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Case Report

Rupture of a giant cardiac hydatid cyst in the left ventricular free wall: successful surgical management of a rare entity

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Abstract: Hydatid cyst of heart is a rare but potentially fatal site of pathology, especially left ventricular free wall. We managed a successful surgical treatment on a case of a 24 year old man who had a giant cardiac hydatid cyst (71 x 64 mm) that ruptured left ventricular free wall. The cyst was excised gently and all the cystic materials were removed, the cyst cavity was closed with GORE-TEX soft tissue patch. The patient was discharged on the 9th post-operative day without symptoms. This case is different from other cardiac hydatid cysts that have been reported in literature previously; because this patient was young and had advanced phase of the disease that presented to our clinic lately. Additionally, the cyst had limited both ventricular volumes significantly.

Keywords: Cardiac hydatid cyst, left ventricular free wall, rupture, surgical management

Introduction

Hydatidosis, a parasitic disorder that is caused by the larval form of Echinococcus granulosus, remains endemic in areas where farm animals are raised, particularly in the Mediterranean region and developing countries. Cardiac hydatidosis is an infrequent type of hydatidosis by 0.5% to 2% involvement, in comparison to the liver (65%) and the lung (25%). Therefore, hydatid cyst of heart is a rare but potentially fatal site of pathology [1]. Hydatid cyst rarely involves heart and particularly left ventricular free wall, which is an uncommon site. The diagnosis of hydatid cyst of the left ventricular free wall is difficult because of clinical and also radiographic findings may be nonspecific.

We report a case of a patient who had cardiac hydatid cyst that underwent successful surgical treatment.

Case report

A 24 year old man presented to the department of cardiothoracic in Imam Khomeini Hospital with chest pain of sudden onset that had became progressively intense with time; He complained of periodic thoracic pains during regular activities in past 6 months. He was transferred to the cardiology clinic. Blood pressure was 100/60 mm Hg and pulse rate 72 beats/min. There was a grade 2/6 holosystolic and 3/6 decrescendo diastolic murmur, most prominent at the left sternal edge. Electrocardiography showed changes in anteroseptal leads and ST-T segment (**Figure 1A**).

Chest radiography showed enlarged left cardiac cavities (**Figure 1B**). Thoracic CT scan revealed a large cystic mass in left ventricle measuring 71 x 64 mm (**Figure 1C**) and also another cyst in right lobe of liver measuring 23 x 28 mm (**Figure 1D**).

For further validation and precise localization of the cardiac hydatid cyst, cross sectional echocardiography was taken; that showed a cardiac cyst in the mediobasal portion of the left ventricular free wall. Transesophageal echocardiography confirmed the presence of a hydatid cyst in the left ventricular free wall (**Figure 2**). To

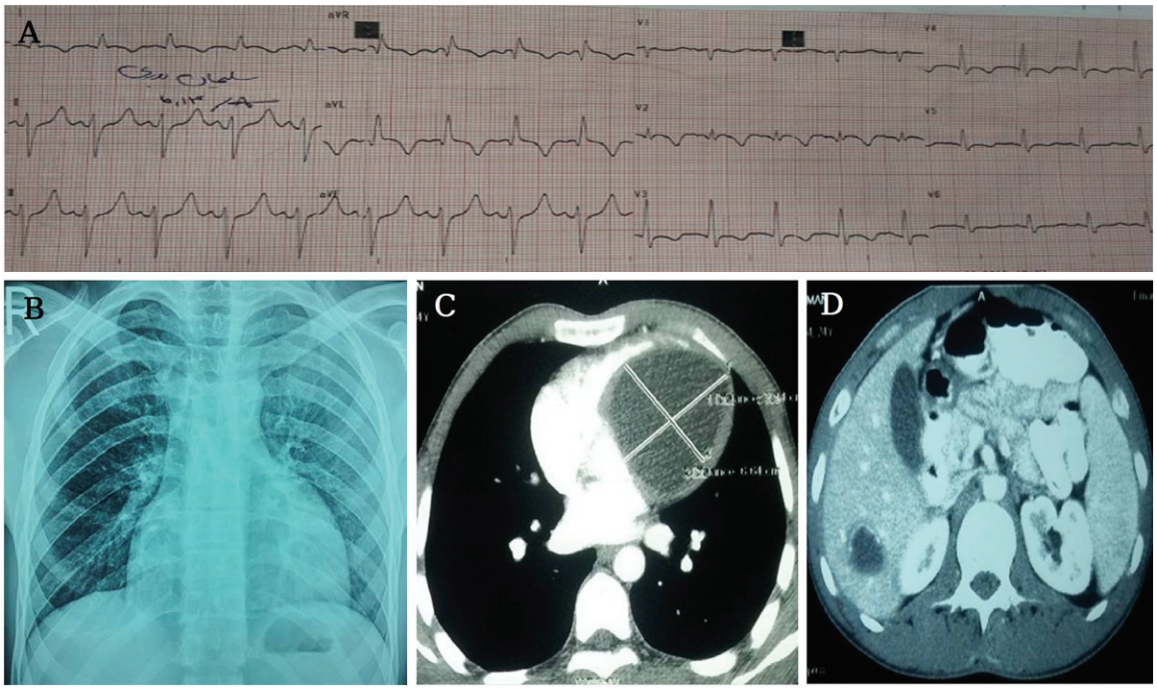

Figure 1. A: Electrocardiography showing abnormality. B: Chest radiography showing enlarged left cardiac cavities. C: Thoracic CT scan showing a large cystic mass in left ventricle measuring 71 x 64 mm. D: CT scan showing a cyst in right lobe of liver measuring 23 x 28 mm.

ascertain for presence of an echinococcus cyst the patient was tested in diagnostic laboratory; the test was positive for specific echinococcus antibodies (hydatid cyst Ab: 78.2 index).

Patient was taken up for surgery and chest opened by median sternotomy. On opening the pericardium, a globular cystic mass was seen in the left ventricle near left anterior descending (LAD) artery that ruptured left ventricular free wall but LAD was intact. Cardiopulmonary bypass, standard antegrade and retrograde cardioplegia, and aortic clamping were performed. It was decided to proceed with resection of the cyst. The cyst was excised gently and to prevent contamination of the surrounding area, cyst fluid was aspirated through a needle puncture. After removing all cystic material, the cyst cavity was thoroughly washed with hypertonic saline and finally was closed with GORE-TEX soft tissue patch (**Figure 3**). The whole of the pericardial cavity was thoroughly washed with hypertonic saline. The cyst was sent for histopathological examination that the report confirmed the diagnosis of hydatid cyst.

Postoperative period remained uneventful. Patient was put on Albendazole (400 mg two times a day) from 4 days before operation and was advised to continue it for 6 months. The patient was discharged on the 9th postoperative day without symptoms.

Discussion

Echinococcosis is a tissue parasite; in human it is caused by the larva of Echinococcus granulosus. Adult helminths mature in the intestinal mucosa of the final host who ate the uncooked cyst containing meat from the intermediate host. Larva reaches the myocardium through the coronary circulation. The intestinal lymphatics, thoracic duct, upper and lower vena cava, large intestine, and hemorrhoidal veins may also be the pathway. Cardiac involvement using the pulmonary veins has also been documented. It does not appear to be any age limit at presentation; it may manifest even in early childhood [2, 3].

Cardiac hydatid cyst disease is a rare (0.5-2%), but potentially fatal disorder. It may imitate valvular lesions, give symptoms of an intra-cardiac mass, or cause congestive heart failure. Cardiac involvement usually happens during adulthood. Hence the latent phase between

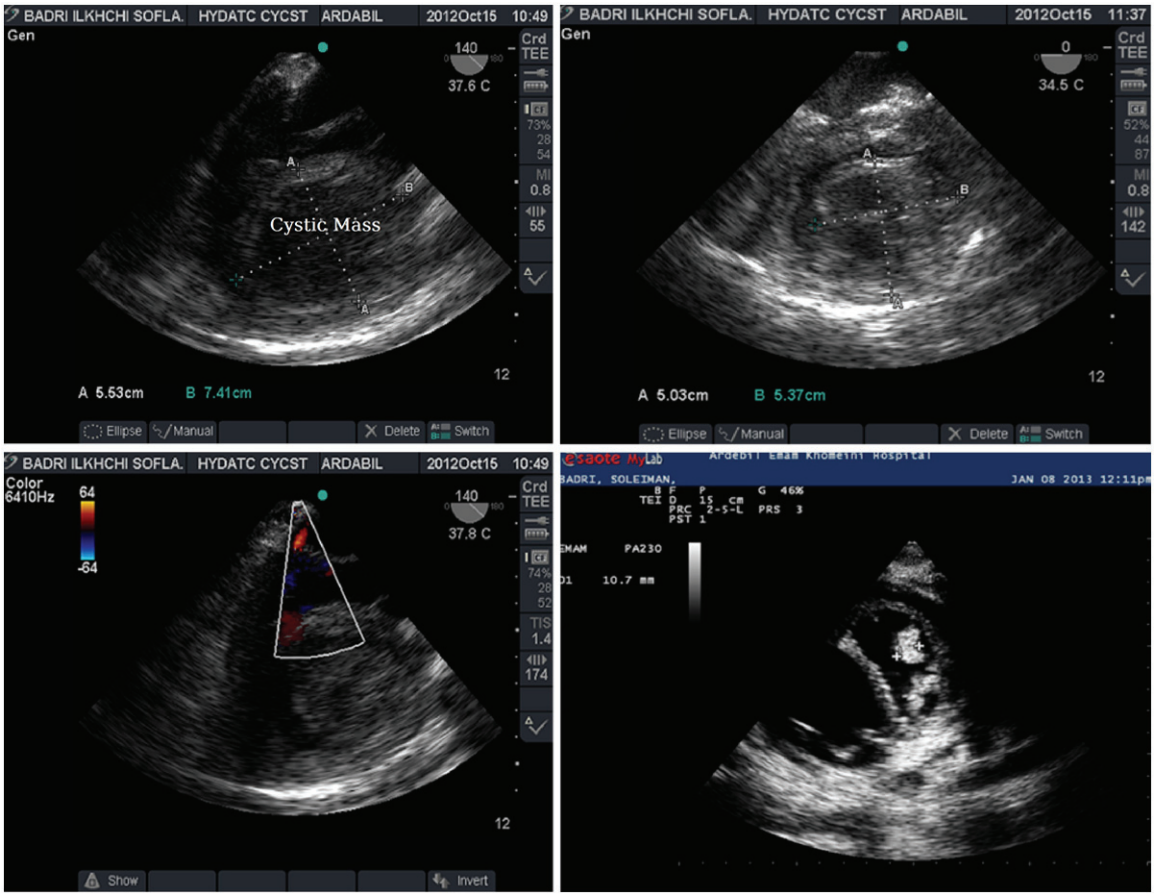

Figure 2. Echocardiographic appearance of left ventricular apical hydatid cyst.

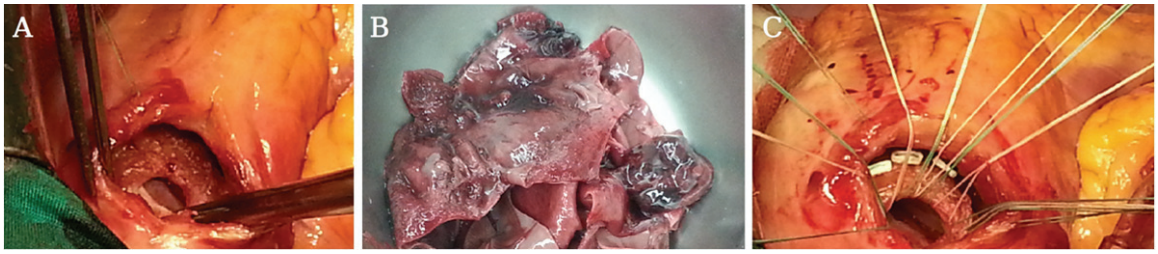

Figure 3. A: The view of the cystic rupture in the left ventricle. B: Cystic material removed from the left ventricle. C: Closing the rupture with GORE-TEX soft tissue patch.

infection and manifestation of the disease is long and symptoms may be nonspecific, therefore an early diagnosis is difficult [4].

Clinical presentation differs according to the number, size, localization, and complication of the cysts, which also makes early diagnosis difficult. Echocardiography, computerized tomography, and magnetic resonance imaging are valuable diagnostic tools. Cardiac hydatid cysts should always be considered as a differential diagnosis [4, 5]. In advance cases, rupture is a lethal complication of cardiac hydatid cyst, especially if not treated quickly following the initial diagnosis, or if the patient presents belatedly.

Gentle and limited manipulation of the heart under cardiopulmonary bypass diminishes the operational risk.

We managed successful surgical treatment of a rare case of cardiac hydatid cyst; since the

patient was suffering from a very large cystic mass in his left ventricle that ruptured left ventricular free wall. This case is different from other cardiac hydatid cysts that have been reported in literature previously [6-8]; because this patient was young and had advanced phase of the disease (cystic mass: 71 x 64 mm) that presented to our clinic lately. Additionally, the cyst had limited both ventricular volumes significantly.

It is recommended that patients with cardiac hydatid cysts to be examined and treated quickly to prevent unexpected death, especially if rupture is recognized. Regardless of sufficient medical facilities, a critical problem in developing countries is that patients do not present until late phase of the disease. In conclusion, wherever the localization, treatment for a cardiac hydatid cyst is surgery and it should not be delayed.

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