PULMONARY HYDATIDOSIS: AN UNUSUAL CAUSE OF HAEMOPTYSIS
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Abstract

A 28-year-old female patient was referred to us with complaints of massive haemoptysis and cough with expectoration, of two years’ duration. Her chest radiograph, computed tomography scan and video-bronchoscopy revealed a cystic lesion in the right upper and lower zones of the lungs. Aspiration from the cyst fluid was grossly hemorrhagic and full of inflammatory cells. On digestion of the fluid with potassium hydroxide, it showed plenty of hooklets and scolecies of Echinococcus granulosus. An intact brood capsule was also seen. Diagnosis of hydatidosis was further confirmed by a positive serological and therapeutic response to albendazole.

Key words: Haemoptysis, hydatid cyst, pulmonary hydatidosis

Haemoptysis is one of the most dreaded manifestations of cardiopulmonary disease. Haemoptysis in adults is most often caused by tuberculosis, bronchitis, bronchiectasis, trauma or bronchogenic carcinoma.1 We report here an unusual cause of massive haemoptysis which was due to pulmonary hydatidosis localized in the lungs and masquerading as tuberculosis.

Case Report

A 28-year-old lady, resident of district Nainital, Uttaranchal State, was referred to us with complaints of massive haemoptysis and cough with expectoration, of two years’ duration. Her chest radiograph revealed one big radio-opaque shadow with clear-cut margin occupying the upper right zone of the lung and another shadow in the right lower zone with radiolucent center obliterating the costophrenic (CP) angle (Fig. 1).

Zeihl-Neelsen stain of sputum for acid-fast bacilli was negative; however, on clinical suspicion of tuberculosis the patient was started on antitubercular drugs (ATT). Despite months of ATT and antibiotic therapy, no symptomatic relief was obtained and her haemoptysis continued. Therefore, she was reevaluated on a computed tomography (CT) scan. CT scan of chest showed large, smooth-walled, ovoid ‘cystic space’-occupying lesion in posterior segment of the right upper lobe; and a thick-walled, non-enhancing air-filled cavity in lateral basal segment of the right lower lobe with no ‘water lily’ sign, resembling a bronchogenic cyst. CT scan was also negative for additional cysts (daughter cysts) or calcification of the cyst wall. Hydatid serology done at this point in time to rule out echinococcosis was negative. The patient continued to take ATT along with broad-spectrum antibiotics. Despite that, her haemoptysis continued and she was referred to us at this stage for management of her haemoptysis.

Her general physical examination revealed pallor and weakness. Her hemoglobin was 10 gram percent, total leukocyte count was 14,600 cells/mL, differential count was P71, L19, M2, E8, B0 and E.S.R. (Westergreen) was 140 mm/hour.

The presence of cystic opacity in CT scan led us to carry out a video-bronchoscopy for diagnostic and therapeutic purpose, which revealed two creamy-white circular opacities. One of the opacities was blocking the right upper lobe bronchus apical segment, and the other was blocking the anterior and lateral segment of right lower lobe bronchus. The thick creamy opacities were moving with respiration, resembling a lung fluke. They were dislodged by forcefully instilling saline. No signs of shock, urticaria, allergic reaction or anaphylaxis were observed. A bronchial lavage was carried out. The bronchial wash fluid was subjected for microbiological and histopathological examinations. Venous blood (5 mL) was collected for serological and hematological
tests. Whole abdominal ultrasound, especially of liver, was done to look for cystic lesions elsewhere.

The bronchial wash fluid was grossly haemorrhagic. On direct microscopic examination, the fluid was full of red blood cells and acute inflammatory cells (polymorphs). It was negative for acid-fast bacilli and negative for eggs of *Paragonimus* (lung flukes). No other significant findings were seen on direct microscopy. On digestion of the fluid with 10% potassium hydroxide (KOH) (to rule out fungal etiology), the smear was negative for fungal elements; however, it showed plenty of hooklets, scolices and fragments of cyst wall resembling *Echinococcus granulosus* (Fig. 2). An intact brood capsule was also seen.

Antibodies to *Echinococcus* were significantly positive (1:18) by indirect haemagglutination test (IHA). Histopathological examination revealed classical echinococcal cyst. Following a positive serology, microbiological findings and histopathology, the patient was diagnosed as a case of pulmonary hydatidosis and was started on high dose of oral albendazole therapy.

Follow-up of the patient revealed clearing of the chest x-ray PA view (Fig. 3).

Symptomatically there was marked improvement. Her general condition improved with cessation of haemoptysis within a week.

**Discussion**

Hydatid disease may present with varied clinical manifestations, haemoptysis being one of them. We report here a case which presented with features masquerading as pulmonary tuberculosis. As pulmonary tuberculosis is common in India, in a patient presenting clinically with haemoptysis and cough, the first differential diagnosis is tuberculosis; and patients are often started on ATT without complete investigations. Haemoptysis as a presenting symptom in hydatid disease, i.e., cystic echinococcosis, is seen in adults even up to 70% but rarely in childhood. Underlying etiology for haemoptysis may be unknown in 20% of the cases. The mechanism of haemoptysis may be due to pressure erosion of a bronchus or an obstructive effect with a bronchial infection. There may be occasional rupture of cyst into the bronchus resulting in massive hemoptysis. Hydatid disease is fairly common in people of hilly areas. Our patient also belonged to Nainital, Uttarakhand State, a hilly area where people keep domestic animals like cows, sheep, dogs, etc.

Liver and lungs are the two common sites of involvement in hydatid disease. Concomitant involvement of both liver and lung may be noticed in 10% of the cases. Isolated primary pulmonary hydatidosis with normal liver and no other sites of localization of the cyst is an unusual finding, as seen in our case. The pulmonary cyst was present in the bronchus and was moving with respiration, resembling a lung fluke, guiding a clinician to take out a fragment for microscopic examination to rule out *Paragonimus*. Fortunately, no anaphylaxis was observed.

The present case highlights the importance of appropriate digestion of the clinical samples with 10% KOH before reporting as negative, particularly where there are extremely large number of inflammatory cells, tissue debris and hemorrhage, as seen in our case. An intact brood capsule was also found, which is a rare finding. The diagnosis in our patient was supported by microbiological evidence, a positive significant serology, histopathology and therapeutic response to albendazole.

This case highlights the importance of an exploratory bronchoscopy followed by simple and thorough microscopic examination of the fluid in reaching a definite diagnosis of pulmonary echinococcosis.

**References**


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