

Case Report

The Hydatid Cyst of the Pulmonary Infundibulum: A Rare Pediatric Localization

Rherib C^{1*}, Oudrhiri M¹, Ghissasi J², Benbrahim F¹, Mahraoui C¹ and Hafidi NEL³

¹Department of Pediatrics, Pediatric Infectious Diseases Division, Rabat children's hospital, Morocco

²Cardiovascular surgery service, Ibn Sina Hospital Center, Morocco

³Laboratory of Medical biotechnology, Morocco

*Corresponding author: Chaima Rherib, Department of Pediatrics, Pediatric Infectious Diseases Division, Rabat children's hospital, Morocco

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Introduction

Hydatid disease is a human parasitic infestation caused by the larval stage of *Echinococcus granulosus*. The liver and the lungs are the most common locations. Cardiac involvement is rare and accounts for 0.5–2% of all hydatid disease [1]. Hydatid Cysts (HC) of the pulmonary infundibulum are unusual even in endemic countries. It is one of the worst locations because of the risk of rupture and hemorrhage [2,3].

We report the observation of an 8-year-old child with hydatid cyst of the pulmonary infundibulum.

Case Presentation

The patient is an 14-year-old child, who had contact with dogs, and had presented one month before his admission to the hospital with right basithoracic pain and dyspnea evolving in a feverish feeling without weightloss.

The physical examination on admission identified a febrile child with right pleural effusion syndrome and a systolic murmur on auscultation. Chest x-ray and chest CT showed multiple right basithoracic opacities with a normal heart shape, echocardiography objectified a pedunculated tumor appended to the pulmonary infundibulum without valvular involvement (Figure 1). The radiological assessment was completed by a thoracic CT angiography showing a hypodense lesion process at the level of the right ventricle and the emergence of the trunk of the pulmonary artery associated with multiple structures of liquid densities not enhanced by the contrast product at the pulmonary level (Figure 2). The abdominal ultrasound did not show any liver damage and the brain scan was normal. The biological assessment carried out had objectified a hyper eosinophilia in the blood count and a positive hydatid serology.

An antiparasitic treatment based on albendazole was administered, at a dose of 10 mg/kg/day. Cardiac surgical treatment under extra-corporeal circulation has been indicated, the exploration of the pulmonary artery, has shown a huge intra-arterial cyst limited to the infundibulum with unaffected heart valves (Figure 3). Postoperative follow up was simple. The evolution was marked by an

Abstract

Hydatid Cysts (HC) of the pulmonary infundibulum are unusual even in endemic countries. Clinical and radiological signs are nonspecific, the diagnosis is often difficult. It is one of the worst localizations for the disease because of the risk of rupture and hematogenous spread. Treatment is essentially surgical. We report a case of hydatid cyst of the pulmonary infundibulum, in an 8 year old child. Through this case we are going to highlight of diagnosis difficulties and treatment challenges of cardiovascular localization.



Figure 1: Ultrasound appearance of an intracardiac hydatid cyst.

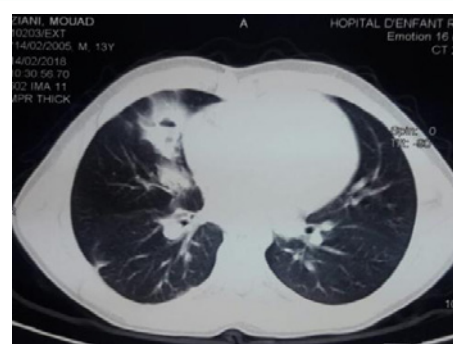


Figure 2: Chest scanner showing pulmonary hydatidosis.

asymptomatic right proximal pulmonary embolism (Figure 4). The antiparasitic treatment was continued.

Discussion

Hydatid disease is a parasitic infection caused by *Echinococcus granulosus*. The hydatid cyst is a major health problem in undeveloped and developing countries. Human beings are only incidental intermediate hosts of this parasitic agent [4]; Cardiac hydatid cysts are rare and most frequently located in the left ventricle (55–60%), the right ventricle (15%), the interventricular septum (7–9%), the left



Figure 3: Image of the cystic membrane after excision.

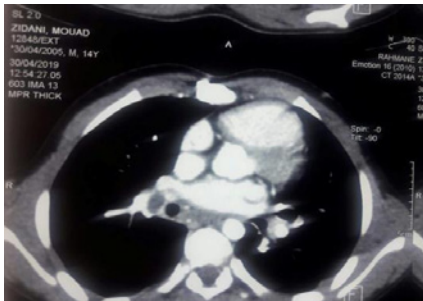


Figure 4: CT aspect in favor of a hydatid embolism.

atrium (8%), the right atrium (3–4%) and the pulmonary artery (7%). Echinococcosis is a tissue infestation and affects most frequently the liver with second most frequent site is the lungs.

The presence of hydatid cysts in the heart cavities potentially carries the risk of embolism. The left ventricle is involved in more than half of the cardiac cysts [5]. However, as in our patient, the right ventricle is rarely involved [6].

The clinical manifestations depend on the size, location, the vicinity of the valve orifice areas and the conduction tissue, during the early stages the disease is asymptomatic and may be discovered accidentally. A voluminous cyst causes symptoms, signs and complications by compressing and displacing the adjacent structures, or infiltrating tissues or by rupture in hollow organs. Rupture of the cyst is not rare and it is a serious complication that may cause death by anaphylactic shock [7].

Medical Imaging is a fundamental element for positive diagnosis. The chest X-ray, although it remains an important initial examination, The most frequent sign found is cardiomegaly often can be normal if hydatid cyst is small or intracavitary; Cardiac ultrasound remains the most useful exam with a positive diagnosis it allows to visualize the heart masses and to specify their aspects [2]. Eosinophilia is a suggestive but not specific element for the parasitic infection.

In our case, the transthoracic echocardiography was the main examination that helped to make the diagnosis for this atypical presentation. The evolution of the cardiac hydatid cyst is unpredictable; it can involute and calcify or rupture and be responsible for real complications; acute complications may include

rupture of a cyst in a cavity of the heart. The complications in these cases are due to migration of hydatid fragments. Thus symptoms and signs of a hydatid pulmonary embolism reveal rupture in the right cavities similar to those of a pulmonary thromboembolism whose severity depends on the size and location of the embolus or emboli. With rupture in the left cavities, the symptoms and signs depend on the site of the intraarterial hydatid embolus, which often lies in the cerebral arteries, the abdominal aorta and its terminal branches, the mesenteric arteries, or the upper and lower limb arteries [8].

Treatment is mainly based on surgery with open heart under ECC, which allows systemic arterial clamping preventing any embolism migration and minimizing the risk of dissemination in the event of a breach of the cyst. After sterilization puncture of the hypertonic saline cyst, its removal is followed by resection of the salient dome or perikystectomy [9].

The prognosis conditioned by the involvement of the pulmonary artery, valvular and heart mass [9]; Medical treatment with albendazole and postoperative adjuvant helps to limit the accidental risk of hydatid release [10].

Given the risk of dissemination and recurrence, clinical, serological, and radiological surveillance is essential.

Conclusion

Cardiac localization of hydatid disease is rare. The clinical polymorphism, latency, and severity of complications are the essential characteristics. Echocardiography, CT and lately MRI represent the main examinations for early diagnosis. Treatment is primarily surgical. The risk of recurrence is present, hence the importance of biological and radiological monitoring. Good prevention in endemic countries is key to the global eradication of this parasitic infection.

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