic mass with multiple septa and calcification in apex of heart with bulging in pericardia and local thickening of pericardium due to very late lesion (Coronal view) (Source: Shahid Rajaie Hospital MRI center, Tehran, Iran)

Discussion

Cardiac hydatid cyst is a rare disease and its symptom is depending on the size and site of infection. The growth of hydatid cyst is usually slow and asymptomatic and just about 10% of patients with cardiac hydatid cyst are symptomatic (6). Without prompt surgical treatment, rupture of the cyst or compression of vital structures may occur.

As we found in our patient, the hydatid cyst most commonly involve the left ventricle (55-60%), because this chamber of heart has the maximum myocardial mass and blood supply (7). Hydatid cyst with LV involvement can mimic left ventricular aneurysm and it should be one of differential diagnosis of cystic cardiac lesions in endemic areas (6). Besides, other parts of the heart can be involved. Structures like interventricular septum is involved 5%–9%, right ventricle 15% and the right atrium may be involved in 3%–4% of cases (7-9). Contractions of the heart provide a natural resistance to the presence of viable hydatid cyst but this mechanism is not effective in all cases and the parasite can invade myocardial tissue in rare cases (10). Initially, the cyst grows slowly between the cardiac fibers and causes no sign or symptom. Later it may cause pericardial pain, dyspnea, invade the surrounding structure, obstruct the blood flow and also invade the conductive system of heart and cause cardiac arrhythmia or block (2, 6). Some cases can mimic acute coronary syndrome (3). Then coronary angiography (CAG) is necessary in some cases. CAG was mildly abnormal in our patient and he was not case of CABG. The most important major complication is the rupture of the cyst, which can trigger an anaphylactic shock or tamponade, systemic or pulmonary embolization and compression of coronary branches (7).

As mentioned previously, echocardiography is sensitive for diagnosis of cardiac hydatid cyst. However, it is necessary to do CT scan or MRI to find additional information on the accurate location of lesion and relation of it with other structures (6). The presence of calcification in cystic lesion in echocardiography and MRI can be help-

ful to distinguish it from other cardiac cystic lesions (4, 6). Other helpful findings in MRI are presence of daughter cysts, and membrane detachment (1).

Cardiac surgery is the treatment of choice for most cases of cardiac hydatid cyst; however, the technique of surgery can be different (11-13). However, complications of cardiac surgery, especially in a patient with background diseases like diabetes and renal failure will increase. Scolicidal solutions such as iodine, ethanol, methylene blue or hypertonic saline can be used to reduce the risk of leakage of fluid from cyst during cardiac surgery (14). After a successful surgical treatment, the duration of antibiotic therapy is variable. Unfortunately, our patient died early after his cardiac surgery.

Conclusion

Early diagnosis and surgico-medical treatment is the success key of treatment for cardiac hydatid disease. In endemic areas, hydatid cyst should be considered in differential diagnosis of heterogeneous echogenic lesions on even if the serologic tests are negative. Physician can use cardiac MRI to earn valuable information about the lesion and its relation to other structures.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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The authors declare that there is no conflict of interests.

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