

Hydatid Cyst of the Left Ventricle of the Heart

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Abstract

The present study involves a 47-year-old male patient from Jordan that presented with a history of progressive shortness of breath and chest tightness. Cardiac hydatidosis was diagnosed based on typical radiological findings and a positive serology test. Intra-operatively, there was a mass of a hydatid cyst located in the left ventricle and interventricular septum with no other organs involved. The patient was treated by a surgical excision and albendazole without any complications.

Keywords: Albendazole, Hydatid cyst, Left ventricle, Surgery.

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Introduction

A hydatid cyst or cystic echinococcosis is caused by the larval stage of the tapeworm *Echinococcus granulosus*. Dogs and other canines expel the adult tapeworm eggs in their feces and humans become infected after ingestion of the eggs. Clinical presentations vary as these cysts might be found anywhere in the body causing different signs and symptoms.^{1, 2} Liver (65%) and lungs (25%) are the most common sites to be infected. Hydatidosis is a noteworthy health problem in many regions and especially the Middle East.^{3,4}

Case Report

A 47-year-old patient was referred to our Cardiology Clinic at the Queen Alia Heart Institute complaining of chest pain and breathlessness for the last 2 years. The symptoms were aggravated in the last 6 months to the degree that it interfered with his daily activities.

Clinical examination was unremarkable. Laboratory blood tests showed no abnormality in the blood-cell count, and liver or kidney function tests.

A chest x-ray showed cardiomegaly with distortion of cardiac borders (figure 1). The EKG was normal sinus rhythm with diffuse T wave changes. A two dimensional Echocardiography (2D Echo) showed a normal left ventricle and a mass arising from the apex.

A dynamic chest computed tomography (CT) that was done on February 2008 (figure 2) revealed multiple low-attenuation non-enhancing (cystic) lesions of different sizes arising from the myocardium of the left ventricle and the interventricular septum. One of them rises from the left atrium. The largest one measured 95 × 60 mm. Some of the cysts showed foci of calcifications in their wall and some showed small cystic lesions inside. There were no lung lesions, no pleural effusion and no lymph node enlargement.

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A transesophageal echocardiogram (TEE) revealed a large non-homogenous mass with multiple cystic lesions inside arising from the apex site.

The patient missed the follow up and came back one year later, after which his chest (figure 3), abdomen, and pelvic CT scan (done on 02/01/2009) showed a huge pericardial cystic lesion with a court wheel appearance compressing the right ventricle to the right. The cyst was bulging interiorly through the left chest wall. Another cyst was located subcarinal and inferior to the left atrium. There was a pleural effusion with a subsegmental collapsed consolidation with the enlargement of multiple anterior mediastinal left pericardial lymph nodes. Other organs were normal.

Treatment was done by the complete surgical excision of the cyst where through a midsternotomy incision and under cardiopulmonary bypass (CPB), a left ventriculotomy incision was performed. Before puncturing and to avoid embolization as well as to prevent the possible introduction of free scolices to other cardiac structures, the cyst was covered with wet sponges to minimize the contamination as much as possible. A cystectomy was done after sterilization with a hypertonic saline solution and needle aspiration of the cystic contents. The cavity was opened, and the residual contents and the germinative membrane were removed. The ventriculotomy incision was closed linearly in the standard fashion. Medical treatment was continued using Albendazole 200 mg twice daily.



Figure (1): Chest X-ray showing cardiomegaly with distortion of cardiac borders.

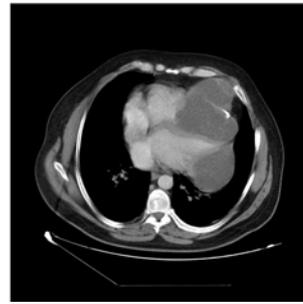


Figure (2): Dynamic Chest CT scan done 2008.

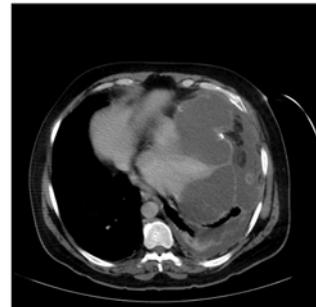


Figure (3): Dynamic Chest CT scan done in 2009.

Discussion

Cardiac hydatid cysts are rare lesions accounting for about 0.5 - 2% of all hydatidosis cases. It is most commonly a manifestation of a systemic infection. However, if the heart is involved, the outcome is potentially lethal.^{5, 6} Symptoms and signs of cardiac involvement vary according to the cyst size and its location. Only 10% of patients especially those with large cysts may have clinical manifestations.⁷ Chest pain, palpitations, and dyspnea are the most common associated symptoms.⁸ The coronary circulation is the pathway for the larvae to reach the myocardium. The most frequent chamber involved is the one with the largest blood supply which is the left ventricle accounting for 55- 60% of the cases followed by right ventricle, interventricular septum, left atrium, right atrium, interatrial septum respectively.⁹

Myocardium involvement may lead to life-threatening complications, including cyst rupture, tamponade, anaphylactic shock, embolism, acute coronary syndrome, infection, valvular dysfunction, and dysrhythmias.¹⁰

A cardiac echinococcosis diagnosis is a difficult issue; geographical areas where the disease is endemic are an alarm for the possibility of carrying the disease during a visit. Clinical suspicions, cardiac imaging and serologic tests compose the principles for diagnosis. Chest x-rays and electrocardiograms can show changes that are not particular for the disease.¹¹

While echocardiography is considered highly specific and a sensitive method for diagnosis still CT scans (computed tomography) and MRIs (magnetic resonance imaging) are needed for complicated cases especially those with extracardiac extensions of the cysts.¹² Serological tests including immunoglobulin enzyme-linked immunoadsorbent assays (ELISA) carry a high sensitivity (94%) and specificity (99%) for the majority of cyst locations.¹³

The treatment of choice for a cardiac hydatid cyst is early surgical resection where it is better to be performed with the use of a cardiopulmonary bypass so as to get a better view of the cardiac structures and cysts and prevent systemic embolization.¹¹ Akar and colleagues reported a 4.8% post-operative mortality rate.¹⁴ Atrioventricular block, ventricular arrhythmias and myocardial tearing are some recognized complications post-operatively.¹⁵

Medical therapy using benzimidazoles to prevent cyst recurrence is highly recommended. Together with others,^{11, 16} we used Albendazole 400 mg twice daily starting one week before surgery and continuing for 4 weeks after.

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داء الأكياس المائية (المكورات المشوكة) في البطين الأيسر القلبي

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الملخص

سجلنا حالة مرضية لمريض من الأردن عمره سبعة واربعون عاماً، وكانت أعراضه الرئيسية ضيق التنفس وثقلاً في الصدر. تم تشخيص مرض الأكياس المائية (القلبية) اعتماداً على الفحوصات الشعاعية والمخبرية. خضع المريض للتدخل الجراحي، وبعد تحديد موقع الأكياس، تم استئصالها بنجاح واستكمل المريض بعد ذلك العلاج الدوائي.