

Cardiac hydatid cyst : report of 4 cases

Kyste hydatique du coeur : à propos de 4 cas

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Summary

Cardiac echinococcosis is an uncommon affliction of the heart encountered in areas where Echinococcus is endemic. Between April 2004 and April 2010, 4 patients (sex ratio=3/1; mean age 36.75 ± 14 years) with cardiac echinococcosis were operated on at Abderrahman Mami hospital. 3 patients were operated on with standard cardiopulmonary bypass (CPB). There was no operative mortality. Albendazole was used postoperatively in all patients with no recurrence. Cardiac hydatid cysts is a serious disease that should be treated surgically without delay. Enucleation of intact cysts is the gold standard. Albendazole is a valuable and necessary adjunct to surgical treatment.

Keywords

Albendazole,
echinococcosis,
heart diseases

INTRODUCTION

Hydatid cysts is a parasitic disorder caused by the tapeworm Echinococcus that infests dogs and other canines, chiefly herbivores, mammals and occasionally man, act as an intermediate host harboring its larval stage, the hydatid cyst, anywhere in the body, but especially in the liver and lungs [1]. The heart is involved in less than 2% of cases of hydatidosis [2]. Early diagnosis and prompt surgical treatment are critical. We present 4 cases of cardiac echinococcosis, illustrating different clinical pictures, and in this retrospective study, we aimed to determine the long-term outcome of hydatid cyst disease with expansion into the cardiac chambers and the pleuro-pericardial cavities.

MATERIAL AND METHODS

Between April 2004 and April 2010, 4 consecutive patients with cardiac hydatidosis were surgically

managed at Abderrahman Mami hospital by the same medico-surgical team. Three were female, and age ranged between 19 and 54 years, with a mean of 36.75 ± 14 years.

3 patients gave a history of contact with dogs and herbivore mammals. No patients had preoperative treatment for hydatid disease. 2 patients had positive serologic tests. Clinical presentation depended on the organs affected by hydatid disease, cardiac site involved, and size of cysts. The following clinical forms were identified: right atrial cyst, myocardial cyst of the right ventricular, myocardial cyst of the left ventricular and cardio-pericardial cyst mimicking anterior mediastinal tumor. Each of these clinical forms is detailed in a case report.

Case 1: Right Atrial Cyst :

A 37-year-old female patient presented to our hospital with hemoptoic sputum and asthenia. Electrocardiogram was reported as normal. Chest radiograph was reported

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an homogeneous fluid tone opacity, measuring 2cm in diameter of the upper left lobe with lobulated opacity of the right upper lobe measuring 4 cm in diameter. Two-dimensional echocardiography revealed free wall right atrial cyst (4 X 4 cm).

On computed tomography(CT) examination, she had a compressing right atrial cyst (4 X 5 cm), pulmonary hydatid cyst in the left lower lobe (3 cm) open into the bronchi, type II hydatid cyst of the segment IV of liver (10.5 X 4 X 4 cm), and hydatid cyst of the right deltoid muscle (2.7 cm). During the operation, a 4 X 5 cm lateral wall of right atrial cyst was found adjacent to the right atrioventricular groove next to the right side of the heart. An univesicular cyst was removed under cardiopulmonary bypass (CPB) with cardiac arrest, by needle aspiration and injection of oxygenated water; cystectomy and capitonnage after resection of the prominent dome were achieved.

Case 2: Left ventricle cyst :

A 54-year-old woman was investigated for dyspnea and palpitation. No abnormality was found on physical examination. Electrocardiogram was reported as normal. Chest radiography revealed a large left border of the heart. Echocardiography showed a heterogenous cyst located at the anterior and lateral walls of left ventricle measuring 3.7cm in diameter, with an important hypokinesia of the lateral wall. CT confirmed the presence of a hydatid cyst on the left ventricle, measuring 4.3 cm in diameter. The cardiac magnetic resonance imaging (MRI) revealed a cyst in the superior wall of left ventricle measuring 3.2 X 3.8 X 3.5 cm. No other localisation, thoracic or abdominal, was observed. The serologic test was positive. The patient underwent surgery under cardiopulmonary bypass and cardiac arrest. The cyst was carefully removed, the cavity was cleaned with povidone-iodine and oxygenated water and the defect was closed with capitonnage.

The postoperative course was satisfactory and the patient received an albendazol treatment and was lost to follow up one month after the operation.

Case3: Cardiac and pericardial cyst

A 37-year-old male patient presented to our hospital with chest pain and dyspnea. Electrocardiogram was reported as normal. Chest radiograph revealed homogeneous opacity obliterating the right side of the heart with a right pleural-looking opacity. The two-dimensional echography revealed a right multienkysted pleural effusion with a mediastinal anterior mass may suggesting a mediastinal cystic lymphangioma complicated by right pleural effusion. On CT, he had a large hydatid cyst at anterior mediastinum extended to the left ventricle measuring 24 X 14 X 8 cm associated to an important right pleural effusion and the serologic was positive for echinococcosis.

During the operation, a pericardial effusion was extended to the right, the bottom and the left wall of the heart associated to a little cystic cavity on the left ventricle.

Cardiopulmonary bypass was not required because of superficial location and ease of removal of the cyst. At the opening of the right pleura, we found a pleural symphysis. We liberated the lung and we discover a large posterior cyst with germinative membrane and many small-sized daughter cysts in the pleura. The pericardium and the pleura were cleaned with povidone-iodine and oxygenated water. The lung had a well reexpansion after decortication, and the patient was treated with albendazole postoperatively for 4 months.

Case4: Right ventricle cyst

A 19-year old female patient was admitted with palpitation, dyspnea and chest pain. Chest radiography revealed multiple masses in the two lungs. CT of the chest showed a cyst on the anterior wall of the right ventricle (figure 1) ruptured in each lung with pulmonary embolization (figure 2) with total occlusion of the left pulmonary artery.

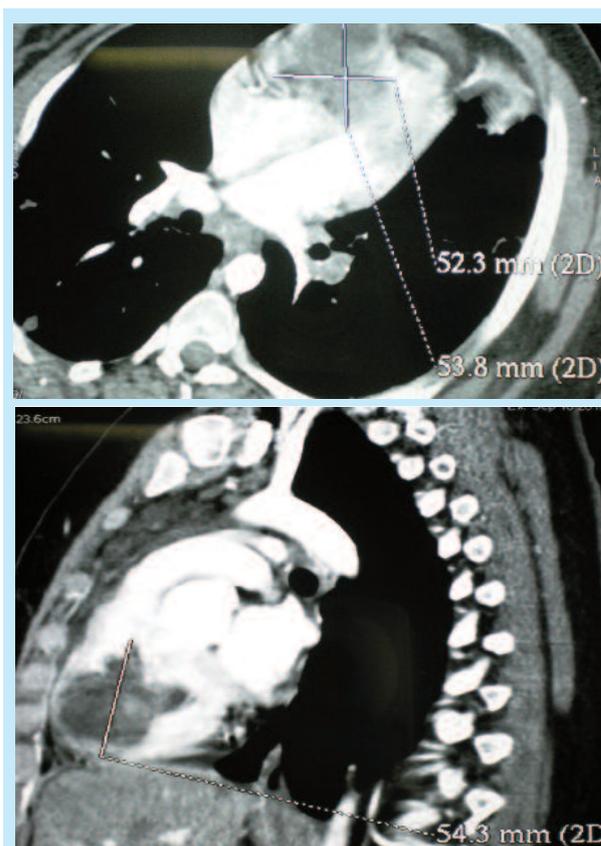


Figure 1 : transversal (A) and sagittal (B) computed tomography of a hydatid cyst of right ventricle

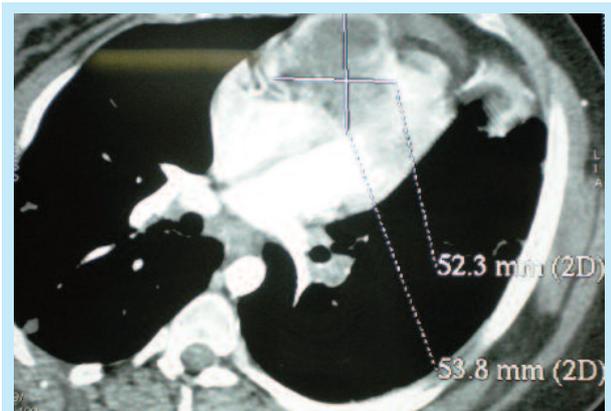


Figure 2 : Pulmonary embolization due to a right ventricle hydatid cyst with intracavitary rupture

The two-dimensional echocardiography, revealed a cystic mass in the right ventricular wall. Abdominal computed tomography revealed a calcified cystic mass in the liver. After median sternotomy, CPB was established using standard cannulation, the cyst was in the anterior face of the right ventricle just below the atrioventricular groove. The cyst was opened, and the whole germinative membrane with many daughter hydatid cysts of various sizes was removed. The cyst had two communications with ventricular cavity. The wall of the right ventricle was closed with Teflon felt reinforcement. The patient was given albendazole for two months postoperatively.

RESULTS

There was no operative mortality, and postoperative course was satisfactory in all patients. They were checked postoperatively at least every 6 months. The first patient was operated for the two lungs and decided to end the follow up two years after the first operation. The second patient was lost to follow up one month after operation. The third patient was lost to follow up two years after operation and the last patient is still at one month after operation. All patients received albendazole treatment postoperatively. No recurrence was observed during follow up.

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COMMENT

The reported prevalence of hydatid disease of the heart is 0.5 to 2% [2]. Cardiac involvement can occur from the systemic or pulmonary circulation or as direct extension from adjacent structures. It can occur in any part of the heart and the manifestations are extremely variable depending on the size, location, and integrity of the cyst [3]. On the basis of such clinical variety, diagnosis is difficult. It is essential to consider cardiac hydatid cysts in a differential diagnosis, especially when a patient has spent time in a geographic area where hydatidosis is endemic (third case). Prior history of hydatid disease can facilitate the diagnosis of cardiac cysts. Serologic tests are often useful but some patients with echinococcosis do not develop a detectable immune response (50% of our patients) [4]. 2-D-echocardiography, whether via the chest or esophagus, corroborated with CT or MRI when ultrasound images are inadequate, affords the best diagnostic confirmation. Hydatid cysts of the left ventricle are usually localized subepicardially and rarely rupture into the pericardial space. But in the right ventricle localization is subendocardial; rupture is more frequent and intracavitary rupture causes pulmonary embolization [5]. Each operation has two phases: removal of the cyst and treatment of the residual cavity. Removal of cysts is performed on beating heart (25%) or with the use of CPB (75%) to prevent complications, particularly if there is a relationship between the cyst and the cardiac chamber. It is crucial to minimize the possibility of contamination before cystectomy by first performing puncture and needle aspiration of the cystic contents and washing out the fibrous cavity with scolicidal agents [6]. We were used oxygenated water solution for this purpose, but actually, we prefer hypertonic saline solution to prevent embolism. The pericardial cavity should be protected with gauze pads soaked in hypertonic saline solution. Cystectomy and capitonnage remains our surgical treatment of choice but kabbani et al [7] prefer enucleation of solitary intact cysts because it completely obviates the possibility of dissemination through spillage. All our patients were treated with albendazole after surgery, to prevent further implantation and the results of this therapy are encouraging [8]: There was no clinical or radiological evidence of recurrence during follow-up.

Les auteurs déclarent de ne pas avoir de conflits d'intérêts

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