Abstract
A 36-year-old male patient, a known case of retroviral disease, presented with clinical features suggestive of pneumonia and was found to have bilateral lower zone lung consolidation which on resolution showed a cystic change on the chest radiograph. A subsequent CT scan revealed the true nature of these cysts to be ruptured pulmonary hydatid cysts showing a ‘water lily sign’. The rare association of pulmonary hydatid cyst and HIV from India is described. ©

INTRODUCTION
Pulmonary hydatid disease caused by Echinococcus granulosus, is common in sheep and cattle raising areas world over, including Eastern Europe, Australia, Parts of South America, and South Asia. In India higher prevalence is reported from areas of Andhra Pradesh, Tamil Nadu and Punjab. However bilateral pulmonary hydatid cysts are relatively uncommon. Its association with HIV retroviral diseases is rare.

CASE REPORT
A 36-year-old man presented with cough since 7 days associated with minimal mucoid expectoration. He also had left sided chest pain and high-grade intermittent fever since 3 days. He was detected to have retroviral infection 6 months back and had 2 prior episodes of respiratory infections, which settled to local treatment. He was a non-smoker, but had a past history of high-risk sexual behavior. A labourer by occupation, he had noticed mild wheezing in the last fortnight, but had no prior history of asthma. There was no history of reduced weight, appetite or other constitutional symptoms.

Clinical examination revealed an averagely built and nourished man with normal vital parameters and a respiratory rate of 20 per minute. There were scattered crackles bilaterally and reduced breath sounds with increased vocal resonance in the left inframammary and infrascapular areas suggestive of left lower lobe consolidation.

A chest roentgenogram revealed bilateral lower zone and parahilar infiltrates which were extensive as compared to the clinical signs (Fig. 1). Blood counts were normal and the absolute CD4 count of the patient was found to be 112 cells/cu mm. Arterial blood gas analysis did not reveal hypoxia, but he had mild compensated respiratory alkalosis. The patient was started on intravenous cefotaxime and oral doxycycline to cover gram positive as well as atypical organisms and prophylactic cotrimoxazole in view of the low CD4 counts. He had a normal ESR (12mm) and sputum for acid-fast bacilli (AFB) was negative. Sputum examination revealed gram positive and negative mixed infection with adequate sensitivity to the therapy already started.

Patient’s symptoms subsided and a review chest film after 2 weeks revealed resolution of the parenchymal opacities, but two cavities were seen bilaterally in the same areas (Fig 2). A repeat blood count now revealed eosinophilia of 12% with absolute eosinophil count being 840-cells/cu mm. A CT scan of the thorax, revealed two well-defined thick walled cavities with air fluid levels (Fig 3), in the lower lobes of both lungs with detached membranes floating on the fluid in the right-sided cavity, (Fig 4) suggestive of ruptured hydatid cyst.

Fig. 1 : Chest film PA view showing bilateral infiltrates at presentation.
An ultrasound of the abdomen did not reveal any hydatid cysts in the liver. The patient was started on anti-retroviral therapy with lamuvudine, stavudine and efavirenz and surgery was advised for the hydatid cysts. However the patient was not willing for surgery. Hence he was started on albendazole at a dose of 10 mg/kg/day for 28 days. Being symptomatically better, he insisted on discharge and was follow-up regularly.

**DISCUSSION**

The lung is involved in 2 forms of human hydatidosis caused by the cystic larval stage of the tapeworm, Echinococcus. Cystic hydatid disease is caused by Echinococcus granulosus and alveolar hydatid disease by Echinococcus multi-locularis.3 65% to 70% hydatid cysts occur in liver and 15 to 30% in lungs while 5-13% patients have involvement of both organs.4 Pulmonary hydatid cysts are characteristically solitary and three-fourths of patient’s cysts are in one lobe, more often lower lobes, posterior more than anterior and more common on the right.4 Our patient was having bilateral hydatid cysts, which is seen in 6 – 10% of patients.1,2

Cough and chest pain are the commonest symptoms,1 and clinical signs are rarely definitive except for an occasional fluid thrill in very large cysts.3 There are occasional case reports of pulmonary hydatid cysts presenting as non-resolving pneumonia, especially when the cysts are ruptured or infected as was in our case.5 Radiology remains the mainstay of diagnosis, being 98-100% accurate in most cases.3

Our patient had underlying retroviral disease and therefore the commonest differentials of bilateral lower zone and parahilar pulmonary infiltrates were tuberculosis or pneumocystis carinii (PCP). However the short history and absence of constitutional features for tuberculosis and lack of respiratory distress, hypoxia or toxic appearance and leukocytosis made PCP or bacterial infection an unlikely cause of this bilateral pneumonitis with cavitations. The CT scan of the thorax unexpectedly revealed ruptured hydatid cysts.

Retrospectively however, the eosinophilia, the recent history of mild wheezing and the radiographic changes could be explained on the basis of asymptomatic hydatid cysts, which got secondarily infected and ruptured, thereby manifesting clinically. Treating the superimposed infection cleared the infiltrates on the earlier chest film and the cysts could now be visualized (Fig. 2 - arrows); contrary to the impression of pneumonia with secondary cavitations obtained initially.

Within the lung the cyst ruptures in two ways: (1) rupture through pericysts only; and (2) rupture of pericysts, exocysts, and endocysts, the contents being expelled in airways. When there is dissection of air between the pericyst and parasitic membrane, usually due to erosion of a bronchiole by an expanding cyst, it presents radiologically as an ‘Air-Bubble’ sign. However when the entire cyst ruptures, the ruptured pericyst
membranes float on the fluid in cysts and give rise to “water lily sign” or “sign of camalotte”,\(^6\) classically seen in our patient’s scan on the right side (Fig 4- arrow).

Though aggressive course of liver hydatidosis with early manifestation as well as disseminated pulmonary hydatid cysts have been described in patients with acquired immunodeficiency syndrome (AIDS),\(^7,8\) our patient remained asymptomatic and manifested only with secondary infection masquerading as pneumonia with subsequent cavitation. The manifestations of anaphylaxis that typically occur with rupture were also subdued probably due to the poor immune response.

Surgery is the treatment of choice for pulmonary hydatid cysts and medical treatment is beneficial in cases which are inoperable or when patients do not consent for surgery. Albendazole is recommended at doses of 10-15 mg/kg/day for 4 weeks separated by 14-day intervals for 2 or more courses. However protease inhibitors and benzimidazoles interfere strongly at the CYP3A4-level. Hence very low doses of albendazole/mebendazole achieve sufficient therapeutic levels in HIV patients taking protease inhibitors.\(^9\)

Thus pulmonary hydatid cysts, though uncommon bilaterally, can present as pulmonary infiltrates especially with secondary infection, in Indian patients more so in those with AIDS. This case highlights the importance of clinico-radiological correlation in medical diagnosis.

Acknowledgements

We would like to acknowledge Dr. AA Chowdhury, Professor and Head, Department of Medicine, Grant Medical College and Sir J.J. Group of Hospitals, Mumbai, Dr. PH Shingare, Dean, Grant Medical College and Sir J.J. Group of Hospitals, Mumbai for allowing us to publish the case.

References


Announcement

**Medicine Update 2005**


**Salient Features**

National and International Faculty, Deliberations on burning topics, Interactive Sessions, How to do sessions, Clinical case discussion, CPC, Quiz.

Registration Amount : Delegates Rs.600/-, Post Graduate Rs.400/- upto 30th November. Spot: Rs.1,000/-. Please send your complete registration form* alongwith Draft drawn on ‘Medicine Update 2005’ to Dr. R.S. Ahalwat, Department of Medicine, 118-C, B.L. Taneja Block, Maulana Azad Medical College, New Delhi - 110002

For details contact : Dr. Richa Dewan, Organizing Director: 23236497 (O); 9810301848 (M)  
**Dr. RS Ahalwat**, Organizing Secretary: 23221921-30 Ext. 4327; 23239271 Ext.354, 9873417136 (M)  
Email: ahalwat.ravi@gmail.com

*You can download the registration form from website:www.mamc.ac.in*