

A Case with Pulmonary Cavitory Lesion Mimicking Tuberculosis and Diagnosed by Video-Assisted Thoracoscopic Surgery

Tüberkülozu Taklit Eden ve Video Yardımlı Torakoskopik Cerrahi ile Tanı Konulan Pulmoner Kaviter Lezyonlu Bir Olgu

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ABSTRACT Pulmonary tuberculosis and hydatid disease are major health problems which have seen frequently in the developing countries. The accurate differential diagnosis between these diseases is important for appropriate therapy approach. Here, a 19 year-old female case admitted with cough, sputum, hemoptysis symptoms, a cavitory lesion on chest radiograph, untreated with anti-tuberculosis therapy despite of positive tuberculin skin test and diagnosed with video-assisted thoracoscopic surgery (VATS) was reported. The accurate diagnosis was confirmed with VATS and cyst hydatid was diagnosed histopathologically. In the patient taking anti-parasitic treatment beside of surgery, complete recovery was provided. Alone pulmonary hydatid disease should keep in mind in cases with untreatable cavitory lesion and VATS should be considered for accurate diagnosis and treatment in appropriate cases.

Key Words: Hemoptysis; echinococcosis, pulmonary; tuberculosis, pulmonary; thoracic surgery, video-assisted

ÖZET Gelişmekte olan ülkelerde pulmoner tüberküloz ve hidatik hastalığı sıkça izlenen önemli sağlık sorunlarıdır. Bu hastalıklar arasında kesin ayırıcı tanının yapılması uygun tedavi yaklaşımında önemlidir. Burada öksürük, balgam, hemoptizi şikayetleri ile kabul edilen, akciğer radyografisinde kaviter lezyonu olan, pozitif tüberkülin cilt testine rağmen anti-tüberküloz tedaviye yanıt veremeyen ve video yardımcı torakoskopik cerrahi (VATS) ile tanı konulan 19 yaşında kadın olgu sunulmaktadır. Kesin tanı VATS ile doğrulanmış ve histopatolojik olarak kist hidatik tanısı konulmuştur. Cerrahi yanısıra anti-parazitik tedavi alan hastada tam iyileşme sağlanmıştır. Tedavi edilemeyen kaviter lezyonlu olgularda tek başına pulmoner hidatik hastalık akla gelmeli ve uygun olgularda kesin tanı ve tedavi için VATS düşünülmelidir.

Anahtar Kelimeler: Hemoptizi; ekinokokkozis, pulmoner; tüberküloz, akciğer; göğüs cerrahisi, video yardımcı

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The differential diagnosis of causes of hemoptysis and cavitory lesion shown on chest radiograph in patients is important for chest physicians. In these patients, malignancy, tuberculosis (TB) and the other infectious pulmonary diseases, and collagen tissue diseases should be considered. The clinical and radiologic differentiations of these pathologies are essential for the appropriate therapy.¹

In this article, we report a case with hemoptysis compliant and cavitory lesion on chest radiograph which considered the pulmonary tuberculosis and diagnosed with video-assisted thoracoscopic surgery (VATS).

CASE REPORT

19 year-old female patient was referred to Department of Thoracic Surgery with cough, sputum and hemoptysis (approximately 20 cc/day) complaints for three months. On her background, she was non-smoker and she had seasonal allergic dermatitis. She had no contact history with active tuberculosis patient recently. On physical examination, there was no any pathologic finding. Performing her chest radiograph and thorax computed tomography (CT) angiography was revealed right hilar lymphadenopathy, mediastinal multiple lymphadenopathies which diameter under the 1 cm, a air-filled cavitary lesion with 2.8 cm diameter and accompanying reticulonodular infiltration, bronchiectasis, tree-in bud appearance, bronchial thickening on right lower lobe, and few milimetric nodular lesions on the bilateral lower lobes (Figure 1). The following differential diagnoses were considered in patient: pulmonary tuberculosis, fungal infection, aspergilloma, pulmonary hydatid disease and wegener granulomatosis. On laboratory analysis, biochemical and hematologic laboratory tests were normal. Peripheral eosinophilia was not found. Immunologic markers for wegener granulomatosis and the other vasculitis and galactomannan were negative for fungal infection. Ziehl-nielsen stain of sputum for acid-fast bacilli (AFB) was found as negative for sixth times. Her tuberculin skin test (TST) was 20 mm with BCG positiv-

ity, although quantiferon test was negative. When fiberoptic bronchoscopy was performed, leakage hemorrhage was seen at the one of the basal subsegment of right lower lobe. The surgical diagnosis and treatment were suggested to the patient; however, she did not accept this. Because of younger age, TST positivity, cavitary lesion and nodular infiltration around of its on thorax CT, empirical antituberculosis treatment was started with suspected AFB negative pulmonary tuberculosis. Under the anti TB therapy, her hemoptysis was discontinued and her cough and sputum symptoms were relieved in this period. Nonetheless, no symptomatic relief was obtained adequately. Additionally, there was no improvement at cavitary lesion on reperforming thorax CT. Moreover, the border of cavity was got thinner and fungus ball were appeared (Figure 2). Because of the failure to respond to TB treatment at the second months, radiologic deterioration, and sputum tuberculosis culture negativity, the patient was consulted to the thoracic surgery for aspergilloma. Right lung lower lobectomy was conducted by VATS. The pathology of resection material obtaining surgically was compatible with hydatid cyst and focal bronchiectasis. PAS staining was significantly positive on the laminated membrane (Figure 3A, B). Granulation formation as foreign body type was observed in the surrounding lung parenchyma. After the surgery oral albendazole therapy was started. The patient has been well and her therapy ongoing. The chest radiograph cleared on follow-up.

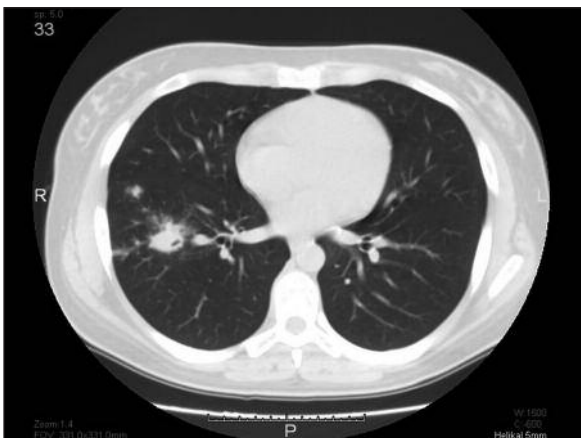


FIGURE 1: The air-filled cavitary lesion, and accompanying reticulonodular infiltration, tree-in bud appearance on right lower lobe on the thorax CT.

DISCUSSION

Hydatid disease (HD) is a parasitic infection caused by *Echinococcus granulosus* and it is characterized by cystic lesions in liver and lung mostly, and rarely the other tissue. Echinococcal cysts are a major health problem in endemic and rural areas, particularly in developing countries.² The incidence of HD is 2:100 000 in Turkey. *E. granulosus* is usually confined to areas where continuous contact between humans and certain domestic carnivores such as dogs and some ungulates including cats and sheep exists. The individual becomes infected by ingesting eggs which are incubated in the

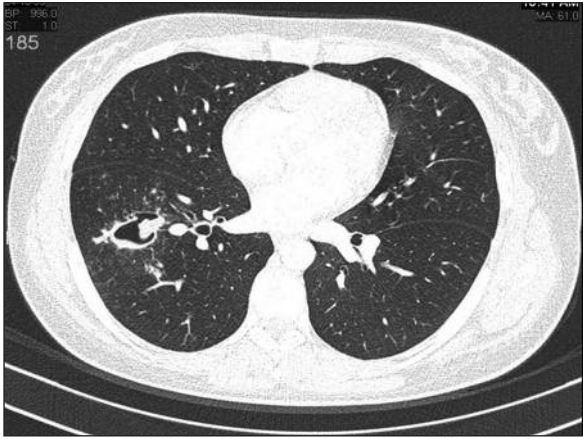


FIGURE 2: The cavitary lesion on reperforming thorax CT.

bowel and which leave embryos free on the intestinal wall. The embryos are then transported by portal circulation to the liver, where they develop and can cross the capillaries to reach the pulmonary circulation.³⁻⁵ However, our patient has been live in a city and she did not keep domestic animals on her history.

Hydatid disease has different clinical and radiological features. Most HD cases are symptomatic (90.9%) and the most common symptoms are cough (53-62%) and chest pain (49-91%). Nonetheless, hemoptysis is an unusual symptom reaching up to 21% in this disease.^{4,6} The symptoms are re-

lated to the cyst size or are complicated. Ruptured cyst may flow into bronchial tree producing cough, chest pain, hemoptysis or vomica. The presenting symptom was also cough, sputum and hemoptysis in this case.

Liver and lungs are common involvement sites of hydatid disease. Isolated primary pulmonary hydatidosis with normal liver is an unusual presentation of its. Single pulmonary localization of HD is more common in children and youth than adults as reported this case.

Radiologic imaging is the first step for detection and evaluation of pulmonary hydatid cysts. Previous studies have shown that hydatid cysts were more frequent in the right lung and lower lobes of both lungs. The radiologic pulmonary lesions of HD is varied such as water lily sign, cavitary image, air-fluid level, pneumonic infiltration, meniscus sign, pleural thickening solitary pulmonary nodule and pulmonary collapse. The features of local complications of HD are intrapulmonary or pleural rupture, infection of the ruptured cysts, reactions of the adjacent tissues, thoracic wall invasion and iatrogenic involvement of pleura.⁷ Complicated pulmonary hydatid disease may present mimicking to many lung diseases including malignancy, tuberculosis and the other

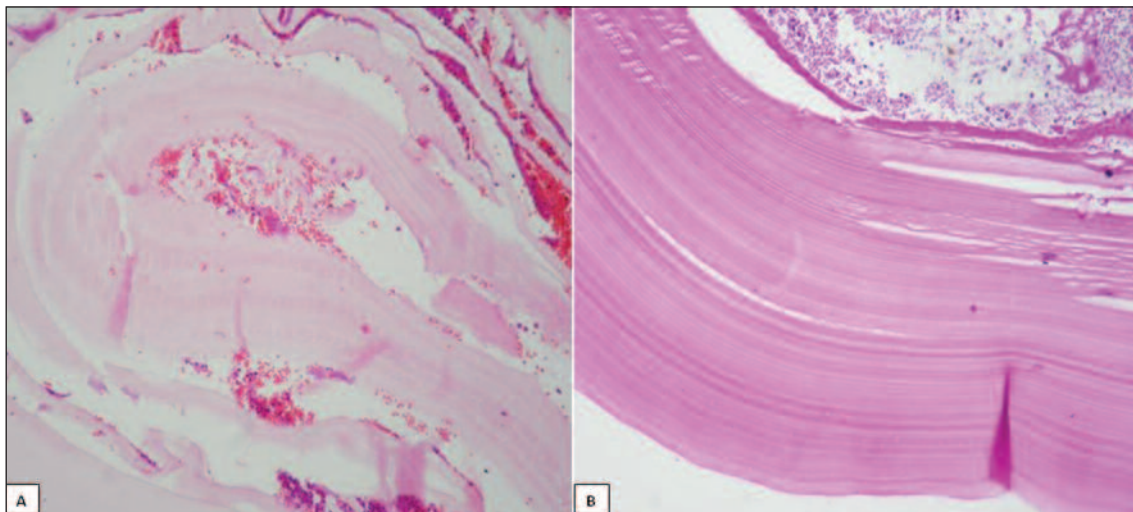


FIGURE 3: A) Cuticle membrane (HE, x200), **B)** Laminated appearance of cuticle membrane with PAS staining (PAS, x400).

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pulmonary infections, benign neoplasm, and Wegener granulomatosis according to the clinical and radiologic findings. This may be result in delaying correct diagnosis and treatment.

In patients presenting cough, sputum, weight loss and hemoptysis, the first differential diagnosis is pulmonary tuberculosis due to high incidence rate of its. We report here a case which presented with clinical and radiologic features such as pulmonary tuberculosis. Anti TB therapy was started in this case until the result of tuberculosis culture.

As the previous studies have shown that fiberoptic bronchoscopy can be used as a diagnostic method in complicated pulmonary hydatid disease, in this case bronchoscopy was confirmed the presence of hemorrhage.⁸

Management of HD can be medical, surgical or usually combined. The surgery is required in patients with impending cyst rupture, hemoptysis, cyst infection, vital organ compromise and extreme pain. Surgery remains the treatment of choice for

hydatid cysts of the lung. The standard treatment for pulmonary hydatid disease is parenchyma-preserving surgery.⁹ In current practice, thoracotomy is the standard surgical approach for pulmonary hydatid cysts, however, a few surgical experiences with regard to VATS. The performing of VATS is required the appropriate patients selection.^{10,11} The diagnosis in our patient was confirmed by VATS and histopathology. In our patient, we used combined of VATS and albendazole therapy (a dose of 10 mg/kg weight/day). The most frequent complications of surgery are pleural infection and prolong air leakage. Any complication was not observed in this case on follow-up.

When the presence of prolonged nonspecific respiratory symptoms such as cough and hemoptysis, and the untreatable cavitory lesion on the chest radiograph, chest physicians should aware of single pulmonary hydatid disease in the developing countries. VATS should be considered for accurate diagnosis and treatment in appropriate cases.

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