Asymptomatic Presentation of Large Cardiac Hydatid

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Abstract

Hydatid cyst is a tissue parasitic infection caused by tapeworm Echinococcus granulosus. Common location for hydatid cysts are the liver (65%) and the lungs (25%). Cardiac hydatid cyst is seen rarely, occurring in about 0.5-2% of all cases of hydatid disease. We present this case of 45 years female who presented with short duration of dry cough and atypical chest pain. Chest X ray showed cardiomegaly with round bulge at the right heart border and curvilinear calcification in left upper abdomen in the region of spleen.

Transthoracic echocardiography (TTE) depicted cystic lesion in Right Ventricle free wall causing compression of right atrial and ventricular cavity. Cardiac CT confirmed this cyst as hydatid cyst. Patient underwent successful excision of right ventricular hydatid cyst.

Case

A 5-year-old woman from rural area presented with complaints of dry cough and atypical chest pain of 4 days duration. She had no history of common cold, fever, sore throat, breathlessness. Her past medical history was unremarkable. Her general, cardiovascular and respiratory examination was normal.

ECG was unremarkable except sinus tachycardia and right axis deviation. Laboratory tests like complete blood count, liver and kidney function tests were normal. Chest x-ray PA view revealed cardiomegaly (Cardiac Thoracic ratio of 65%) with round bulging of right heart border and curvilinear calcification in left upper abdomen in the region of spleen (Figure 1). Ultrasound Abdomen showed cystic lesion in spleen of 6 x 9 cm.

TTE in apical four chamber view depicted cystic lesion in Right Ventricle free wall of size 9.5 x 6 cm causing compression of right atrial and ventricular cavity (Figure 2). To know exactly the extent of disease and relation of hydatid cyst with surrounding structures Cardiac CT (Figures 3 and 4) was done which revealed well defined multiloculated cystic lesion involving right ventricle of approximately 10.3 x 7.0 x 6.3 in its transverse, AP and craniocaudal axis respectively and causing compression of right atrial and right ventricle cavity. Anteriorly abutting sternum, right laterally related to adjacent right middle and lower lobes of lung. Right coronary artery seen in close relation to posterior wall of the cyst.

As patient was 45 years old and plan was surgical excision of Right ventricular hydatid cyst pre-operative CAG was done to look for coronary artery disease. CAG was normal except posterior displacement of Right Coronary Artery.

Intraoperative TEE showed multiple cystic lesions in Right ventricle obliterating right ventricular cavity (Figure 5).

Excision of hydatid cyst was done by median sternotomy approach. Cardiopulmonary bypass was

Fig. 1: Chest X Ray PA View showing cardiomegaly (Cardiothoracic ratio of 65%) with round bulging of right heart border and curvilinear calcification in left upper abdomen in the region of spleen

Fig. 2: Transthoracic Echocardiography (TTE) showing cystic lesion in right ventricle obliterating right ventricular and right atrial cavity

Fig. 3: Cardiac CT showing multiloculated cystic involving right ventricular myocardium with compression of right atrial and right ventricle cavity. Anteriorly abutting sternum, right laterally related to adjacent right middle and lower lobes lung segments

Fig. 4: CT showing hydatid cyst (2 daughter cysts) in spleen

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Received: 11.04.2016; Accepted: 25.05.2016
The cardiac hydatid cyst is located in the left ventricle (55-60%), followed by right ventricle (15%), pericardium (6%) and interventricular septum (8%), left atrium (8%), pulmonary artery (6%) and interventricular septum (5-9%). Isolated cardiac involvement is rare and occurs in only 0.5-2% of cases. Hydatid infection of heart may occur via coronary circulation or from intravascular pulmonary cyst rupture. In cardiac hydatidosis larvae usually reach myocardium through the coronary circulation.

**Discussion**

**Introduction**

Domestic dogs are the primary carriers of echinococcal organisms. Humans are infected as intermediary carriers when they eat unwashed and uncooked vegetables and swallow the ova of the parasite. After the person digests the contaminated food, the embryo of the parasite is released into the intestinal tract and carried by right ventricle (15%) and inferior vena cava was seen (Figure 6). Incision taken on Right ventricle and cyst was removed. Drain kept and incision closed in layers. Histopathological examination report was consistent with hydatid cyst. Patient had uneventful recovery and was discharged on albendazole (10mg/day) to prevent recurrence. Patient was referred to surgery for splenic hydatid cyst removal.

**Signs and Symptoms**

Most patients with cardiac echinococcosis have no symptoms, and the disease is often latent because a hydatid cyst in the heart grows very slowly. Unless a cyst is located in a critical anatomic site, the disease is usually diagnosed late. Signs and symptoms of cardiac hydatid cysts are extremely variable and directly related to the location and the size of the cysts. Cardiac cyst hydatid frequently presents with pericardial chest pain, dyspnea, cough and fever. Patients sometimes present with life-threatening conditions such as congestive heart failure, pericardial tamponade, pulmonary embolism, syncopal attacks or superior vena cava syndrome. Our patient had dry cough and atypical chest pain. In diagnosis, most patients exhibit multivisceral involvement (55%-85%). Only approximately 10% of patients, especially those with large hydatid cysts, have clinical manifestations. All complications can be life-threatening.

**Investigations**

Electrocardiographic findings are not specific to cardiac cyst hydatid. In chest X-ray, calcified lobular masses and abnormal heart shadows can be seen. TTE and TEE play central role in diagnosing cardiac hydatid cysts. Tomography scans and MRI can show extracardiac involvement and are important tool for follow up. Serologic tests are positive in 50% of the patients and false negativity must be taken into account. We suspected our diagnosis on chest X ray and made the diagnosis with echocardiography and cardiac CT.

**Complications**

Cyst perforation is the most hazardous complication of heart echinococcosis. As a rule, left ventricle cysts perforate out of the cavity (10 to 20 times more frequently than right ventricle cysts) and right ventricle cysts perforate into the cavity. The frequency of intracardiac perforation is very high (25-40%). After cyst perforation majority of death occur from septic shock or embolic complications.

**Treatment**

Cysts in other organs may be treated both by chemotherapy and surgical manipulations but in case of heart echinococcosis it is not possible to administer antihelminthic medicines prior to surgery due to the risk of cyst wall destruction and rupture. Pharmacological treatment consists of benzimidazole derivatives. They inhibit parasite specific fumarate reductase, microtubule polymerase, oxidative phosphorylation and glucose transport. Because of risk of rupture into cardiac chambers, pericardium and sudden death the mainstay of the cardiac cyst treatment is urgent surgery. In cardiac cyst hydatid, operative mortality is reported as 0.25-0.1%.

**Conclusion**

Our country being an endemic area for hydatid disease hence hydatid cyst should be ruled out in every cystic lesion of heart. In view of the difficulties in diagnosis and progressive and dangerous complications in its natural course urgent surgical excision of the lesion under cardiopulmonary bypass remains the treatment of choice in cardiac hydatid disease. The right ventricle’s hydatid cysts rupture more often than the left ventricle’s hydatid cysts because of the subendocardial location. As a result, right hydatid cysts should be treated by early surgical excision to prevent the risk of rupture, anaphylaxis, sudden death, and pulmonary embolus as done in our case.

**References**