CASE REPORT

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Isolated Hydatid Cyst in lung in a 13 Years Old Female patient

*Md A Hamid Mollah,[1] SM Wahidullah,[2] Zillur Rahman,[3] MR Islam[4]

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ABSTRACT

Hydatid disease is caused by Echinococcus granulosus; it's transmitted to human through sheep and cattle. People who lived in an endemic area should be suspected to have the disease. Pulmonary hydatid disease can be presented by respiratory manifestations as in our case. We report a case of a female child, 13 years old, who presented with shortness of breath and non-productive cough 2 months ago. The patient had history of fever with weight loss but no other constitutional symptoms or any medical illness. The patient had history of close contact with cattle in her house.

On examination, the patient oriented and vitally stable. Both sides of the chest were moving equally with decreased air entry on the right side of the chest. The X-ray shows a large globular mass in right lower chest, while CT scan showed-side. The patient was treated medically. The patient is now receiving Tablet Albendazole 200 mg/BID/Orally for 3months.

1. *Assistant Professor, Department of Medicine, North Bengal Medical College, Sirajganj, Bangladesh*
2. *Assistant Registrar , Department of Medicine, North Bengal Medical College, Sirajganj, Bangladesh*
3. *Associate Professor, Department of Medicine, North Bengal Medical College, Sirajganj, Bangladesh*
4. *Professor, Department of Medicine, North Bengal Medical College, Sirajganj, Bangladesh*

***Corresponding author**:* ✉ mahmedib@gmail.com

INTRODUCTION

Hydatid disease is a parasitic infestation caused by a tapeworm of the genus Echinococcus, which is the larval cystic stage. It's traveled to human through sheep and cattle and the definitive host is the dog. There are four known species of Echinococcus-three of them are medically relevant: "*Echinococcus granulosus*, causing cystic echinococcosis (CE); *Echinococcus multilocularis*, causing alveolar echinococcosis (AE); and *Echinococcus vogeli*".[1] Liver and lungs are the most common organs that get infected by echinococcosis disease.[2] Muscles, brain and kidneys may rarely get involved in the hydatid disease. Pulmonary manifestations include chronic cough either dry or productive, dyspnoea, pleuritic chest pain and haemoptysis.[3] The patient also may be presented by a complication of pulmonary hydatidosis including compression of bronchi or intrabronchial rupture as a result of late diagnosis.[3] Hydatid disease rarely infects children, but more common in adult with an average age at diagnosis of 30-40 years.[3] Patient with pulmonary hydatid cyst is usually presented by respiratory symptoms including; a dry or a productive cough, chest pain, hemoptysis, dysponea, fever or could be presented by the signs of complication as compression of bronchi or intrabronchial rupture.[3] If the cyst is ruptured, the patient may develops allergic symptoms and anaphylaxis, transbronchial spread to other lobes, pleural

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hydatidosis and pleural effusion.[7] Therefore those patients may be misdiagnosed by other respiratory diseases as in our case; the patient was first misdiagnosed as having tuberculosis due to respiratory symptoms and cervical lymph node enlargement. The above mentioned data are in keeping with those of Mohsen et al. [4] who reported a case of hydatid cyst in a 9-year-old child which was misdiagnosed as having plural effusion. Similarly, Fraz et al.[3] found in their observational study that dry cough is the commonest symptom among patient with pulmonary hydatid cyst. Imaging studies should be used for the diagnosis and exclusion of another disease that enter in the differential diagnosis of pulmonary hydatidosis. Chest X-ray is a screening test and basic tool. Computerized tomography (CT) can rule out any pulmonary disease, nevertheless, the using of CT is not preferable in children to avoid radiation exposure.[8] Bronchoscopy usually used as a diagnostic test as well as a therapeutic one for clearance of the obstructed bronchial passages.[4.] An indirect hemagglutination test and enzyme-linked immunosorbent assay can be performed first in acute cases but there are high false positive results due to cross reaction with other helminthic infestation, so we have to use Arc-5 antigen, which is considered the only specific serologic test for hydatidosis.[3] Casoni intradermal test and complement fixation test (CFT) are antibody assay tests that have a good accuracy and remain positive even after death of parasite or surgical removal of the cyst. Half of patients with isolated pulmonary cysts lack detectable anti echinococcal antibodies. So the diagnosis can be confirmed by detection of protoscolices or hydatid membranes after percutaneous aspiration of the cyst, guided by ultrasonography and under antihelmintic coverage.[2] The disease may be misdiagnosed and treated as another respiratory disease. [4]

Transmission of the disease to humans by ingestion of eggs which presented in the contaminated water or food and can be transmitted when they contact with dogs.[5] There are several domestic animals may be involved as an intermediate host of echinococcosis transmission such as sheep, pig, goat, camel, deer, and cattle as in our cases.[6] However, direct transmission from human to human doesn't happen.

The Case

A 13 years old Bangladeshi girl Miss Khadiza, presented to the OPD with complaint of shortness of breath and non-productive cough 2 months ago. The patient had history of fever with weight loss but no other constitutional symptoms or any medical illness.

On examination, the patient was well oriented and vitally stable. There was no lymphadenopathy, bony tenderness or any organomegaly. Both sides of the chest were moving equally with decreased air entry on the right side of the chest. Laboratory results were: CBC {HGB: 10 g/dl, ESR-85mm in 1st hour, WBC: 6500/ml, total circulating epsinophils: 585/cmm, Platelet: 350,000/ml}, Chemistry {Potassium: 4.8 mmol/l, Sodium: 140 mmol/l, Alanine aminotransferase (ALT): 28 U/l, Aspartate aminotransferase (AST): 25 U/l, Direct bilirubin: 1.2 μmol/l. Total bilirubin: 18 μmol/l and total protein: 65g/l} and coagulation profile {PT: 12 seconds, PTT: 29 seconds and INR:1.03}.

Chest X-ray revealed A sharply defined, round homogenous opacity involving right lower chest with almost clear surrounding lung parenchyma (Figure1) and high-resolution computed tomography (HRCT) of chest with contrast revealed a well defined cystic lesion measuring about 5.27×4.37 cm within posterior basal segment of lower lobe of right lung ,rest of the parenchyma appears normal. Post contrast scan revealed no abnormal enhancement.

The visualized parts of abdominal organs appear normal (Figure 2). No calcification of cyst wall noted.

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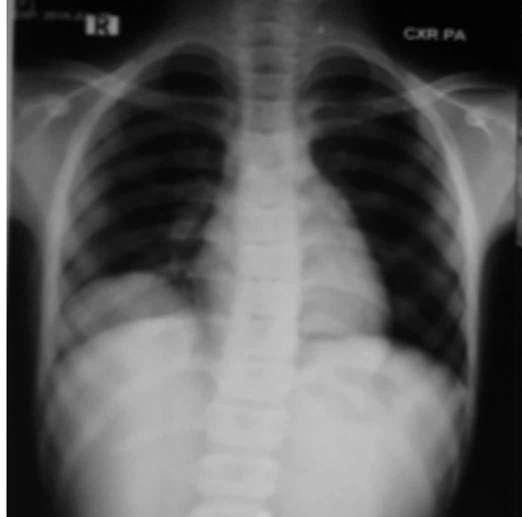

Figure 1: A sharply defined, round homogenous opacity involving right lower chest

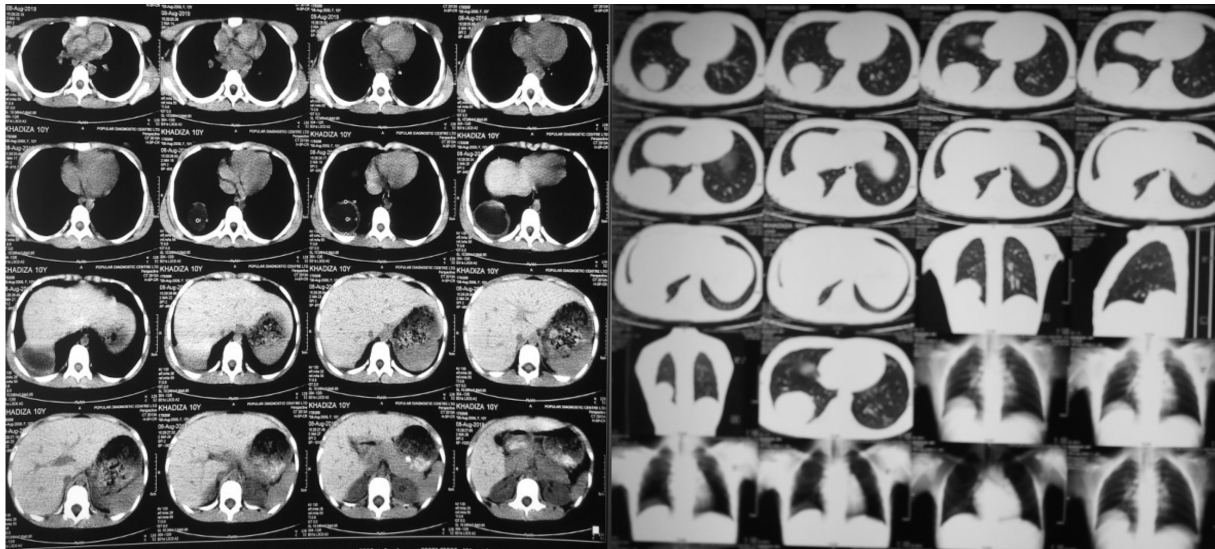

Figure 2: HRCT of Chest with contrast revealed a well defined cystic lesion measuring about 5.27×4.37 cm within posterior basal segment of lower lobe of right lung, rest of the parenchyma appears normal. Post contrast scan revealed no abnormal enhancement. The visualized parts of abdominal organs appear normal.

Patient got admitted into North Bengal Medical College Hospital with a provisional diagnosis of hydatid cyst. USG of abdomen reveals normal. The patient was discharged with albendazole 200 mg/BID/Orally for 3 months and referred to a cardiothoracic surgeon.

DISCUSSION

The prevalence of cystic echinococcosis disease is higher in an endemic area such as Middle east, the central part of Europe, Russia, the Central Asian Republics, China, Northern Japan, Northwestern Canada, and Alaska.[1] Cysts in the lungs are usually solitary and mostly unilateral. Arinc et al.[9] reported unilateral cysts in 82.9% of cases. Similarly, Ghoshal et al.[10] reported unilateral single cysts in 81.13% cases. Lower lobe of the lungs is the most common site of pulmonary involvement, and there is a predilection for the posterior segments and the right lung, although Sadrizadeh et al. reported left lower lobe predominance.[11] About 60% of cases occur in the lower lobes. Bilateral

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involvement occurs in 20% of cases, and multiple cysts in 30% of cases.[12] There are certain unique characteristics of the paediatric hydatid cyst. Unlike an adult, lung involvement is more common than liver in the children, with frequencies of 64% and 28%, respectively.[12,13] Concomitant hepatic involvements is more common in adults than in children. Kanat et al[14] in a retrospective study reviewed the medical records of 145 patients with hydatid disease hospitalized over the last 10 years. They found a concomitant hepatic cyst in 79% of adults as compared to 33% of children. Therefore, isolated pulmonary cysts are more common in children.

The surgical intervention is a definitive treatment for Hydatid cyst. Resection of the cyst can be done with other surgical modalities; lobectomy, wedge resection, pericystectomy, and endocystectomy. It depends on cyst size,[8] however, we should avoid any aspiration or puncture which can cause allergic reaction and anaphylactic shock.[8] Albendazole used to avoid recurrent and spread of disease as in our case we used albendazole 200 mg/BID/Orally for 3 months.

In conclusion, pulmonary hydatid disease can be presented by respiratory symptoms that may mimic another pulmonary disease, therefore; hydatid disease should be considered as one of differential diagnosis for any patient coming with respiratory symptoms and in those who are live in the endemic area.

Conflicts of Interest: None declared

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