Pulmonary Hypertension Secondary to Cardiac Hydatid Cyst Embolism

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Received date: May 06, 2015; Accepted date: June 24, 2015; Published date: June 26, 2015

Abstract

Hydatid pulmonary embolism is an uncommon and rare complication secondary to the rupture of cardiac hydatid cyst. Cardiac hydatid cyst is a silent disease and may be diagnosed with the serious complications such as heart block, valvular obstruction, cerebral and pulmonary embolization. Pulmonary hypertension related with embolism is even rare. Radiological findings of pulmonary embolism secondary to the hydatid cyst rupture are important to prevent further potentially fatal complications. In this case report we present a case of cardiac hydatid cyst causing pulmonary hypertension secondary to pulmonary arterial embolism.

Introduction

Cardiac hydatidosis (CH) is a rare parasitic disease caused by larval forms (metacestodes) of the genus Echinococcus. It constitutes approximately 0.02-2% of all cases of human hydatidosis [1]. Hydatid pulmonary embolism is a complication of CH that generally occurs after an iatrogenic or spontaneous rupture of the right ventricular or right atrial hydatid cyst or from systemic circulation [2-5]. Before the introduction of cross-sectional imaging techniques the diagnosis was based on clinical and laboratory findings. Echocardiography is a noninvasive effective tool for the diagnosis of the CH. But it is not always suitable for the detection of pulmonary cysts. In this condition Computed Tomography (CT) or Magnetic Resonance Imaging (MRI) facilitates the definite diagnosis [1,6-8]. We present a patient presenting with pulmonary hypertension due to pulmonary embolism of the CH that was detected with CT.

Case Report

13-year-old girl admitted to the pediatric cardiology outpatient clinic complaining of dyspnea related with effort. Two years ago she was operated from right ventricular hydatid cyst.

On physical examination, the vital findings were as follows: blood pressure was 90/60 mmHg; cardiac rate was 64 beats/min, body temperature was 36°C and respiration was 24 breaths/min. On auscultation, there was 2/4 systolic ejection murmurs on mezocardiac area.

There was an increase in eosinophil count of 1100/mm³ (over 5%) in laboratory tests. Serologic tests of hydatid cyst were positive. Other parameters were normal. Spirometric examination revealed FVC: 85%, FEV1: 83%, FEV1/FVC: 100%, PEF: 85%.

Echocardiography was performed to demonstrate a residual cyst but no cardiac lesion was seen. Right ventricular dilatation and pulmonary hypertension were detected. Pulmonary artery pressure was 45-50 mmHg. CT examination was performed which revealed total occlusion of the right upper lobe pulmonary artery. It was filled with a hypointense cystic material, which enhanced peripherally after contrast injection (Figure 1).

Moreover multiple cystic lesions in the pulmonary arteries in different locations were seen. The lesions were unevenly distributed and they were predominantly in the periphery of the lung. The lesions were also seen in pulmonary veins (Figure 2). A cyst was also seen at the level of right upper lobe pulmonary vein draining into the left atrium. With these findings the patient was diagnosed as pulmonary embolism of CH. Since hydatid disease was disseminated surgery could not be performed and Albendazole treatment was started.
thromboembolism and primary arterial tumors from differential diagnosis list. The acute thromboembolic disease was excluded clinically, because of the lack of predisposing conditions, and no history of deep vein thrombosis in the lower legs [3]. The clinic manifestation of primary arterial tumor is more aggressive than our case [9]. Thus, the clinical presentation may be misleading and confused with other more frequent causes of pulmonary embolization; however, a combination of the clinical and radiological features and the medical history can lead to the correct diagnosis [1]. Once diagnosis has been established CT or MRI is effective for follow-up to search for recurrences or the formation of pseudo aneurysms [2-3].

Although surgery combined with medical treatment may improve the prognosis, the treatment of this rare presentation should be individualized [2,4]. Surgical intervention can be complicated by rupture of the cyst. This rupture can cause the dissemination, anaphylactic shock, embolism, and pseudo aneurysms formation [4]. Albendazole is widely used and limited success has been reported. Rupture of a hydatid cyst of the lung during and after the cessation of albendazole treatment has been reported [10]. Therefore surgery has been advocated for intraarterial hydatid cysts. Our patient could not undergo surgery due to disseminated hydatid cyst, therefore only Albendazole treatment was given. In cases of diffuse and severe involvement of the pulmonary arteries like presented here, mortality is high [4].

Conclusion

Even it is rare, cardiac hydatidosis should be kept in mind in the assessment of pulmonary hypertension secondary to embolism. Cardiac evaluation should be included in the imaging procedure.

References: