Case Report

Mediastinal and pericardial hydatidosis: A case report with review of the literature

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A R T I C L E   I N F O

Article history:
Received 4 October 2022
Revised 23 October 2022
Accepted 26 October 2022

Keywords:
Pericardial hydatidosis
Child
Cyst
Ultrasound
CT
Emergency

A B S T R A C T

Hydatidosis is an echinococcosis caused by the development of Echinococcus granulosus larvae in humans. The lung is the second most frequent site after the liver. The primary mediastinal and pericardial localisations are extremely rare.

Ultrasound and CT scans play an important role in the diagnosis of this disease. We report the case of an 11-year-old female patient from a rural environment with a history of dogs contact, whose symptomatology consisted of chest pain, dyspnoea, all evolving in a febrile context. The imagery showed the existence of multiple mediastinal and pericardial collections. This patient was rapidly managed with albendazole (ABZ) and scanography revealed an excellent therapeutic response.

Primary mediastinal and pericardial hydatidosis is a very uncommon disease. It can be unfortunately revealed at the stage of vital prognosis complications. Ultrasound and computerized tomography (CT) are helpful for localizing and defining the morphologic features of hydatid cysts. It should be kept in mind, especially in patients from endemic areas.

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Introduction

Hydatidosis is a parasitic disease due to the development of the larval form of Echinococcus granulosus in an organ. Humans are accidentally infected and constitute an intermediate host [1]. Hydatidosis is an endemic disease in the Mediterranean, Latin America, and the Middle East where it is a serious public health problem. Although the cyst can be located in all organs, the liver (75%) and the lung (25%) remain the preferred targets of the parasite. Pericardial localization is rare and often results from rupture of a pulmonary hydatid cyst in this cavity [2].
We report a case of pericardial hydatid cyst without pulmonary involvement.

**Objective**

The purpose of this article is to review the imaging findings of pericardial hydatid disease.

**Case presentation**

Female child, 13-year-old, from a rural environment living on a farm with many dogs. The symptomatology was chest pain, dyspnea, all evolving in a febrile context.

Clinical examination revealed a child in good general condition, slightly dyspneic, without signs of respiratory distress with a liquid effusion syndrome on auscultation.

The chest X-ray showed an enlarged mediastinum with a bilobed left paracardial opacity (Fig. 1).

Transthoracic echocardiography (TTE) showed several cystic lesions associated with the pericardium at several levels, the largest of which measured 2.5 to 3 cm in diameter (Fig. 2).

Chest computed tomography showed multiple mediastinal and pericardial collections with no evident sign of intrapericardial rupture or parenchymal location (Fig. 3).

The patient underwent an abdominal CT scan to look for another hydatid location which came back normal.

The surgical indication was discussed with the pediatric and thoracic surgeons and the risks were shared with the family. However, due to the complexity of the surgical procedure, the patient’s parents refused the operative procedure.

Our patient was treated with albendazole for a period of 2 years and the CT scan at the end of the treatment showed a complete regression of the collections detected on the initial imaging. However, the presence of a constrictive pericardial thickening with a fibrous appearance was noted (Fig. 4).

No collection was showed while the presence of pericardial thickening was detected on the transthoracic echocardiography control without any complication such as pulmonary arterial hypertension.

**Discussion**

Hydatid cyst is an anthropozoonosis due to the development of cysts corresponding to the larval form of a taenia called Echinococcus granulosus [1]. It is a cosmopolitan anthropozoonosis, occurring in livestock areas (sheep, cattle, goats, pigs, camelids, horses, etc.). The pulmonary hydatid cyst is the most frequent human cestodosis. It is a parasitic disease that is particularly prevalent in the Middle East, South America, Oceania, and in countries around the Mediterranean. Its prevalence in Morocco is very high. The lung is the second most common site of hydatidosis after the liver. The diagnosis is usually radio clinical, parasitological (by the detection of characteristic scolex, hooks, or membranes on direct examination or after anatomopathological sections) and immunological [3].

The symptoms of pericardial hydatid cysts are non-specific and varied, depending on the number, size, and location of the cysts. They are generally due to the external pressure exerted by the increase in size of the hydatid cyst on the myocardium, the rupture of the cyst in the pericardial cavity may be responsible for an acute effusion with a picture of acute serofibrinous or purulent pericarditis, the evolution of which is either toward tamponade or constriction [3,4].

Chest radiography is not very helpful. It may be normal in case of small cysts or intra-cavity development. It shows either a uni or bilobed cardiac deformity in half of the cases [1,5] or arciform or plaque-like calcifications observed in one third of cases [1], or a possible associated pulmonary localization [1]. The diagnosis is based on cardiac imaging techniques and hydatid serology.

Transthoracic bi-dimensional echocardiography is currently the test of choice for the diagnosis of cardio-pericardial hydatid cysts [5,6]. It shows a thin-walled anechoic formation with membrane detachment or multi-vesicular appearance that are highly suggestive of hydatid origin. Often, the endocyst may detach from the pericyte, giving the impression of a floating membrane. It allows to specify the location, the relations of the cystic lesion, the presence of an associated pericardial or pleural effusion.

Computed tomography and magnetic resonance imaging are used to diagnose hydatid disease and rule out other diagnoses of cystic mass. On CT scan, the hydatid cyst presents as a round, homogeneous, hypodense, unilocular, usually thin-walled mass. The presence of parietal calcifications on CT confirms the diagnosis of hydatidosis, while magnetic resonance imaging is useful for the neuronal localization of the hydatid [7].

The differential diagnoses are forugt duplication cysts (bronchogenic cyst, esophageal duplication cyst, neuroenteric cyst), pericardial cyst, meningocoele, thymic cyst. However, these lesions are not multiple and do not show wall enhancement [8,9].
Fig. 2 – Transthoracic echocardiography showing multiple thin-walled anechoic cystic formations pericardial (stars).

Fig. 3 – Axials (A-C) and sagittal (D) sections through the thoracic level in the mediastinal window before and after injection of PDCI showing multiple mediastinal cystic lesions occupying all its levels, with thin non-enhanced walls, coming into contact with the vascular structures (stars).
The treatment of hydatid cysts of the pericardium is surgical. It consists of excision of the cysts to avoid complications that can be fatal in case of rupture, even in asymptomatic patients [5,10]. Medical treatment is the treatment of choice for patients who cannot be operated, or debilitated terrain, or as a complementary treatment to surgery when there is a risk of dissemination. The most commonly used product is Albendazole at a dose of 10-15 mg/kg per day in 1-month courses spaced 15 days apart for 6 months [3].

**Conclusion**

Mediastinal and pericardial hydatidosis is a very uncommon disorder. It can be unfortunately revealed at the stage of vital prognosis complications. Ultrasound and CT are helpful for localizing and defining the morphologic features of hydatid cysts. It should be kept in mind, especially in patients from endemic areas.

**Patient consent**

I, the undersigned doctor, have taken the patient's consent for his voluntary participation in this study and confirm that I have explained to him that he is free to withdraw at any time, without giving any reason and at no cost. A copy of this consent form has been given to the patient concerned. Written informed consent for the publication of this case report was obtained from the patient's parent.

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