



# Pulmonary Hydatid Disease Mimicking Lung Cancer

## Akciğer Kanserini Taklid Eden Pulmoner Hidatik Hastalık

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### Abstract

Hydatid disease is endemic in Turkey. Although pulmonary hydatid disease may be diagnosed by clinical and radiological findings, atypical radiological presentation may lead to misdiagnosis or delays in diagnosis. A 22-year-old female was admitted with hemoptysis. Computed tomography of the thorax showed a mass lesion with central necrosis and atelectasis in the anterior segment of the right upper lobe. Bronchoscopy revealed a whitish-yellow gelatinous membrane in the anterior segment of the right upper lobe. Bronchial washing and forceps biopsy obtained diagnosis of hydatid diseases with cuticles.

**Key words:** Hydatid cyst, bronchoscopy, endobronchial lesion.

### Özet

Hidatik hastalığı Türkiye'de endemiktir. Pulmoner hidatik hastalığı tanısı klinik ve radyolojik bulgularla konulabilmesine rağmen, atipik radyolojik görünüm tanıda gecikmelere ve yanlış tanı konulmasına neden olabilir. Yirmi iki yaşında bayan hasta hemoptizi ile başvurdu. Bilgisayarlı toraks tomografisinde sağ üst lobun anterior segmentinde ateletazi ve merkezinde nekroz içeren kitle lezyon saptandı. Bronkoskopi ile sağ üst lobun anterior segmentinde beyazımsı-sarı renkte jelatinöz membran görüldü. Bronşiyal yıkama ve forseps biyopsi ile hidatik hastalığının tanısı konuldu.

**Anahtar Sözcükler:** Hidatik kist, bronkoskopi, endobronşiyal lezyon.

Echinococcosis, or hydatid disease, is a zoonosis caused by infection with the metacestode stage of the tapeworm *Echinococcus*, which belongs to the *Taeniidae* family. Most of the infestations in human are caused by *Echinococcus granulosus* (1). Hydatid disease is an important public health problem in endemic countries, including Turkey (2).

The incidence of infestation is two per 100,000 and prevalence is 50-400 per 100,000 in Turkey (3). The organ that is most frequently involved is the liver, with the lungs being the second most common site (1,3). The diagnosis of pulmonary hydatid disease is primarily based on clinical and radiological findings. Uncomplicated cysts are

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discovered incidentally on chest x-rays with typical radiographic appearances. Infection or rupture may change the typical radiographic appearance of a hydatid cyst, causing an incorrect diagnosis and delayed treatment (4). The diagnosis of complicated pulmonary hydatid disease is difficult because it can mimic many other pulmonary and pleural diseases, including pneumonia, bronchiectasis, tuberculosis, abscess, lung tumors, pleurisy, and empyema (3,4). Although bronchoscopy is unnecessary in patients with a typical clinical and radiological picture, it can be performed when there is suspicion of a tumor or when the presentation is atypical (3,5). We present a case evaluated for suspicion of lung cancer in which the diagnosis was made through bronchoscopy.

### CASE

A 22-year-old Turkish woman was admitted to our hospital with hemoptysis. She had also a history of hemoptysis one year ago. The patient was a non-smoker and had no history of close contact with dogs or other animals. The physical examination, full blood count, and biochemical tests were normal. Erythrocyte sedimentation rate was 10 mm/h. The chest x-ray showed a mass lesion 4 cm diameter in the right middle zone (Figure 1). Computed tomography of the thorax showed a mass lesion with central necrosis and atelectasis in the anterior segment of the right upper lobe and was reported as lung cancer (Figure 2). Fiber optic bronchoscopy revealed a whitish-yellow lesion bulging from the orifice of right upper lobe anterior segment that was very suggestive of a hydatid cyst membrane (Figure 3). Bronchial washing and forceps biopsy were performed. Materials were sent for both microbiological and pathological examination. Acid-fast bacilli and culture of other micro-organisms were negative. Pathological examination of bronchoscopic materials revealed diagnosis of hydatid disease with cuticles (Figure 4). Hydatid serology was negative after bronchoscopy. Abdominal ultrasonography was normal, with no evidence of hydatid disease in the liver. A right posterolateral thoracotomy was performed and a cystic lesion 6 cm in diameter located in the superior segment of the left lower lobe was detected. The patient underwent cystotomy plus capitonnage. The pathologic examination of the surgical material confirmed the diagnosis of hydatid disease. An anthelmintic agent albendazole (10 mg/kg) was administered daily for three months postoperatively. The postoperative chest x-ray showed normal appearance (Figure 5).



Figure 1: CXR shows a mass lesion in the right middle zone



Figure 2: Computed tomography of the thorax shows a mass lesion with central necrosis and atelectasis in the anterior segment of the right upper lobe



Figure 3: Bronchoscopy shows a whitish-yellow gelatinous membrane in the anterior segment of the right upper lobe

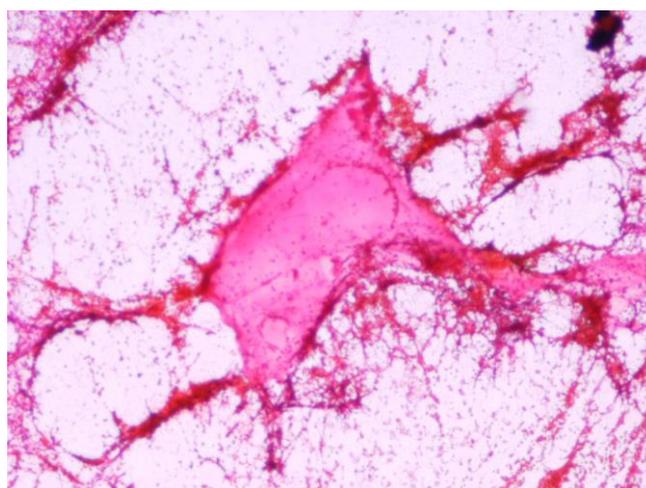
## DISCUSSION

Hydatid disease remains a common clinical problem in areas of the world endemic to echinococcal infestations, especially Australia, New Zealand, South America, the Middle East, and the Mediterranean region (6). The most common localization of the disease is the liver (65%), followed by the lungs (25%) and other organs such as the spleen, kidneys, brain, bones, and heart (1,7).

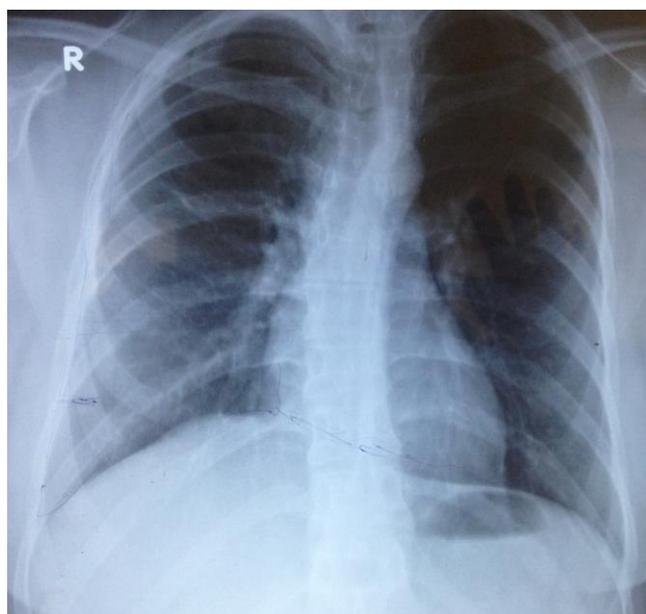
The majority of pulmonary hydatid cyst cases can be diagnosed by the clinical findings and evaluation of data obtained through imaging techniques and serologic methods (4-6). Intact pulmonary hydatid cysts are frequently detected through chest radiography and typically appear as solitary or multiple, well-defined, round or oval masses with smooth borders surrounded by normal lung tissue (3,6,8). When a pulmonary hydatid cyst is infected or ruptured, the radiological appearance may become atypical (4,5,9). According to a previous report (4), typical radiological appearance was only seen in three of 24 complicated pulmonary hydatid cysts. Complicated pulmonary hydatid cysts can mimic several pleural and pulmonary disease such as non-resolving pneumonia, tumors, tuberculosis, abscess, bronchiectasis, pleurisy, and empyema (3-8). There is no specific clinical finding except hydatidosis (4). Laboratory findings are non-specific (6). Serological tests support the diagnosis but they are positive in only 50 % of patients with pulmonary hydatid disease (6,9). Bronchoscopy is unnecessary in patients with a typical clinical and radiological picture. It can be performed when there is suspicion of a tumor or the presentation is atypical (3,5-8,10).

Specific and non-specific bronchoscopic findings for pulmonary hydatid cysts were described in adults (4,5). Saygi et al. (4) detected a whitish-yellow gelatinous membrane in 12 of 24 cases. This feature was introduced as the single specific finding. Other bronchoscopic findings were hyperemia and edema in their study. Deshmukh et al. (11) reported that a white glistening membrane was observed in 9 of 14 patients during fiber optic bronchoscopy. A previous report presented three patients with pulmonary hydatid cyst diagnosed by bronchoscopy. None of these patients had a typical radiological picture of a hydatid cyst, and in one patient the serological tests were negative. The initial diagnoses were lung tumours or tuberculosis. Bronchoscopy revealed a whitish-yellow gelatinous membrane in all patients (5). Kilinc et al. (6) reported three cases of pulmonary hydatid cyst mimicking bronchial cancer. The authors found that serological tests were negative in two cases. It was reported that the pa-

tients were evaluated for non-resolving or recurrent pneumonia in whom complicated hydatid cysts were detected by bronchoscopy (7,12). Our patient had no history of close contact with dogs or other animals. She had no a typical radiological appearance of hydatid cyst. The patient was initially evaluated to have a lung tumor based on a radiological mass lesion on the chest radiograph and computed tomography of the thorax. Bronchoscopy revealed an endobronchial lesion. From this, a definitive diagnosis of pulmonary hydatid disease was obtained.



**Figure 4:** PAP EA65, x4: Bronchial brushing (cytology); fragment of *Echinococcus granulosus* cyst membrane among inflammatory cells and erythrocytes



**Figure 5:** Postoperative chest x-ray shows normal appearance

In conclusion, pulmonary hydatid disease and lung cancer are prevalent diseases in Turkey. Pulmonary hydatid cysts can imitate lung tumors. The diagnosis of pulmonary hydatid disease may be difficult in patients without a typi-

cal clinical and radiological picture. Fiber optic bronchoscopic evaluation with cytological and histopathological examination of the obtained material is important methods for the diagnosis of pulmonary hydatid disease in patients with an atypical clinical and radiological picture.

## CONFLICTS OF INTEREST

None declared.

## AUTHOR CONTRIBUTIONS

Concept - G.H.E., M.K., O.H., E.A.Ö., A.E., A.Y.; Planning and Design - G.H.E., M.K., O.H., E.A.Ö., A.E., A.Y.; Supervision - G.H.E., M.K., O.H., E.A.Ö., A.E., A.Y.; Funding - G.H.E., M.K., O.H., E.A.Ö., A.E., A.Y.; Materials - G.H.E., M.K., O.H., E.A.Ö., A.E., A.Y.; Data Collection and/or Processing - G.H.E., M.K., O.H., E.A.Ö., A.E., A.Y.; Analysis and/or Interpretation - G.H.E., M.K., O.H., E.A.Ö., A.E., A.Y.; Literature Review - G.H.E., M.K., O.H., E.A.Ö., A.E., A.Y.; Writing - G.H.E., M.K., O.H., E.A.Ö., A.E., A.Y.; Critical Review - G.H.E., M.K., O.H., E.A.Ö., A.E., A.Y.

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