

Giant pulmonary echinococcus cyst: a case report

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ABSTRACT

This is a case report of a 67 year-old male farmer and heavy smoker with 3 packs of cigarettes, who presented with a 12 day history of fever and hemoptysis. On chest X-ray a mass was observed at the lower lobe of the right lung. He underwent full clinical, laboratory, and endoscopic evaluation. No enlargement of lymph nodes was observed on the CT. However, a giant mass was demonstrated in the lower lobe of the right lung. The patient underwent surgery during which a large viable hydatid cyst measuring 10,3x8,5x7,3cm was found, with irregular margins and mixed (solid and cystic) content.



Keywords: Echinococcus granulosus, pulmonary echinococcosis, thoracotomy, pulmonary cysts



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INTRODUCTION

Hydatid disease is caused by infection with a small tapeworm parasite called by *Echinococcus granulosus*, is the most frequently encountered type of anthroozoonosis, and has been known for centuries. Due to the traditional close association between sheep, dogs and humans, *Echinococcus granulosus* is endemic in many parts of the world and particularly the

Mediterranean countries including Greece [1].

Humans are exposed less frequently to *E. multilocularis*, which causes alveolar echinococcosis. Although it can involve almost every organ of the body, the lung is the second most frequently involved location (following hepatic infestation) in adults and the predominant site for hydatidosis in

children. The lung facilitates the growth of the cyst due to its compressible nature and the presence of negative pressure. Clinically, a small hydatid cyst in the lung often causes no problems and may remain asymptomatic, but a large cyst may cause pressure-related symptoms, such as chest pain, cough, dyspnea and hemoptysis, as well as allergic reactions including anaphylaxis.

Rupture of a pulmonary hydatid cyst into a neighboring or more remote cavity, either spontaneously or iatrogenically, is termed a "complicated cyst" and is associated with higher postoperative morbidity and mortality [2]. Classically, the chest X-ray shows an intact cyst as a sharply demarcated round to oval homogenous mass of variable size. Computed tomography (CT) offers high sensitivity and specificity for the definitive diagnosis of the disease.

CASE PRESENTATION

A 67 year-old male farmer was transferred to the cardiothoracic department of our medical center for further evaluation of a lung mass revealed on chest X-ray and was complicated by fever and hemoptysis. The patient had presented to the local general practitioner 12 days earlier complaining of a few episodes of minor hemoptysis. The physician prescribed an oral antibiotic, and ordered a chest X-ray and a pulmonary computed tomography (CT). These studies revealed a mass in close contact with the hilum of the right lung. The mass had a maximum diameter 9,3x7,5x6,3cm, irregular margins and a mixed solid and cystic content. Lymph nodes appeared non-enlarged (or

normal) on chest CT (Figures 1 and 2). The patient was admitted to the provincial hospital four days from the beginning of the symptoms, with fever and continued hemoptysis, from where he was transferred after five days to the cardiothoracic department for further evaluation and management.

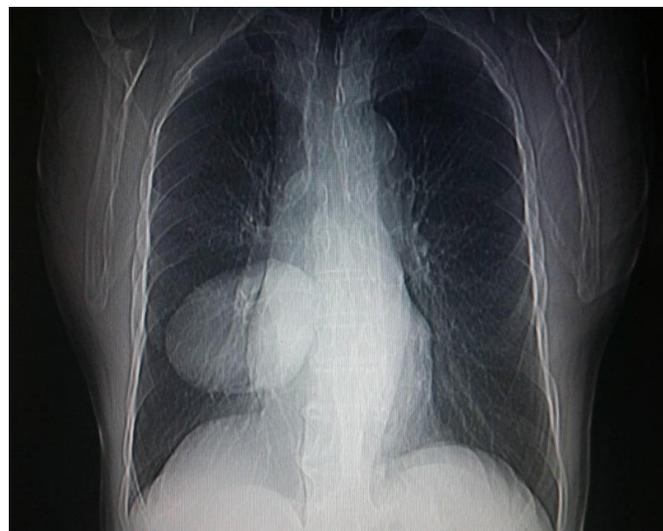


Figure 1. Chest X-ray showing cyst of the right lung

The patient was a smoker and did not report any weight loss. He had a history of hypertension and coronary artery disease. His maximum temperature did not exceed 38,2oC. The heart sounds were dual without audible murmurs; the blood pressure was 140/90mmhg and the pulse rate 80/min. There were no abdominal or neurological findings and no edema or palpable lymph nodes. Ear, nose and throat examination was negative for bleeding.

CT scan of the brain and upper abdomen showed no abnormal findings. The bronchoscopy revealed gross bleeding and a thickening of the mucosa at the entrance of the medial basal bronchus of the right



Figure 2. CT scan of the chest showing a cyst of the right lung

bronchial tree. The rest of the upper lower respiratory tract was normal. Brushings were taken from the suspicious area and bronchial secretions were sent for cytology. All work up was negative for malignancy, and only inflammatory cells were demonstrated. In the present study, anti Echinococcal antibodies were investigated by ELISA in patient's serum samples, which were routinely delivered to the Medical Microbiology Laboratory of University Faculty of Medicine due to suspected hydatid cyst.

Larger cysts usually need surgical intervention in addition to albendazole (either preoperatively or pre-and postoperatively). Thus, the patient underwent exploratory thoracotomy ten days after admission. Following right posterolateral thoracotomy and lysis of adhesions, a right lower lobectomy, including the mass, was performed. Frozen section was negative for malignancy. After lymph node dissection was completed, a chest tube was

inserted and the chest wall was closed. In the final histopathological report the diagnosis of a ruptured Echinococcus cyst with small surrounding abscesses was established. All lymph nodes were negative for malignancy, showing only chronic reactive inflammatory changes. The postoperative period was uneventful and the patient was discharged on the ninth postoperative day. With the establishment of the diagnosis treatment with oral albendazole was given for three months. At follow up 10 months after surgery the patient is doing well without any signs of persistent or recurrent disease.

DISCUSSION

The liver is the most common site of echinococcus cyst formation, followed by the lung, which accounts for 10-30% of cases, and various other sites in 10% of cases. In children the lung may be the commonest site and about 20-40% have liver cysts as well. Pulmonary hydatid disease affects the right lung in almost 60% of cases. The patient presented here had a solitary lesion in the right lung [3].

Most intact lung cysts are discovered incidentally on chest X-ray. Occasionally, an unruptured cyst results in cough, hemoptysis and/or chest pain, hemorrhage or airflow limitation. The commonest complication of symptomatic hydatid pulmonary disease is cyst rupture. The cyst may rupture spontaneously or as a result of trauma or secondary infection. Cyst rupture may be associated with the sudden onset of cough and fever. If the contents of the cyst are expelled into the airway, expectoration of a

clear salty or peppery tasting fluid containing fragments of hydatid membrane and scoloces may occur. In our patient, bronchoscopy was performed which didn't show any specific findings.

Generalized symptoms of hydatid disease can result from the release of antigenic material and secondary immunological reactions that develop following cyst rupture. Fever and acute hypersensitivity reactions range from urticaria and wheezing to death. Eosinophils are the principal cells mediating this response. Although allergic episodes may develop quite commonly after cyst rupture, fatal episodes are uncommon. In the reported case, the patient's symptoms were fairly mild. There was no allergic reaction nor any severe pain and only slight bleeding. Hydatid disease was not the first diagnosis to consider with this mild and fairly common presentation.

Calcification, which usually requires 5-10 years for development, occurs quite commonly with hepatic cysts but rarely with

pulmonary cysts, while bone hydatid cysts do not undergo calcification. Total calcification of the cyst wall suggests that the cyst may be nonviable [4].

Albendazole is preferred because it has better bioavailability. It is given at a dosage of 10-15 mg/kg body weight per day in two divided doses, and the usual dose is 800mg daily. A newer benzimidazole compound, oxfendazole, has been studied and preliminary results suggest it may be a more effective compound.

CONCLUSION

In conclusion, hydatid disease presents with a variety of symptoms and sometimes with special imaging features. Because it is endemic in Greece, this disease should always be included in the differential diagnosis of hemoptysis and fever, especially in patients who live in agricultural areas. Diagnosis is obtained by imaging evaluation (Chest X-ray or CT scan), supported by serology in the majority of cases [5].

ΒΙΒΛΙΟΓΡΑΦΙΑ

1. Stamatakos M, Sargedi C, Stefanaki C. Anthelmintic treatment: an adjuvant therapeutic strategy against *Echinococcus granulosus*. *Parasitol Int.* 2009;58:115-120
2. Gavidia CM, Gonzalez AE, Lopera L, oxfendazole efficacy against cystic echinococcosis in naturally infected sheep. *Am J Trop Med Hyg.* 2009;80:367-372
3. Bygott JM, Chiodini PL. Praziquantel:neglected drug. Ineffective treatment. Or therapeutic choice in cystic hydatid disease. *Acta Trop.* 2009;111:95-101
4. Haralabidis S, Diakou A, Frydas S. Long-term evaluation of patients with hydatidosis treated with albendazole and praziquantel. *Int J Immunopathol Pharmacol.* 2008;21:429-435
5. Moro P, Schantz PM. Echinococcosis: a review. *Int J Infect Dis.* 2009;13:125-133

Γιγαντιαία εχινόκκοκος κύστη πνεύμονα. Παρουσίαση περιστατικού

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ΠΕΡΙΛΗΨΗ

Πρόκειται για περίπτωση άνδρα 67 ετών, αγρότη και βαρύ καπνιστή με 3 πακέτα τσιγάρα ημερησίως, ο οποίος παρουσίασε προ δωδεκαήμερου στο ιστορικό του πυρετό και αιμόπτυση. Στην ακτινογραφία θώρακος παρατηρήθηκε μία μεγάλη μάζα στο κάτω λοβό του δεξιού πνεύμονα. Υποβλήθηκε σε πλήρη κλινικο-εργαστηριακό και ενδοσκοπικό έλεγχο. Η αξονική τομογραφία θώρακος ανέδειξε μεγάλη μάζα στο κάτω λοβό του δεξιού πνεύμονα χωρίς διεύρυνση των λεμφαδένων. Υποβλήθηκε σε χειρουργική επέμβαση η οποία αποκάλυψε μεγάλη βιώσιμη εχινόκκοκος κύστη με διάμετρο 10,3x8,5x7,3cm με ακανόνιστα όρια και μεικτό περιεχόμενο (στερεά και κυστική).



Λέξεις Ευρετηρίου: Echinococcus granulosus, πνευμονική εχινοκοκκίαση, θωρακοτομή, πνευμονική κύστη.



Παραπομπή

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