

## Case Report

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# Cured Transudative Pleural Effusion: A Case Report

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Echinococcosis or hydatid disease is a helminthic infection caused by larvae of tapeworm *Echinococcus granulosus*. While the cysts can involve all organs, liver is the most common site of infection and the lungs are the second most commonly involved organ in young adults. In addition to endemic areas its incidence is growing all around the world due to the ease of transcontinental travel. Disease presentation varies and usually is due to mass effect or dysfunction of the involved organ and surgical resection is the recommended treatment. Here we present the case of a young man with primary pulmonary echinococcosis with involvement of the entire right lung.

**Key words:** *Echinococcus granulosus*, Hydatid cyst, Pulmonary cyst, Surgery

## INTRODUCTION

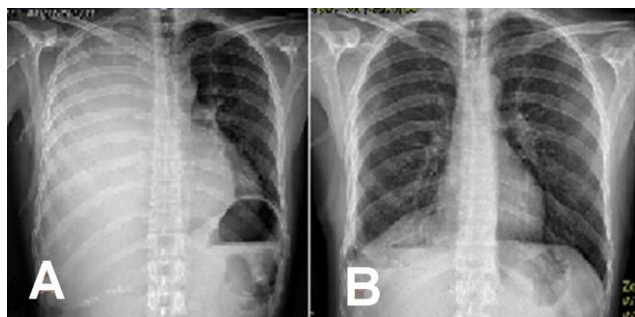
Hydatid disease is a parasitic infestation by a tapeworm of the genus *Echinococcus*. Cystic echinococcosis (CE) caused by the larvae of the tapeworm *E. granulosus* is the most common type and is endemic to Mediterranean countries, the Middle East, Central Asia, particularly China, South America, Iceland, Australia, New Zealand, and Sub-Saharan Africa (1- 4). Hydatid infection of the lung can be primary or secondary (5). Here we present a case report of a patient with multiple primary pulmonary hydatid cysts, which involved 100% of his right hemi-thorax.

## CASE SUMMARIES

A 29-year-old man was referred to the pulmonology clinic with a history of gradually increasing moderate to

severe respiratory distress and dry cough over the past 2 months. He denied fevers, chills, or weight loss. On physical examination the patient was in moderate respiratory distress but was otherwise hemodynamically stable. Chest X-ray (CXR) revealed a very large, dense, and homogenous opacity, which occupied nearly the entire right lung and was associated with mediastinal shift to the left (Figure 1A). An ultrasound-guided thoracentesis was performed and plural fluid was sent for analysis, which showed a transudative process (Figure 2) without any identical abnormalities.

A contrast enhanced computed tomography (CT) scan of the chest was obtained which showed a large cystic lesion in the right pleural cavity (Figure 3).



**Figure 1.** CXR (A) A Very large, dense and homogenous opacity occupying nearly the entire right lung with mediastinal shift to the left. (B) Normal CXR with re-expansion of the right lung at discharge.



**Figure 2.** Under ultrasound guide, pleural fluid tap was done. It was very clear fluid.



**Figure 3.** A large cystic lesion in the right pleural cavity.

The patient received 200 mg of intravenous hydrocortisone to prevent anaphylaxis. Abdominal CT scan did not show involvement of any other organs. Since

hydatid cyst is endemic to Iran, the patient underwent a right posterolateral thoracotomy and drainage of the pleural cyst. Pleural cavity was washed out and smeared with scolicidal agent and a chest tube was inserted. The operation revealed more than 20 hydatid cysts in different sizes (Figure 4). Histopathological examination confirmed the diagnosis of hydatid cysts. The patients was discharged on postoperative day seven with a four-week course of albendazole. H did not experience any surgical complications and had a normal CXR (Figure 1B) at the time of discharge.



**Figure 4.** Multiple hydatid cyst (more than 20 cysts) with different sizes.

## DISCUSSION

Hydatid disease is one of the most important helminthic diseases. Exposure to foods and water contaminated by the feces of an infected definitive host or poor hygiene in areas of infestation can lead to echinococcosis. Cysts can involve every organ. Morbidity and mortality of CE is due to rupture of the cysts, dysfunction of the involved organs, or surgical complications. Humans are incidental hosts of the parasite (6).

Complete cysts include three layers. The innermost layer or endocyst is the germinative layer of the parasite

and gives rise to brood capsules, which produce protoscolices that take approximately one year to development after the initial infection (7). In our case, germinative layer and daughter cysts were seen on histopathologic exam.

In most patients only a single organ is involved. Lungs are involved in about 10-30% of the cases and 20-40% of the patients also have liver cysts. The right lung is involved in 60% of the cases and 30% of the cases show multiple pulmonary cysts (6).

Clinical manifestation can vary from asymptomatic to systemic anaphylaxis and septic shock. Unruptured cysts may cause coughing, hemoptysis, or chest pain (8). In our case, multiple pulmonary cystic lesions caused mass effect and compressed the right lung and shifted the mediastinum to the left.

Chest X-ray is the first modality for evaluating lungs and can lead to the correct diagnosis. Presence of air around the cyst or air-fluid level on CXR can indicate ruptured cyst. Other imaging modalities such as ultrasonography, CT scan, and magnetic resonance imaging can reveal certain details of the lesions and discover others which are not invisible on CXR (8).

Surgical removal of cysts is the gold standard treatment but might not possible in patients with disseminated infection or in patients who are poor surgical candidates (6). Surgery has two objectives: removal of the lesion and treatment of the bronchipericyst pathology. Medical treatment using scolicedal agents before and after surgery is essential to completely eradicate the disease (8).

## CONCLUSION

Primary pulmonary hydatid cysts can compress the entire lung without causing severe complications and can present with the usual signs and symptoms of lung infection. Due to the increasing incidence of this disease, a high index of suspicion is necessary to make a precise and timely diagnosis and implement treatment.

## Financial Disclosure

We report no financial conflicts.

## Conflict of Interest

We have no conflicts of interest regarding this article.

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