

A giant hydatid cyst atypically located in the left ventricle

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Cardiac hydatidosis is a rare but potentially life-threatening infestation. Cardiac hydatid cysts generally occur in the left ventricle; followed by the atria, the free wall of the right ventricle, the pericardium and the interventricular septum. Herein, we report a 17-year-old girl with a giant left ventricle cyst who was previously treated by interventional methods for liver and lung hydatid cysts. The cardiac cyst was removed with cardiopulmonary bypass support.

Key words: hydatid cyst, left ventricle, cardiomyopathy.

Echinococcus granulosus infestation is a serious worldwide public health problem. Cardiac involvement of hydatid cysts (HC) is extremely rare. In endemic countries such as ours, patients do not present until the late phase of the disease, regardless of the availability of medical facilities. Among patients who have hydatidosis, hepatic HCs occur in 70% and pulmonary cysts in 20%. In contrast, HC of the heart is rare and comprises 0.5-2% of all cases¹. Cardiac hydatid cysts generally occur within the myocardium, mostly in the left ventricle (50-70%), followed by the atria and the free wall of the right ventricle (30%), the pericardium (15-25%) and the interventricular septum (5-15%)². The most common symptoms are dyspnea, chest pain and arrhythmias³⁻⁵. Early diagnosis and definitive treatment is crucial to prevent life-threatening complications⁶. Here we report a case of a 17-year-old female with a giant cardiac hydatid cyst involving the posterolateral wall of the left ventricle (LV) and leading to aneurysmatic dilatation. Chest pain and shortness of breath were the presenting symptoms. The diagnosis was made by means of transthoracic echocardiography, computed tomography (CT) coronary angiography and cardiac magnetic resonance imaging (MRI). The cyst was removed using cardiopulmonary bypass, and the residual fibrous cavity was reinforced with a woven polyester fabric patch (BARD®).

Case Report

A 17-year-old girl living in a rural area had experienced intermittent chest pain and dyspnea. She was admitted to our pediatric cardiology unit upon the progressive increase of her complaints. She had a history of pulmonary and hepatic hydatid cyst (HC) aspirations performed by the interventional radiology department three years previously. She was on albendazole treatment (2 x 400 mg/day). The chest X-ray demonstrated a mass located at the left basal contour of the mediastinum (Fig. 1). The brain natriuretic peptide (BNP) level was 464 pg/ml. Transthoracic echocardiography displayed dilated cardiomyopathy with ejection fraction of 45% and an ovoid-shaped cystic mass 8 x 9 cm in size and located on the inferolateral wall of the LV. CT coronary angiography revealed normal coronary arteries and a 7.9 x 5.5 x 5.9 cm cystic lesion located on the posterolateral segment, partially obstructing the left ventricular cavity and also leading to abnormal wall motion (Fig. 2). Aneurysmatic dilatation of the posterolateral wall of the LV was noted on cardiac MRI (Fig. 3). She was hospitalized, and surgical removal of this huge LV cyst was scheduled. A median sternotomy was performed. The widespread adhesions were detached under cardiopulmonary bypass (CPB) after aortic cross-clamping antegrade cold crystalloid cardioplegia was administered.

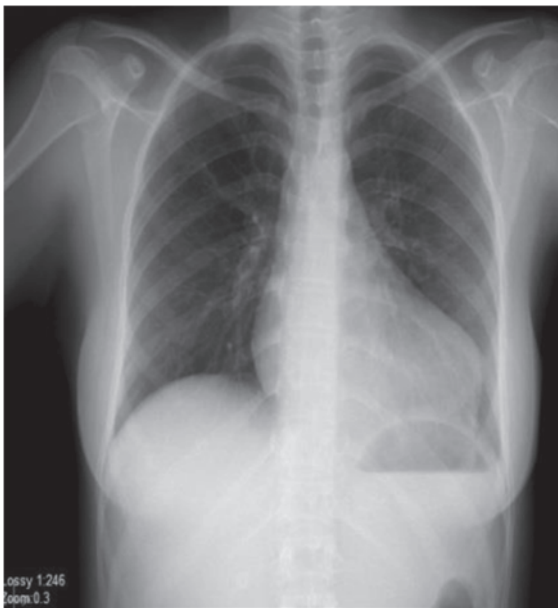


Fig. 1. Posteroanterior chest radiograph shows a dense homogenous opacity in the left basal portion of the cardiac silhouette.

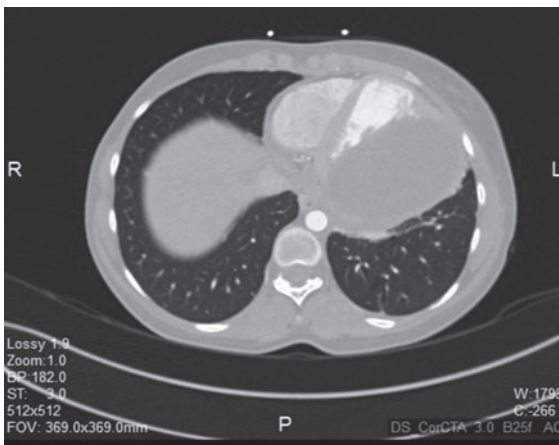


Fig. 2. Contrast-enhanced CT reveals a well-circumscribed lesion severely obstructing the left ventricular cavity.

The cyst on the posterolateral border of the LV was encircled with hypertonic sodium chloride (NaCl) impregnated gauze (Fig. 4). Diagnostic aspiration was performed to check and identify the content of the cyst. Following hypertonic NaCl instillation, the cavity was opened. The germinative membrane and multiple daughter cysts were removed. The walls of the pouch were resected and the defect was reinforced with a woven polyester fabric patch (Fig. 5). The patient was weaned from CPB without inotropic support. The histopathological examination was reported to be compatible with a hydatid cyst.

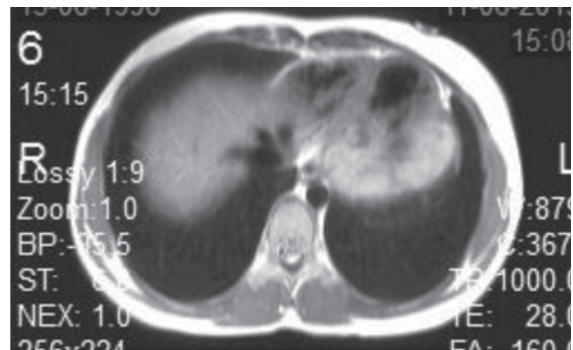


Fig. 3. Magnetic resonance imaging shows involvement of the posterobasal wall of the left heart and replacement of the myocardial layer by the giant cystic lesion.

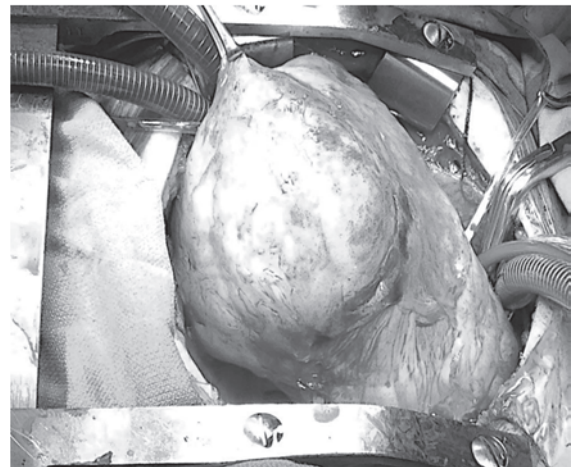


Fig. 4. Operative view showing the giant cardiac hydatid cyst.

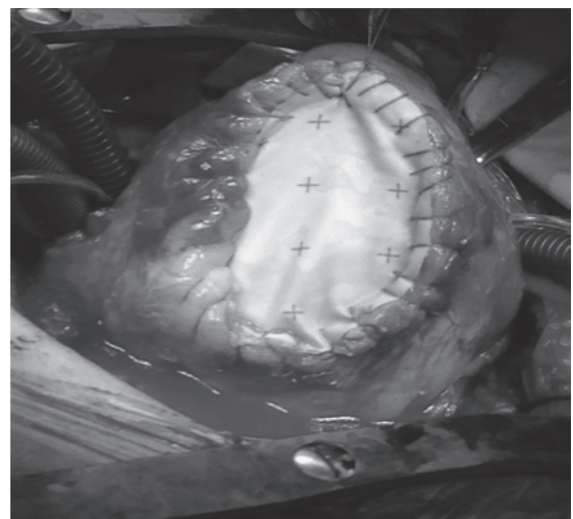


Fig. 5. Operative view after removal of the cyst and reinforcement with a woven polyester fabric patch.

The early postoperative period was uneventful. IgG ELISA anti-*Echinococcus* antibodies were negative through the follow-up period. A six-month course of treatment with albendazole was planned in order to prevent recurrences. She was healthy at her sixth-month follow-up examination.

Discussion

Hydatid disease usually involves the liver and lungs. Cardiac involvement is very rare. When present, such a cyst may rupture into the pericardial cavity, and may cause an anaphylactic reaction⁷. Among the radiographic techniques available, CT and MRI are adequate to detect hydatid cysts. The main complaint of our patient was chest pain. Cysts that grow toward the epicardium can compress the small coronary arteries, disturbing blood flow. To determine whether this was the case, we performed CT coronary angiography, which revealed normal coronary arteries. In our patient, the cyst was partially obstructing the left ventricular cavity and leading to abnormal wall motion. Alizadeh-Ghavidel et al⁸. reported a case of a giant HC with multiple cysts that were located both intrapericardially and on the posterolateral wall of the left ventricle. Cardiac hydatid cysts may also be removed without CPB support³. We elected to perform surgery using CPB in order to avoid systemic embolization. Gentle and limited manipulation of the heart under cardiopulmonary bypass diminishes the operative risk⁹. This method also enabled us to obtain a direct, clear view of the hydatid cyst and the cardiac structures. We applied a cardiac patch to the base of the cystic cavity. We avoided using the capittonage technique, which can impair ventricular wall motion and distort the cardiac contour. Hosseinian et al⁹. reported a successful repair of a cardiac hydatid cyst using Gore-Tex material.

In conclusion, surgical excision of cardiac hydatid cysts under CPB is a safe and convenient mode of treatment. However, the surgical approach should be case specific and change according to the location of the cyst within the cardiac structures.

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