

## Case Report

# A pericardial hydatid cyst treated with video assisted thoracoscopy

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## ABSTRACT

Hydatid cyst disease is a significant health problem for undeveloped and developing countries. Humans are infected by way of contaminated dogs or contaminated uncooked vegetables. Cardiac hydatid cyst disease is uncommon, occurring in approximately 0.5% to 2% of patients with hydatid disease. Most cardiac hydatid cysts are located in the left ventricle and interventricular septum. The rate of pericardial hydatid cysts is (2-10) % of cardiac echinococcosis. Although cardiac involvement is rare, early diagnosis and treatment of this situation is important. Surgical options include sternotomy, thoractomy and video assisted thoracoscopy (VATS). In the present report, a 17-year-old girl with pericardial and hepatic hydatid cyst is described and it has been treated with left VATS for pericardial cyst. In the present patient, the hydatid cyst was located inside the pericardial cavity without myocardial involvement.

**Keywords:** Cardiac hydatid cyst, Echinococcosis, Video assisted thoracoscopy

## INTRODUCTION

Hydatid disease (cystic echinococcosis), which arises from the *Echinococcus granulosus* tapeworm, is endemic in some livestock-raising countries.<sup>1</sup> The most common sites of hydatid cysts are the liver (in 50%–70% of cases), lungs (5%–30%), muscles (5%), bones (3%), kidneys (2%), spleen (1%), and brain (1%).<sup>2,3</sup> Cardiac hydatid cysts are uncommon in cases of hydatid disease.<sup>1-4</sup> The most frequent location of the cyst is the myocardial region.<sup>5</sup> Pericardial involvement in cardiac hydatid cysts is extremely uncommon but (50%) of pericardial hydatid cysts are associated with myocardial involvement.<sup>6</sup> Trans esophagus echocardiography or intraoperative surface echocardiography is used to plan and perform the operation.<sup>6,7</sup>

## CASE REPORT

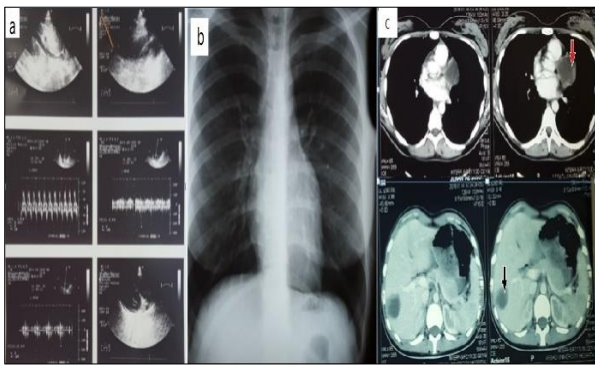
A 17-year-old girl was admitted to the AL Assad university hospital with fever, dry cough, chest pain and

severe exertional dyspnea. Her complaints had started seven days earlier and associated with tachycardia and abdominal pain in the upper right side, in the history of the patient pericarditis four years ago. On physical examination, the patient had a temperature of 39°C, heart rate of 80 beats/min and blood pressure of 110/70 mmHg. Electrocardiography showed arrhythmia, transthoracic echocardiography demonstrated a small amount of pericardial effusion.

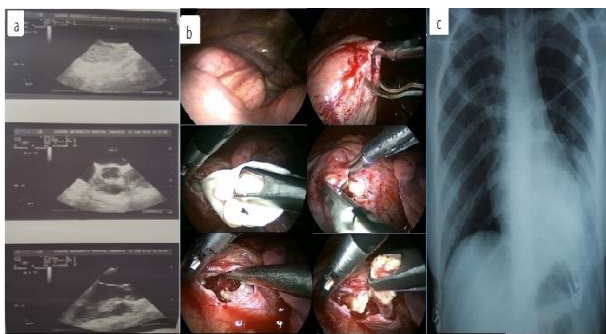
Chest radiograph was normal (Figure 1a) abdominal echography demonstrated a heterogeneous cyst in the seventh hepatic blockage of about 3.5 cm may indicate a hydatid cyst or a mixed liver cyst. Amount of free fluid in the Morrison pocket and the spleen and intestinal folds. A computed tomography scan of the chest and abdomen showed the presence tow cysts in the pericardium (Figure 1b) and liver (Figure 1c).

Laboratory tests did not show eosinophilia, and the hydatid serology was negative (negative serologic results

do not invalidate the diagnosis of hydatidosis because some patients do not have detectable antibodies. On the other hand, the immune response depends on a wide range of factors). Transesophageal echocardiography was normal. The patient subsequently underwent surgery, left thoracoscopy was performed and the cyst was appeared inside the pericardium (Figure 2a). The pleural cavity was full of hypertonic saline liquid; we usually use hypertonic saline 30% injection into the pleural cavity without any complications. For the first time, this solution is injected into the pericardial cavity. There is no references deal with this topic. Pericardiectomy was performed (Figure 2b) and germinal membrane was extracted (Figure 2c).



**Figure 1: (A) TTE demonstrate a small amount of pericardial effusion, (B) CXR seems normal, (C) hydatid cyst in the pericardium (red arrow) and liver (black arrow).**



**Figure 2: (A) TEE is normal, (B) the cyst in the pericardium, pericardiectomy and dissecting the membrane, (C) CXR after surgery.**

The patient recovered without complications. CXR and ECG were normal after surgery. No recurrence of the symptoms was observed at the three-month follow-up visit.

## DISCUSSION

The most frequent symptoms of an uncomplicated pericardial hydatid cyst are chest pain due to the stretch of pericardium and/or compression of coronary vessels, dyspnea, and palpitations. Most patients remain

asymptomatic for a long time with only occasional vague complaints such as fever or weakness. Nevertheless, the growth of a pericardial hydatid cyst may lead to even lethal complications resulting in serious conditions such as arrhythmias, congestive heart failure, valve obstruction, mitral regurgitation secondary to papillary muscle involvement, acute coronary syndrome, atrioventricular conduction abnormalities, circulatory collapse, and cardiac tamponade.<sup>8,9</sup> If left untreated, these cysts may rupture into the heart chamber or pericardium causing pulmonary or systemic hydatid embolization or anaphylactic shock and formation of secondary cysts.<sup>6</sup>

Diagnosis of a pericardial hydatid cyst is mainly based on cardiac imaging techniques. Transthoracic echocardiography is a diagnostic tool of choice in such patients due to its noninvasiveness. It is easily performed and has a high sensitivity in the detection of pericardial masses.<sup>5</sup> The appearance of a round multiloculated cystic mass on ultrasonography is characteristic of the hydatid cyst. However, at times, transthoracic echocardiography may be inadequate to define the relationship of the cyst to cardiac chambers and other adjacent structures.<sup>8</sup> Therefore, contrast-enhanced CT and/or magnetic resonance imaging may be required to distinguish solid tumors (myxomas and fibromas) from cystic masses and intracavitary thrombosis, and also to provide the global view of the preoperative cardiac anatomy, the location and size of the cyst, and its adhesions and relationship to adjacent structures.<sup>10</sup> Hydatid serology may be useful, but seem not to be highly sensitive in confirming this rare entity of pericardial hydatid cyst. A CT examination and TEE showed a pericardial cyst without heart muscle involvement, making the treatment possible through thoracoscopy and without a cardiopulmonary bypass.

## CONCLUSION

The early and correct diagnosis of cardiac hydatid cyst is important. It is essential to consider cardiac echinococcosis in patients from endemic regions in the differential diagnosis. When choosing the procedure, the localization, size of cyst(s), presence of pericystic inflammation, fibrosis, adhesions, and involvement of adjacent structures must be detected and kept in mind. Considering the possibility of severe complications even in asymptomatic patients including cyst rupture and sudden death, complete surgical removal of the cyst with or without extracorporeal circulation is the recommended treatment.

Until now, cardiac cysts were removed by open thoracic procedures, but it is possible to management them using VATS, which is a less traumatic method with a lower hospitalization rate and a lower rate of complications.

Therefore, through our experience in VATS, we prefer it than open methods to treat pericardial hydatid cysts if the conditions for its use are ideal for completing the surgical procedure.

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