Isolated Hydatid Cyst In Left Ventricle Presenting As Coronary Artery Disease

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Abstract

Hydatid cyst of the heart is an uncommon lesion. A 72 years old female with chest pain and a single episode of syncope was admitted. Initial ECG showed acute anterior wall myocardial infarction. 2D echocardiography and computed tomography scan of thorax showed a cystic lesion in left ventricle, later diagnosis confirmed by enzyme linked immunosorbent assay for echinococcosis.

INTRODUCTION

Hydatidosis, a parasitic infection caused by Echinococcus granulosis, is a widely known zoonosis. Human beings are only incidental intermediate hosts of this parasite. In human beings, the most frequent locations of hydatid cysts are the liver (in more than 65% of cases) and lungs (25%). The mean of only about 0.5% to 2.0% of cases of isolated hydatid cysts are located in the heart. Pure cardiac involvement of hydatid disease is uncommon, and establishing a diagnosis is also difficult because the presenting symptoms are variable.

CASE REPORT

A 72 years old female presented with complaint of palpitations and recurrent acute episodes of pain in left chest from 1 month. ECG at that time showed classical changes of anterior wall myocardial infarction. She also had a single episode of syncope two weeks back. Chest radiography was normal. Antianginal drugs started, but no thrombolytic or anticoagulants given. After taking medications for one month but with no relief of symptoms, she admitted to our institute. Chest and abdominal examination were normal. Haemodynamically she was stable. Coronary angiography planned. Prior to Coronary angiography, 2-D echocardiography revealed a unilocular cystic mass measuring 2.9 x 2.5 cms with well defined margins, attached to apical and posterior wall of left ventricle. Mitral valve and aortic valve were normal. Left ventricle outflow tract was not obstructed and intraventricular septum was free (Fig-1& 2). Contrast enhanced Computed tomography of thorax revealed a cardiac mass in left ventricle of 2.5 x 2.5 cms (Fig. 3). No pulmonary or mediastinal pathology found. Routine blood investigations were unremarkable and serum cardiac enzymes were in normal range. ELISA with IgG and indirect haemagglutination test for hydatid cyst were positive. Ultrasound whole abdomen and Contrast enhanced CT scan of brain done, but there was no other hydatid cyst. Surgical excision of the cardiac cyst under cardiopulmonary bypass was planned; but the patient refused surgery. Therefore, patient was discharged on tab.Albendazole 400 mg twice daily.

Figure 1

Figure 1: Echocardiographic image in apical four chamber view, showing the cyst, measuring 2.9 x 2.7 cms in the left ventricle.
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Figure 2
Figure 2: Echocardiographic image in parasternal long axis view showing the cyst attached to apical and posterior wall of left ventricle.

Figure 3
Figure 3: C.T. Scan showing entirely intramyocardial cyst in left ventricle.

DISCUSSION

Echinococcosis is a tissue infection of humans caused by the larval stage of Echinococcus granulosus, E. multilocularis, E. oligarthus, or E. vogel. Human echinococcosis is caused most commonly by E granulosis. The term, ‘hydatid’ is the Greek word for a drop of water, which refers to the fluid-filled cysts formed by the echinococcus species larvae in humans.

Cardiac involvement of hydatid cyst is an uncommon lesion as compared with hepatic or pulmonary hydatidosis. The reported prevalence is about 0.5% to 2%. Hydatid cysts involving the heart have the following predominant locations. The left ventricle (75%) the right ventricle (17%) and the interventricular septum (7%). Polyvisceral involvement, if found, suggests the cardiac cysts to be echinococcus in nature. ELISA, if positive for hydatid antigens, is highly specific.

Cardiac infestation can be asymptomatic or may present with clinical findings depending upon the size, location, and number of cysts. Patients with cardiac hydatid cysts are usually asymptomatic, although mild, recurrent, nonspecific chest pain is the most common complaint. This may be due to episodes of partial rupture into the pericardium, with resulting pericarditis or because of external compression of the coronary artery. If cardiac hydatid cysts are left untreated, they usually rupture into the heart chamber or pericardium and may cause pulmonary or systemic embolization, tamponade or anaphylactic shock. Even constrictive pericarditis secondary to a pericardial hydatid cyst has been reported. Other cardiac abnormalities reported include low voltage graph and non-specific ST–T wave change on ECG, depending on location of cystic masses.

The serologic diagnosis is not reliable, although it has high specificity, but sensitivity is low in patients with intact cysts as the concentration of the antibody in serum is very low until the cyst leaks.

Two-dimensional echocardiography is the best diagnostic procedure to demonstrate a cardiac hydatid cyst. On echocardiography, a unilocular cyst with well-defined margins and internal trabeculations corresponding to daughter cysts is diagnostic of a hydatid cyst. Movement of cyst contents (hydatid sand) seen on changing the patient’s posture, and progressive image modulation with medical therapy, has been reported previously and considered to be characteristic of hydatid cysts.

Noncomplicated cysts usually appear hypodense and well marginated on non contrast CT. Contrast study is essential to demonstrate the enhancement of the cyst wall and also to localize the cysts in pulmonary arterial branches. A differential diagnosis should be performed with intraluminal defects of pulmonary arteries, such as pulmonary thromboembolism and primary arterial tumor such as sarcoma. CT examination delineates large cysts and their relation with surrounding structures. More recently, MRI has been used to provide a diagnosis of hydatid cyst based on the characteristic low-intensity rim on both the T₁ - weighted and T₂ -weighted images in a cystic mass. This rim represents the fibrous tissue-rich pericyst in a hydatid cyst.

Although rare, cardiac echinococcosis should be considered in the differential diagnosis of cardiac tumours, particularly
in patients originating from endemic areas or with manifestation of hydatid disease in the other organs. Unless the disease is recurrent or inoperable, patients with cardiac hydatid disease must undergo surgery to avoid life-threatening complications. The World Health Organization guidelines for the treatment recommended that: for patients with operable disease, surgical resection of the parasitic lesion is the treatment of choice, followed by medical therapy for a limited time (minimum of 2 years), long-term medical therapy is indicated in inoperable disease or after incomplete resection of lesions as well as after transplantation.

If surgery is contraindicated or refused by the patient, medical therapy might be an alternative. Medical treatment is also recommended for small, totally calcified, asymptomatic cysts in elderly patients with negative serology for hydatid disease and no impedance of hemodynamics or cardiac blood supply. There are also limited reports over efficacy of medical therapy. Mebendazole was one of the first in this class to show efficacy (1971), but it has been quickly replaced by Albendazole, which is better absorbed. Response to this therapy is apparently related to the thickness of the cyst wall. Developments of echogenic foci, increase in density of cyst fluid, degenerative modification, partial destruction of germinal membrane, obliteration of the cystic cavity, increase in the ultrasound density, deposition of calcium and calcification were considered as therapeutic effect. An essential criterion was cyst size reduction as well as shape deformation. The most reliable criterion should be the complete disappearance of hydatid cyst. Therapy is usually in the dosage of 10–15 mg/kg or 400 mg twice a day. This should be given pre and post operatively for complete cure.

In our case, there was isolated cardiac cyst in left ventricle, no polyvisceral involvement and unique symptomatic presentation.

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