

**CASE REPORT**

## Bilateral Pulmonary Cyst in a Child

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**Abstract**

A four year old male child presented with history of cough for last six months. Chest skiagram and CT scan of mediastinum revealed bilateral pulmonary hydatid cyst. Serology did authenticate diagnosis. The child was prescribed albendazole for 6 months and was advised to come for follow up. The case of bilateral pulmonary hydatid cyst is being presented because of rarity.

**Key Words**

Hydatid cyst, Echinococcus granulosus, Pulmonary Cyst

**Introduction**

Echinococcus (hydatid disease or hydatidosis) is the most widespread, serious human cestode infection in the world (1-3). It is a zoonosis that is transmitted from domestic and wild members of canine family. Who become infected after eating infected viscera and are the hosts of the small adult worms. Domestic animals such as sheep, goats, cattle and camels ingest Echinococcus granulosus eggs while grazing. Humans are accidental hosts and are usually infected with the intermediate stage of the parasite by ingesting food or water contaminated with eggs or by direct contact with dogs (1-7). The liver and lungs are most frequently involved organs. Pulmonary disease appears to more common in younger individuals but bilateral pulmonary involvement is relatively rare (6-8). We present a 3 year male child suffering from bilateral pulmonary hydatid disease.

**Case**

A 4 year old male child was admitted in our ward with history of cough off and on and low grade fever for 6 months. The child did not have any history of hemoptysis, ingestion of foreign body, respiratory distress or cyanosis or cough. There used to be history of sneezing off and on. There was no history suggestive

of Koch's or atopy in the family. The appetite was adequate. As per parents the child was not growing properly when compared with other sibs. The family had big farm in the remote area, which included pet animals. The child was first in order born to consanguineous marriage with uneventful antenatal and immediate postnatal history. The child was partially immunized.

On examination, he was conscious, cooperative and well oriented and average built. The general physical examination did not reveal anything abnormal except mild pallor and was having grade II malnutrition as per IAP classification. Systemic examination did not reveal anything abnormal.

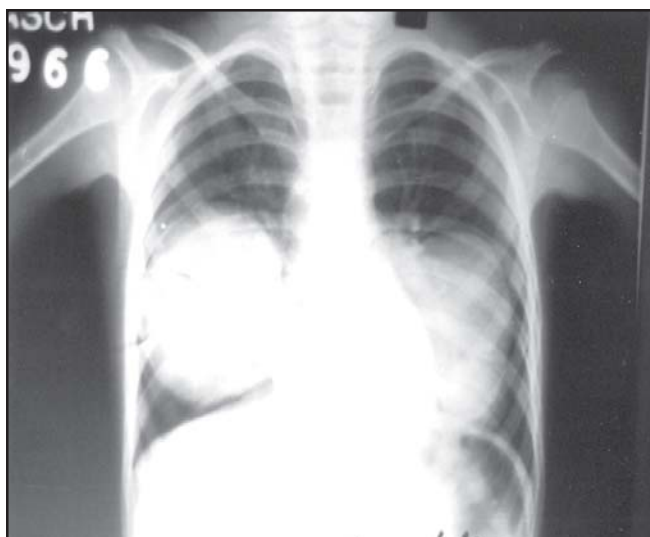
The child was subjected to laboratory investigations. The hemoglobin being 10.5 gm%, TLC – 11,500 /mm<sup>3</sup>, DLC - P61 L32 E7, AEC – 770/mm<sup>3</sup>, ESR – 22mm/1st hr, PBF – normocytic hypochromic. Urine and stool examination was within normal limits. Montoux test was negative after 72 hours; RFT and LFT were within normal limits. Chest skiagram did reveal two large well defined soft density opacities in both Para cardiac regions (Fig.1). No calcification or air filled levels were seen. Apices

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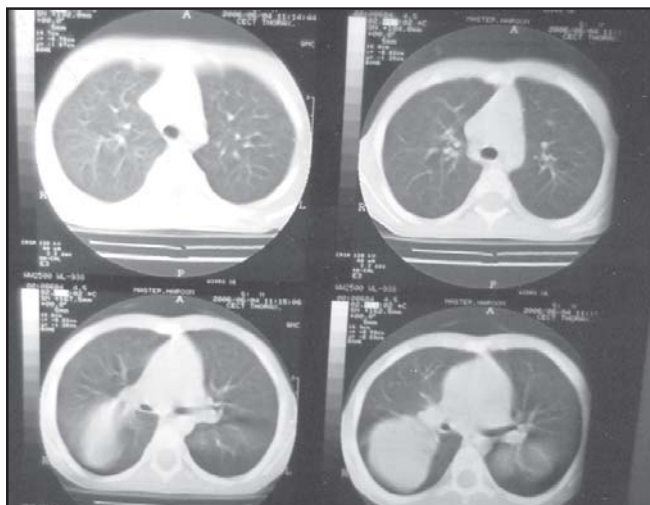
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and costophrenic angles were clear. Cardiac shadow was normal. The ultrasound abdomen was normal. Liver revealed normal echo pattern and size. CT scan mediastinum revealed multiple large well defined intrapulmonary cystic masses (AV + 4 – 11HV) in both lower lobes (Fig.2a & 2b). No septations, solid component or calcification was seen. Besides nutritional rehabilitation, the child was put on albendazole (15 mg / Kg) and hematinics and was advised to come for follow up and doing well.



**Fig 1: Chest skiagram showing bilateral pulmonary well defined cystic shadows in lower and middle lobes.**



**Fig 2a: C T Scan chest showing bilateral pulmonary hydatid cyst.**



**Fig 2b: C T Scan chest showing bilateral pulmonary hydatid cyst.**

### Discussion

Hydatid disease is generally caused by the larval stage of dog tapeworm *E.granulosus*. Dog is the definite host of echinococcus granulosus and man can become the intermediate host through contact with infected dogs or by ingesting contaminated food (1-8). As liver and lungs act as first and second filter respectively for the embryos, which are released after ingestion of ova, therefore very few embryos enter the systemic circulation (7). At the site of deposition, the embryo develops into bladder or cyst filled with fluid and is called hydatid cyst (Greek hydatis-a drop of water). The parasite is often acquired in childhood, but liver cysts require many years to become large enough to detect or cause symptoms. Although liver is the most common site of echinococcal involvement, yet cystic echinococcus infestation can occur in any part of the body and should be considered in the differential diagnosis of cystic masses (3-5). Of patient with cystic echinococcus 85-90% show single organ involvement and more than 70% harbors a solitary cyst. In children, the lungs appear to be the most common site, whereas 70% of the adults have disease in the right lobe of the liver (5,6). It seems that in children scolexes have more ability to pass from liver barriers than adults. It may be due to low density of the liver in children. Of patients with lung cyst 20-40% also have liver cyst. Pulmonary hydatid disease affect the right lung in 60% cases, 30% multiple pulmonary cyst and about 4% bilateral cyst. About 60% cysts are in lower lobes (8).



Although many patients are asymptomatic, some may occasionally expectorate the contents of cyst or develop sign and symptoms related to compression of surrounding structures. Most intact lung cysts are discovered incidentally on chest radiographs. Occasionally multiple cysts produce chest pain, coughing and hemoptysis. Fever and acute hypersensitivity reactions ranging from urticaria and wheezing to life threatening anaphylaxis may be the manifestations due to release of antigenic material (3-6). Child did have history of recurrent chest infections and cough but there was no history of hemoptysis. It was revealed on chest skiagram only that the child was harboring cysts in both lung fields. These were well defined opacities in both paracardiac regions and there were no calcification or air fluid levels. The ultrasound of abdomen was within normal limits. No cyst was detected in liver and the echo texture was normal thus ruling out the possibility of concurrent involvement of liver. CT scan of mediastinum did reveal multiple large well defined intrapulmonary cystic masses (AV+4-11) in both lower lobes. There were no septations, solid component or calcification. Mass lesions were causing displacements of the surrounding bronchovascular structures and rest mediastinal structures were normal. Detection of antibody directed against specific Echinococcal antigen is useful in confirming a diagnosis but the false negative rate may be as high as 50% in cystic hydatid disease of the lungs (4-6). Elisa for echinococcus was positive in our case. With above radiological finding and serology a clinical impression of bilateral pulmonary hydatid cystic disease was made.

Hydatidosis is still primarily a surgical disease (9-13). Open surgical procedures are rapidly being replaced by ultrasound –or CT –guided percutaneous aspiration, instillation of hypertonic saline, or another scolicial agent, and reaspiration (PAIR) after 15 min. and lung cysts have successfully treated (6, 9-13). Albendazole (15mg/kg/24hr divided bid PO for 1-6 months ) is preferred drug for treatment in patients who are not amenable to PAIR or surgery. A positive response occurs in 40-60% of patients.

Morbid inflammatory response to chemotherapy is not common, as in cysticercosis, and corticosteroids thus are not indicated unless patients have anaphylaxis or another allergic response (6). Mebendazole and praziquantal also have been tried for the pulmonary cysts (11-13). Besides nutritional rehabilitation we advised the child to take albendazole (15 mg /kg/24hr in 2 divided doses for 6 months) and was asked to come for regular follow up. Important measures to interrupt transmission include thorough strict hygiene (6).

To conclude hydatid disease of lungs is not so uncommon an entity in Pediatric Practice, but bilateral involvement is rare. Once diagnosed need long term follow up. Screening of all children for pulmonary hydatidosis is not feasible.

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