Chest Pain due to Compression Effect of Hydatid Cyst on LAD: Rare Presentation of Hydatid Cyst in Heart

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Abstract

Introduction- Cardiac hydatid cysts usually involve other organs and in different sites of the heart. Treatment of heart hydatid cysts is usually surgical, followed by continuous medical therapy. We present a male patient with a hydatid cyst in the interventricular septum with compression effect on the left anterior descending artery (LAD); the cyst was diagnosed with echocardiography, CT imaging, and angiography. The patient was treated via surgical excision of the cyst under cardiopulmonary bypass, and the treatment was continued with medical therapy. A follow-up, the patient was in good physical condition. Cardiac echinococcosis is uncommon, accounting for 0.5% to 3% of all hydatid infestations in human beings. All the heart walls and cavities can be the site of hydatid development but hydatid cysts of the heart are located most often in the left ventricle. Involvement of the interventricular septum is rare and can cause symptoms arising from the compression of the atrioventricular conduction pathway and obstruction of the right or left ventricular outflow tract. Diagnosis is with echocardiography, CT imaging, and occasionally angiography. There is always the lethal hazard of cyst perforation. Early diagnosis and an integrated treatment strategy are crucial. The results of the surgical treatment of heart echinococcosis are better than those of the conservative strategy only. Extraction of the cyst combined with chemotherapy perioperatively or postoperatively is aimed at decreasing recurrence.

Keywords: Hydatid cyst ■ Cardiac mass ■ Interventricular septum ■ Chest pain

Case Report

A 34-year-old man with exertional chest pain and dyspnea, fever, and weight loss was evaluated in this center. The patient was a farmer and had contact with dogs and pets. On physical examination, no significant problem was detected. Cell blood count and blood biochemistry were normal, but the serology test for hydatid cysts was positive. On echocardiography, a hypoechoic mass was seen in the interventricular septum, 3×4 Cm in diameter. Abdominal ultrasonography revealed a large hydatid cyst in the left liver lobe. CT imaging of the thorax, mediastinum, and abdomen confirmed the cyst in the heart and liver.

The patient had presenting symptoms of angina; coronary angiography was, therefore, conducted, which showed a large hydatid cyst in the interventricular septum and in the left anterior descending artery (LAD) territory. He underwent surgery via the sternotomy approach and standard cardiopulmonary bypass with aortic arterial line and bicaval venous line. A large cyst, 4x5 cm in size, was seen in the interventricular septum in the midportion of the LAD.
While preventing cyst contamination of the surgical field, hypertonic saline was infused into the cyst. After a few minutes, the cyst was aspirated and was seen in the aspirated fluid. The cyst was subsequently fully removed. The surgical field was thereafter irrigated, the patient was weaned off cardiopulmonary bypass, and the sternum was closed. The patient’s recovery was uneventful and he was discharged one week later with Albendazol. Pathology confirmed the diagnosis.

**Discussion**

Echinococcal infestation is endemic in sheep- and cattle-raising areas of the world, notably in the Mediterranean countries, the Middle East, South America, Australia, and New Zealand. Cardiac echinococcosis is uncommon, accounting for 0.5% to 3% of all hydatid infestations in human beings. Hydatid disease is caused by tapeworm Echinococcus. Patients with high temperature, heart rhythm and conduction disorders, and dyspnea of unknown etiology might be harboring Echinococcus despite the absence of primary liver or lung damage. It can appear with symptoms very similar to coronary artery disease, cardiac valvular disease, and pericarditis. Cardiac echinococcosis should be kept in mind in some patients throughout their life with a history of previous hydatid cyst disease. The hydatid cyst of the heart affects teenagers and young adults. Echocardiography and other physical examinations reveal the fluid collection and also specify its exact location in the heart. All the heart walls and cavities can be the sites of hydatic development. Serology for primitive cardiac hydatidosis provides very low levels of antibodies. The diagnosis of hydatid cysts should be considered in patients with a cystic mass, who live or have lived in a geographic region that has a high risk for Echinococcus granulosus, or visited an endemic area.

Hydatid cysts of the heart are located most often in the left ventricle; involvement of the interventricular septum is rare and can cause symptoms arising from the compression of the atrioventricular conduction pathway and obstruction of the right or left ventricular outflow tract. Involvement of the heart can occur from the systemic or pulmonary circulation or as direct extension from the adjacent structures. Isolated cardiac involvement is rare and occurs in only 0.02-2% of cases. It can be located at any part of the heart and the manifestations depend on the size, location, and integrity of the cyst. The left ventricle myocardium is involved 2-3-fold more frequently than the right one with fewer cases at the interventricular septum. Involvement of the left and right atria is approximately equal. Unusual locations for heart hydatid cysts are the right ventricle; interventricular septum with ischemic change on the EKG mimicking acute myocardial infarction; pulmonary embolism due to the rupture of the right ventricle hydatid cyst; and pericarditis due to the rupture of the left ventricle hydatid cyst. Although the serologic reactions for hydatid cysts provide essential information, their sensitivity is not high and parameters frequently do not correspond to the morphological changes of the disease. Transthoracic echocardiography and more recently, contrast echocardiography, computed tomography, and magnetic resonance imaging are the most important tools for the diagnosis and follow-up of patients. Urgent surgical treatment is necessary even on suspicion of complicated hydatid damage to the heart. 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 it. The frequency of intracardiac perforation is very high (25-40%). After cyst perforation 75% of the patients die from septic shock or embolic complications.
Whereas cysts in other organs may be treated both by chemotherapy and surgical manipulations, in the case of heart Echinococcosis it is impossible to administer anthelmintics prior to surgery due to the risk of cyst wall destruction and rupture. In addition, the results of the surgical treatment of heart Echinococcosis are better than those of the conservative strategy only².

Fig. 2. The cyst in the interventricular septum

Fig. 3. The hydatid cyst in the left liver lobe

Fig. 4. Aspiration of the hydatid cyst on the right side of the LAD

Fig. 5. Opening of the cyst
Fig. 6. The complete removal of the cyst

References


