

A solitary pulmonary cystic mass resulting from hydatid disease mimicking a pericardial cyst

P Kothari, H Safar Aly, HK Makker

INTRODUCTION

A patient presented with a symptomatic large pulmonary cyst, which had the characteristic appearance of a pericardial cyst on computed tomography (CT) scanning. Surgical removal of the cyst showed this to be a hydatid cyst. The patient did not live in an endemic area, had no contact with farming animals and hydatid serology was negative.

DISCUSSION

This case emphasizes that the radiological (chest radiograph and CT of the

chest) and gross appearance of the solitary pulmonary hydatid cyst can mimic that of a pericardial cyst. Furthermore, the absence of a history of living in an endemic area and negative hydatid serology cannot rule out the possibility of hydatid disease.

Hydatid disease mainly occurs in the liver (70%) and lungs (20–30%) but may be found in any organ. Most pulmonary hydatid cysts are unilateral (80%) and single (60%), and only 10% are associated with hepatic cysts (Jerray et al, 1992). The right lung is

involved more often than the left lung, and the lower lobes more frequently than the upper lobes. Most pulmonary hydatid cysts are asymptomatic and found incidentally on a chest radiograph. Few patients present because of pressure symptoms from the cyst, such as chest pain and cough. Rarely, rupture of the expanding pulmonary cyst can lead to an anaphylactic reaction and coughing up of salty water.

The diagnosis of pulmonary hydatid disease is relatively straightforward in patients living in an endemic area who present with an abnormal chest radiograph showing a cystic mass. A demonstration of similar cystic lesions in other parts of the lungs or in the liver using a CT scan or ultrasound examination and a positive hydatid serology strengthens the diagnosis. Nevertheless, a definite diagnosis of hydatid disease can only be made on histopathological examination of the surgically removed cyst, or by examination of the sputum for scolices in patients who rupture the cyst into the bronchus.

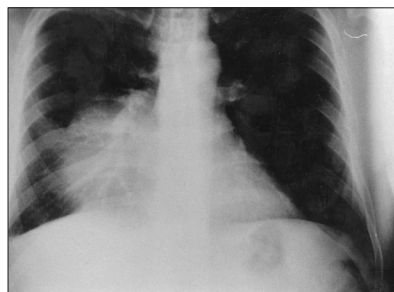
CASE REPORT

A 28-year-old male, who was a non-smoker, presented to the accident and emergency department with right anterior sharp chest pain of 2 days' duration, which was worse on swallowing, lying on his right side and deep inspiration. He had had similar pains, but milder in intensity, for the previous 8 weeks. He gave a history of cough with sputum and a single episode of haemoptysis following a flu-like illness. He had no associated breathlessness, wheeze, indigestion or heartburn. There was no history of trauma to the chest. He was an office worker and lived in London all his life except for holidays on a farm in Ireland during childhood and a recent foreign trip to New Guinea.

He was in pain but had no pallor, clubbing, cyanosis or enlargement of neck lymph nodes. His pulse was regular with a rate of 90/minute, his blood pressure was 130/70 mmHg and his jugular venous pressure was not raised. Cardiac, respiratory and abdomen examination revealed no abnormality. Haemoglobin, white cell count, differential count, platelets, erythrocyte sedimentation rate, urea and electrolytes, and liver function tests were normal. An electrocardiogram showed normal sinus rhythm. A chest radiograph showed a large, round, smooth mass of 7 cm in diameter in the right mid and lower zone adjacent to the right cardiac border (Figure 1). On a computed tomography (CT) scan of the chest, this was seen to be a smooth-walled cyst, containing fluid of water density attenuation (Figure 2). It extended from the right hilum to the anterior chest wall, causing compression of the right middle lobe bronchus and partial collapse of the right middle lobe. A CT and ultrasound scan of the liver showed no similar cysts. The appearance of the cyst was thought to be characteristic of a pericardial cyst. The possibility of hydatid disease was considered. However, hydatid serology (*Echinococcus* antibodies) was negative (titre 1<16).

In view of the symptomatic nature of the cyst causing chest pain and partial collapse of the right middle lobe, the patient was referred for surgical removal of the cyst. During the operation, a large cystic mass was seen in the right chest, outside the pericardium, displacing and compressing the right middle lobe. The cyst was excised intact with its capsule together with the right middle lobe. The gross appearance of the cyst was thought to be consistent with that of a pericardial cyst (Figure 3). However, histological examination of the cyst showed active hydatid with viable germinal membrane and scolices. The patient was given praziquantel 50 mg/kg/day plus albendazole 400 mg twice daily for 7 days to treat any remaining fragments of the hydatid cyst postoperatively. He received further treatment with albendazole 400 mg twice daily for a total of 12 weeks (three 4-week courses with two 2-week breaks) to maximize the chances of eradication.

Figure 1. Chest radiograph showing a large rounded mass in the right cardiophrenic space.



Dr P Kothari is Senior House Officer in the Department of Otolaryngology, University Hospital Lewisham, London, **Dr H Safar Aly** is Consultant Radiologist in the Department of Respiratory Medicine and Radiology and **Dr HK Makker** is Consultant Chest Physician, North Middlesex Hospital, London N18 1QX

Correspondence to: Dr HK Makker

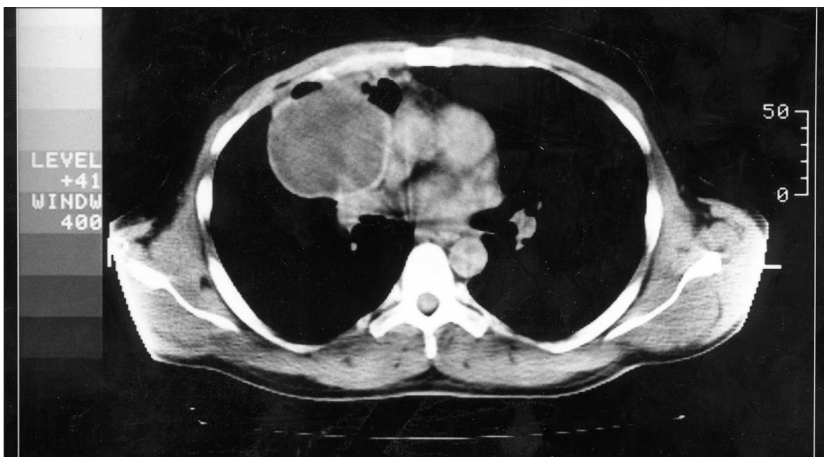
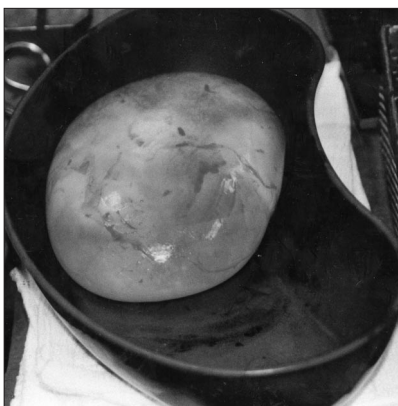


Figure 2. Computed tomography scan of chest showing large cystic mass, which contains water-density fluid, in right anterior cardiophrenic space and compressed right middle lobe.

The diagnosis of the isolated hydatid pulmonary cyst in a patient without a history of contact with farming animals, with an absence of a similar cyst in the liver and with negative hydatid serology can be difficult. The chest radiograph and CT chest scan appearance of a unilocular thin-walled hydatid cyst can be similar to other pulmonary cystic lesions, such as pericardial cysts. On a CT scan, pericardial cysts appear as unilocular, thin-walled, isolated cysts which contain water-density fluid. The cyst is typically situated in the right anterior cardiophrenic angle (70%). In the present case, the appearance of a solitary, thin-walled, large cyst, which contained water-density fluid and which

Figure 3. Gross appearance of surgically removed large cystic mass.



was situated in the anterior cardiophrenic angle, had the typical appearance of a pericardial cyst.

The diagnosis of a pericardial cyst was further supported by the absence of a history of contact with farming animals and a negative hydatid serology. The cyst was removed because it caused pressure which produced symptoms of chest pain and the partial collapse of the right middle lobe. The gross appearance of the cyst was in keeping with the diagnosis of pericardial cyst. The unexpected diagnosis of hydatid cyst was made on histological examination of the removed cyst.

Some authors claim that the diagnosis of a pericardial cyst can be made with confidence using imaging alone, e.g. on a CT scan (Klatte and Yune, 1972; Kaimal, 1982). However, it was discovered that of a group of patients who were thought to have a pericardial cyst after examination using imaging alone, 50% were found to have different diagnoses after surgery, including hydatid cysts (Unverferth and Wooley, 1979). It has been suggested that aspiration of the cyst and examination of the fluid can increase the diagnostic confidence in terms of a suspected pericardial or hydatid cyst (Klatte and Yune, 1972; Salama et al, 1995; Singh et al, 1999). However, the procedure carries potential risk of introducing infection and bleeding. Furthermore, iatrogenic rupture of the hydatid cyst carries the risk of an anaphylactic reaction and spread of the infection.

Serological tests can be useful for the confirmation of a diagnosis of

hydatid disease which has been suspected on the basis of imaging studies. However, serology is sensitive (80–100%) and specific (88–96%) mainly for liver cysts and less sensitive for pulmonary cysts (50–56%) (Force et al, 1992). Serology was found to be unhelpful for screening the population for hydatid disease in endemic areas (MacPherson et al, 1987). Overall, imaging is thought to be more sensitive than serology for the diagnosis of hydatid disease, especially for pulmonary hydatid cysts.

Echinococcus infection usually occurs in people who are living in endemic areas and who are in contact with farming animals, such as sheep and dogs. However, it has been suggested that the ingestion of raw or uncooked vegetables, such as salads contaminated with *Echinococcus* cysts, can act as a source of infection. It is possible that the patient in this case report acquired the infection through this route in the UK or during holidays abroad.

CONCLUSION

The diagnosis of a pulmonary hydatid cyst can only be made with confidence on histological examination of the surgically removed cyst. The absence of a history of living in an endemic area, no contact with farming animals and a negative hydatid serology cannot rule out the diagnosis. **HM**

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