



A rare location of cardio hydatid cyst with multiple organ involvement: a case report

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Introduction: Cardiac cysts in hydatid cysts, a parasitic disease, are extremely rare, and left-atrial hydatid cysts are even more unusual. Therefore, the authors report herein a rare case of a hydatid cyst in the left atrium. According to them, this is the third documented case of left-atrial hydatid cysts.

Presentation of Case: A 25-year-old male presented at the outpatient clinic with atypical chest pain, hacking cough, dyspnoea, nausea, and vomiting for 2 months. Echocardiography showed a left-atrial unilocular, well-delineated mass. The authors also found multiple liver cysts and spleen cysts.

Discussion: The widespread distribution of the disease in our regions, the dog contact story of the patient, and the appearance on echocardiograms were strong reasons to diagnose a hydatid cyst in the left atrium, which may cause many symptoms (bundle branch conduction, arrhythmias, myocardial infarction) or unexpected death.

Conclusions: The authors aimed to report this case due to the disease's high probability of death, even asymptomatic patients with cardiac hydatid disease should all be referred for early surgery.

Keywords: a case report, cardio hydatid cyst, echinococcus granulosus, left atrium, parasitology: Syria

Introduction

Echinococcus granulosus is a parasite that causes hydatid cysts^[1] and continues to be a significant issue of health care in underdeveloped and developed regions of the world where sheep are raised, such as Argentina, New Zealand, Australia, and the Mediterranean nations, including Syria; therefore, the disease is endemic. An intermediate host and a main host both participate in the *Echinococcus* transmission cycle. Individuals come into contact with the disease unintentionally. Typically, the adult worm is found in the primary host's small intestine. Thousands of eggs may be discharged each day. These released eggs are taken by a secondary host. The eggs bypass the intestinal mucosa and reach the circulatory system. They develop cysts when they reach the liver or other organs through circulation. In this life cycle: humans are merely incidental intermediate hosts and the liver and lungs are the two organs where parasites are most frequently

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HIGHLIGHTS

- Hydatid disease is a parasitic infection that causes cysts in varied organs.
- We report a case of a 25-years-old male with a left-atrial hydatid cyst.
- The left-atrial hydatid cyst is extremely rare, early diagnosis can save the patient's life.

detected (75% and 15% of cases, respectively)^[2]. Only 0.5–2% of hydatid cysts are found in the heart, which is a rare target organ for echinococcal cysts due to myocardial contractions. The typically affected cardiac sites are the left ventricular free wall (50–77% of cases) and interventricular septum; obviously, atrial cysts are truly rare^[1]. According to our knowledge, this is the third case of left-atrial hydatid cysts, and all of them have been documented in Turkey and Syrian regions on the Turkish border. Cardiac hydatid cysts may remain asymptomatic for years; however, they can occasionally cause potentially fatal clinical symptoms^[3]. Here, we present the case of a man in whom we found an enormous hydatid cyst in a highly unusual cardiac location with multiple organ involvement. The paper has been reported in line with the SCARE criteria 2020^[4].

Presentation

A 25-year-old male presented to the outpatient clinic with atypical chest pain, a hacking cough, dyspnoea, nausea, and vomiting for 2 months. He had no medical or surgical background—only a contact story with dogs. Transthoracic echocardiograms showed a unilocular, well-delineated outline, 44 × 42-mm cystic lesion at the left atrium (Fig. 1), mitral valve prolapse with mild regurgitation, and mild aortic regurgitation.



Figure 1. Transthoracic echocardiogram (long axis view) shows the cyst in the left atrium.

The cyst was attached to the interatrial septum and was laterally mobile with normal cardiac function on echocardiograms. Multiple liver cysts and two spleen cysts were seen during abdominal ultrasonography and abdominal computed tomography (Fig. 2). A computed tomography scan of the thorax

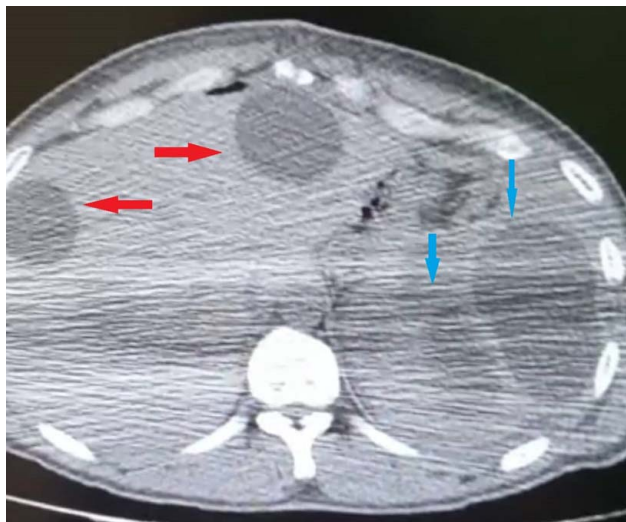


Figure 2. Computed tomography of the abdomen showing two cystic masses located in the liver (red arrows) and two in the spleen (blue arrows).

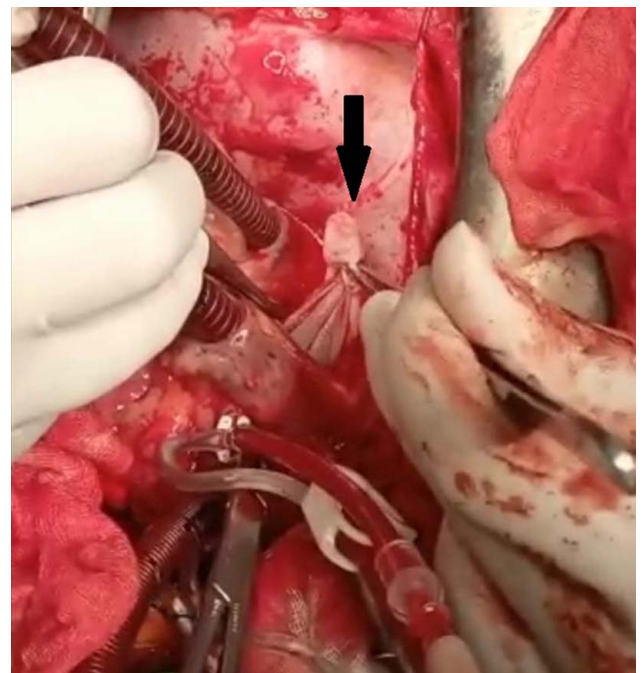


Figure 3. Operation specimen showing daughter cyst removal from the left atrium.

showed no cystic lesion other than that in the left atrium. The brain scan was clear. Within a week, the patient underwent surgical excision of the cardiac hydatid cyst (Fig. 3). The radiologic diagnosis of the hydatid cyst was confirmed by the histopathologic examination findings. There were no complications during follow-ups and postoperative echocardiography showed normal left ventricular function.

Discussion

Due to the heart's contractions, which provide natural resistance to the presence of viable cysts, hydatid cysts of the heart are extremely uncommon^[5]. The left ventricle (55–60%) is most commonly affected, followed by the right ventricle (15%), interventricular septum (10–20%), right atrium (3–4%), Cysts localized in the pericardium and left atrium are extremely rare^[2]. The location, age, size, number, and the amount of the cysts, as well as the level of calcification, all affect the clinical picture of cardiac hydatid cyst illness^[6]. Most patients with cardiac hydatidosis are asymptomatic due to the slow growth of hydatid cysts (~1 cm per year), and just 10% display clinical symptoms^[7]. In other cardiac hydatid cyst cases, the compression of a coronary artery, the conduction system, or an intracardiac chamber by the cyst may result in symptoms. Additionally, electrocardiographic alterations such as bundle branch conduction, arrhythmias, myocardial infarction, and unexpected cardiac death have been recorded^[1]. A cardiac hydatid cyst can occasionally mimic the symptoms of mitral, pulmonary, and tricuspid valve disorders^[8]. The other two cases of left-atrial cysts: involved relatively old patients (62 and 76 years old). In one of them, the patient showed symptoms of mitral valve stenosis as a result of the presence of the cyst (loud S1, diastolic murmur, and presystolic accentuation), and in the other case, the patient also showed heart symptoms

(palpitations and severe dyspnoea). But in our case, the dominant symptoms were digestive as a result of the cysts in other organs and the atypical chest pain, hacking cough, and dyspnoea that directed us to perform an echocardiogram^[1,9]. Because of the disease's widespread distribution in our areas and the history of dog contact (hydatidosis is more common in communities where dogs are kept to protect and herd cattle due to the pathogen's nature)^[10], We recorded hydatid cysts at the top of the differential diagnosis list in our case, although there were only nondescriptive cardiac symptoms. Other differential diagnoses of cardiac hydatid cyst may include cardiac tumours, pericardial cysts, ventricular aneurysms, and mediastinal tumours^[11]. The peripheral blood tests (the Casoni test, the Weinberg reaction, and the measurement of eosinophils)^[11] have not been used in the diagnosis. Echocardiograms have made the biggest strides in the diagnosis of cardiac hydatid disease because they can show cysts that are surrounded by a thin membrane that contains many septae and vesicles and are occasionally accompanied by daughter cysts. These characteristics distinguish this formation from other cardiac masses^[8], in addition to finding cysts in the spleen and liver—which are the most common locations of hydatid cysts—being enough to diagnose that the left-atrial cyst is a hydatid cyst. Surgical complete excision is the best option for the treatment of cardiac hydatid cysts, especially for mobile cysts that could suddenly rupture. It is advantageous to administer albendazole as a treatment for cardiac echinococcosis. However, medical therapy should only be used for individuals who refuse surgical treatment or who are at high risk for open-heart surgery because it cannot stop cyst rupture and emboli^[11].

Conclusions

The significant prevalence of fatal cardiac hydatid cyst consequences highlights the importance of early diagnosis. Therefore, in geographic areas in which hydatidosis is endemic, the possibility of parasitic emboli should be considered in the differential diagnosis of all atypical cardiothoracic symptoms. Even in developed countries where the disease is rare, world travellers might facilitate its migration, especially those coming from Mediterranean nations.

Ethical approval

Not applicable.

Consent

The patient signed informed consent and written permission to use data for scientific purposes. Written informed consent was obtained from the patient for the publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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Author contribution

Y.A. and G.M.: writing the paper, reviewing, and data collection. S.O. and H.A.: data collection, management of the case, and patient care.

Conflicts of interest disclosure

The authors have no conflicts of interest to declare.

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