

PULMONARY HYDATID CYST IN CHILDHOOD: CASE REPORT FROM MOROCCO

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ABSTRACT

Hydatid disease is a zoonosis caused by *Echinococcus granulosus*, and represents a global public health problem. In children the pulmonary location is the most frequent. The hydatid cyst can be asymptomatic and present symptoms when breaking into the bronchial tree or pleura. Here, we present a case of complicated pulmonary hydatid cyst in a 14-year-old girl living in Morocco, where this disease is endemic. The initial clinical picture simulated a lung abscess. Its management was surgical, associated with albendazole treatment, with a good clinical evolution.

Key words: Hydatid cyst, lung, childhood.

INTRODUCTION

Hydatidosis or Cystic Echinococcosis (CE) is a parasitic zoonosis that has a worldwide distribution, with greater prevalence in rural and livestock areas and generally associated with a low socioeconomic level.

Echinococcus granulosus is primarily responsible for hydatidosis in humans, in the form of cystic echinococcosis (CE), which affects 95% of the 2-3 million people estimated to suffer from hydatidosis [1].

In Morocco, hydatidosis is an endemic disease, its prevalence is approximately 6.4 cases per 100,000 inhabitants [2].

Although in adults the cysts are mainly located in the liver, lung involvement is more frequent in children, since the elastic characteristics of the lung allows for faster growth [3].

Most cases are acquired in childhood, and the clinical picture is very variable, depending on the size of the cyst and its integrity. Generally, the intact cyst is asymptomatic,

manifesting clinically when it becomes large or becomes complicated. The rupture of the pulmonary hydatid cyst is the most feared complication in the history of the disease.

Here we report a case of complicated pulmonary hydatid cyst (PHC) that presented itself simulating a lung abscess, in a girl resident of Morocco.

CLINICAL CASE

14 years old, female patient resident all her life of a rural district in the region of Marrakech, with regular contact with canines and sheep, without a history of recurrent respiratory conditions, or personal surgery, or morbid family history.

She went to the service for a 38 ° C fever, predominantly at night, 10 days of evolution, accompanied by cold shivers and productive cough, with greenish sputum, with blood streaks. On physical examination, she presented a 38-39 ° C fever, chest pain, intercostal circulation, severe dyspnea, with a decrease in respiratory murmur at the base of the left lung. Her nutritional assessment, weight / height, weight / age and age / height stood out for being below the third percentile.

The chest radiograph showed a rounded opacity, with well-defined edges at the level of the lower left lobe (Figure 1).

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The blood count showed anemia (Hb 10 g / dl), 12,850 leukocytes; HSV 82 mm / h and PCR of 105 mg / l (normal range <5mg / l). The urine test and liver function tests were normal. Several blood cultures were performed, with negative results.

Suspecting an anaerobic germ, an antibiotic therapy with ceftriaxone and metronidazole was started for 7 days, with an unfavorable clinical course.

Figure 1. Chest x-ray of a 14-year-old patient with heterogeneous opacity in the left lower lobe, with hydro-air level and sign of the camalote (arrow).

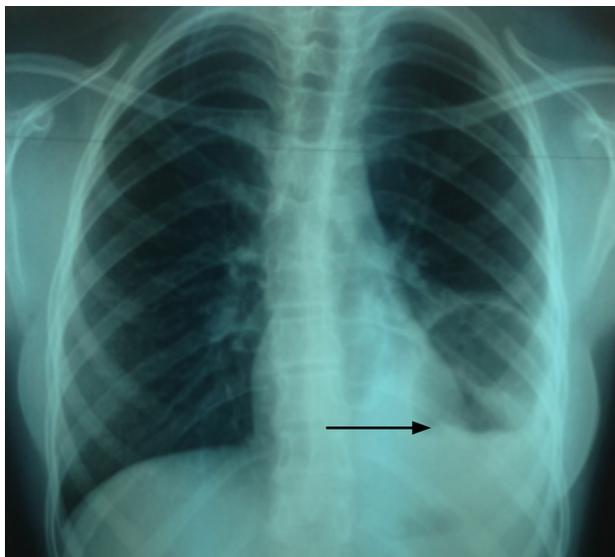
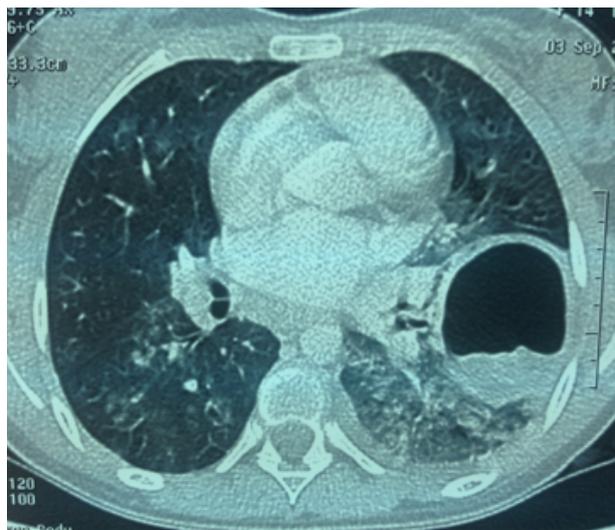


Figure 2. Computed axial tomography (CT) of the thorax of a 14-year-old patient showing a round lesion with thickened wall and hydro-air level at the level of the left lung. Underlying parenchyma compression.



A computed axial tomography (CAT) scan showed an aerated lesion at the level of the left pulmonary field, approximately 60 x 45 mm with a floating membrane image, with suspected hydatid cyst.

The performance of immunoenzymatic tests (ELISA) for antibody against *Echinococcus granulosus* was positive: 24 IU / ml (normal value of ELISA in our laboratory is <9UI / ml).

An abdominal ultrasound showed no other locations such as liver or splenic.

A cystectomy was performed and the histological study confirmed the diagnosis of PHC (Figure 3). A treatment with albendazole 10 mg / kg / day was started for 15 days before surgery and subsequently, 3 cycles of 30 days each were continued without interruption of albendazole to avoid recurrence, with a favorable clinical evolution in clinical, radiological and serological follow-up at 6, 12, 24 months.

Figure 3. thick-walled cyst surgically removed.



DISCUSSION

Hydatidosis is an endemic pathology in several countries of the world and represents a public health problem. It is a zoonosis caused by cestodes of the genus *Echinococcus granulosus*. The most frequent location is liver with 60%, followed by lung with 20-30%, although the lung is the most common site in children [3].

The incubation period between contagion and manifestations is very variable, from months to years. In general, the appearance of pulmonary hydatidosis is associated at earlier ages than the pure hepatic form, because of the greater distensibility of the pulmonary parenchyma [3]. Coexistence of lung and liver disease is present in only 6% of cases [4].

Pulmonary cysts, usually asymptomatic, are usually discovered during a radiological examination. They manifest clinically when they are in most cases 5-6 cm in diameter or

are complicated. The rupture of the hydatid cyst (HC) is the most feared and most frequent complication, it is described in 49% -88.4% of cases in different series [3,5]. It can happen during evolution or after events such as trauma, infections or surgical manipulations. The rupture inside a bronchus can cause hemoptysis, expectoration of fluids with cystic content (pathognomonic sign of cystic rupture). Occasionally the rupture can cause an anaphylactic reaction and pneumonia.

The diagnosis of the disease is based on epidemiological data, clinical manifestations and fundamentally by complementary methods by imaging and serology. Diagnostic certainty can only be made through macroscopic visualization of the cyst in the surgical act or from cystic structures observed microscopically.

A chest x-ray is the simplest and most useful method in diagnosis, showing different radiological signs depending on the stage of the cyst. Most patients have only one cyst and it is more frequent in the lower lobe of the right lung. When the cyst communicates with the airway, different radiological signs can be observed [6]:

Meniscus sign: air may be forced between the pericyst and endocyst, producing a radiolucent air shadow in the form of a crescent

Double arch sign: a crescent of air between the pericyst and endocyst. The endocyst is then seen as an arch above the air-fluid level and the pericyst is visible as a larger arch

Sign of the camalote: when the cyst has partially emptied and the membrane is observed floating in hydatid liquid as in our case.

Empty cyst sign: when the cyst has completely emptied and only the membranes remain.

Computed axial tomography (CAT) helps differential diagnosis compared to other entities. In case of a large or complicated cyst, it allows to define more precisely the anatomical relationships of the cyst and the alterations caused by it.

An ultrasound is also a useful test for the diagnosis of PHC, being useful to rule out other diagnoses such as pulmonary sequestration, and look for other frequent abdominal locations, such as liver or splenic.

The main differential diagnoses of PHC are pulmonary abscess, tuberculosis and congenital pulmonary pathology such as pulmonary sequestration, bronchogenic cysts or congenital cystic adenomatoid malformation.

The serological diagnosis is made using laboratory techniques for the detection of circulating antibodies. Enzyme immunoassay (ELISA) and Western blot are currently used for their high sensitivity and specificity. ELISA is used for screening (detection of IgG) and Western blot is the confirmation technique in adult patients (detects IgG, IgM and IgA). In the case of children, Western blot is more useful for screening because it is more sensitive in this population [7]. The sensitivity of hydatid serology increases in the case of complicated cysts or in the case of associated hepatic localization [4].

The main therapeutic options are surgery and drug

treatment. Surgical treatment varies according to the type of disease. In the case of a single, simple, uncomplicated cyst, a cystectomy or pericystectomy is indicated as well as the capitonnage of the residual cavity, in order to preserve the maximum lung tissue [8]. Conventional thoracotomy surgery is the approach of choice, especially when the cysts are complicated. In the pediatric population it is not necessary to perform large lung resections such as pneumonectomy, lobectomy or segmentectomy, they could be delicate for the patient and could be the cause of morbidity in the future [9].

The drug treatment of choice is Albendazole, which is from the benzimidazole family and is superior to treatment with Mebendazole, since it has been shown to be more effective in vitro and have better bioavailability. It should be used daily at a dose of 10-15mg / kg / day in two doses. It is indicated in the asymptomatic patient, when there is a cyst of less than 5cm, as a pre-surgical prophylaxis, or in case of multiple cysts [10]. The minimum time for drug treatment is three months.

CONCLUSION

The presence of pulmonary hydatidosis should be considered in patients who present a rounded opacity, particularly in subjects of endemic areas. Pulmonary presentation is the most frequent in children, being able to be asymptomatic until it becomes complicated or becomes too large. Surgical treatment plus pharmacological treatment with albendazole are of choice, with good clinical response.

Conflict of interest

The authors declare to no conflicts of interests.

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