

Hydatid Cyst Mimicking High-Risk Pulmonary Embolism: A Case Report

Yüksek Riskli Pulmoner Emboliyi Taklit Eden Kist Hidatik: Olgu Sunumu

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Abstract

Pulmonary embolisms take two forms, depending on whether the cause is thrombotic or non-thrombotic. Although emboli with non-thrombotic causes are rare, they should not be ignored during diagnosis. In such cases, a detailed anamnesis should be taken, existing risk factors should be inquired, and additional tests should be made before making a firm diagnosis. In our case, a hydatid cyst embolism that occluded a large part of the pulmonary artery had been identified as a medium–high-risk pulmonary thromboembolism during hospitalization in an external center and thrombolytic treatment had been started. As the patient's symptoms were identified as unresolved during an outpatient clinic check-up, a hydatid cyst was diagnosed based on the results of a transthoracic fine needle aspiration biopsy and treatment was started.

Keywords: Hydatid cyst, pulmonary embolism, pulmonary artery.

Öz

Pulmoner emboliler, trombotik ve nontrombotik nedenlere bağlı olarak iki gruba ayrılır. Nontrombotik nedenlere bağlı emboliler nadir görülen nedenler olmakla birlikte tanı sırasında gözden kaçırılmamalıdır. Bu gibi durumlarda detaylı anamnez alınmalı, mevcut risk faktörleri sorgulanmalı ve ek tetkikler ile esas tanı konulmalıdır. Pulmoner arterin büyük bir kısmını tıkayan hidatik kist embolisi olan olgumuzda, dış merkezde yatışı sırasında orta-yüksek riskli pulmoner tromboemboli olarak değerlendirilmiş ve trombolitik tedavi verilmiştir. Poliklinik kontrolünde semptomlarının devam etmesi üzerine transtorasik ince iğne aspirasyon biyopsisi ile hidatik kist tanısı konulmuş ve patolojik tanıya göre tedavi verilmiştir.

Anahtar Kelimeler: Kist hidatik, pulmoner emboli, pulmoner arter.

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A pulmonary embolism is a life-threatening cardiovascular emergency in which an obstruction occurs in the pulmonary arterial area. Emboli can take three forms based on their physical structure: solid, liquid (fat embolism) and gas emboli (air embolism). Included within the solid emboli group are thrombi, tumoral formations and cystic formations (1). Hydatid cysts are cystic formations that are mostly found in the liver (70%) and lungs (20%), with the remainder developing in such organs as the spleen and kidneys (10–15%) (2). Literature contains a few reports of hydatid cyst embolisms with intramural involvement of the pulmonary artery in cysts which affect the lung and latter obstructive symptoms like chronic exertional dyspnea. Although rare, this type of pulmonary arterial involvement is life threatening and so should not be overlooked (3).

CASE

A 74-year-old female patient was admitted to our emergency department with fatigue and pain on her left side that had been continuing for 1 week. A physical examination revealed minimal rales on auscultation while other systemic features were normal. Tests revealed blood pressure: 110/80 mm/Hg; pulse: 85/min; and oxygen saturation: 77% in room air. A radiological examination of the patient revealed a lesion that had filled the lumen in the left main pulmonary artery (Figure 1 and 2), which was observed to be completely occluded. An examination of the upper and lower lobes of the left lung revealed 7x5 cm cystic lesions in the left lower lobe posterobasal, and several multiloculated cystic lesions in the apical upper lobe of the right lung that tended to merge peribronchovascularly (Figure 3)

The patient was planned to be hospitalized with a preliminary diagnosis of pulmonary embolism, at which time her medical history was accessed revealing her admission to the emergency department of an external center 1 year earlier due to progressively increasing shortness of breath for 3 months. She had been admitted to the coronary intensive care unit at that time with a preliminary diagnosis of pulmonary thromboembolism completely occluding the left main pulmonary artery. The patient, based on her preliminary diagnosis of massive pulmonary embolism, started on thrombolytics after obtaining her consent and that of her relatives. It was further noted that she had been discharged, and follow-up and treatment were arranged. Her shortness of breath persisted, and a cuticular membrane was observed in a cross-section of the trans-thoracic fine needle aspiration biopsy cell block taken from the parenchymal lesions with findings compatible with hydatid cyst (Figure 4). An Immune hemagglutination (IHA) test was positive and echocardiography was normal, however, surgery was contraindicated due to her multiple lesions, widespread parenchymal involvement and poor medical condition. The medical treatment of the patient

was arranged after taking the opinion of the infectious diseases department, resulting in the prescription of 2x400 mg of albendazole for 3 weeks, followed by a 1-week break, and then the reintroduction of the treatment for 3 weeks. The patient was provided with a home oxygen concentrator due to her continued oxygen requirement, and her discharge was planned.

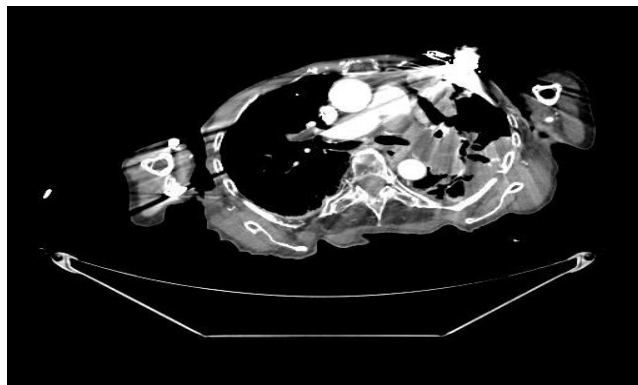


Figure 1: Irregular density increases on axial section consistent with hydatid cyst, causing left pulmonary artery occlusion



Figure 2: Irregular density increases on coronal section consistent with hydatid cyst, causing left pulmonary artery occlusion

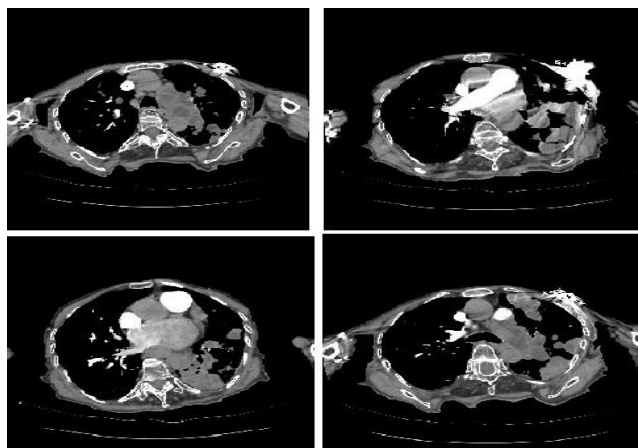


Figure 3: Multiloculated cystic lesion filling the lumen of the left main pulmonary artery, and a peribronchovascular diffuse lesion with a tendency to merge in the upper and lower lobes of the left lung

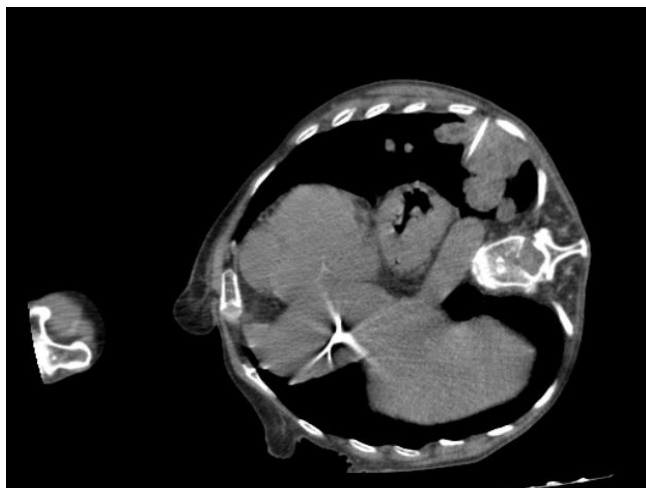


Figure 4: CT-guided transthoracic fine needle biopsy

DISCUSSION

Hydatid cysts involving the pulmonary artery may resemble a pulmonary thromboembolism, and so the differential diagnosis must be made precisely. In the presented case, the erroneous initiation of thrombolytic treatment after the patient's condition was mistaken for thromboembolism may have led to thrombolytic side effects. In such embolism cases, therefore, rare causes such as septic embolism, tumor embolism, cotton wool embolism and hydatid cyst embolism, as non-thrombotic causes of pulmonary embolism, should not be forgotten. A 63-year-old male patient started on heparin and thrombolytic therapy for pulmonary thromboembolism at an external center was identified with a hydatid cyst during follow-up. In that case, the appearance of a 1.5 cm cystic structure adhered to the wall of the intraventricular septum was also found to be compatible with hydatid cyst (4). Hydatid cysts should, therefore, be kept in mind during differential diagnoses to protect the patient from the side effects of incorrect treatments. In cases with hydatid cyst embolisms, as in our case, the primary treatment is surgery, followed by medical treatment. Terminating the life cycle of parasites is the most important step in preventing disease. In the initial period of cyst formation, the patient is usually asymptomatic, and no symptoms develop until the cyst reaches a diameter of 5 cm (5). Symptoms develop due to pressure on the neighboring structures or the development of complications. In our case, the hypoxia and dyspnea that occurred due to the complete occlusion of the pulmonary artery by the cyst were the stimulus. If any suspicions are raised based on the patient's anamnesis and radiological findings, immunological methods such as ELISA, IHA, and latex agglutination and immunoblot tests may be of benefit. Immunological diagnostic approaches are used not only for primary diagnosis, but also for follow-up following surgical and/or medical treatments (5). The positive IHA result following the hospitalization of our patient supported our diagnosis. Lung

hydatid cysts grow faster than hydatid cysts in other organs due to the constant intrathoracic negative pressure and the high elasticity of the lung, and the resulting cyst begins to grow, and may perforate spontaneously or in the event of intrathoracic pressure increases, such as coughing (6). Peripherally located cysts that rupture into the pleural cavity can lead to a more serious clinical picture, such as pneumothorax, empyema or pyopneumothorax (7). In the presented case a centrally located cyst invaded the pulmonary artery, and aside from shortness of breath, there were no other obvious clinical findings that would contribute to the diagnosis. It should not be forgotten that the pulmonary artery invasion of a hydatid cyst can occur in all age groups. Çetin et al. (8) reported hydatid cyst involvement in both pulmonary arteries of a 14-year-old female. In the presented case, the 74-year-old female patient had been keeping cats and dogs in her garden for years. Şentürk et al. (3) detected a cystic formation within the left pulmonary artery on Doppler ultrasonography that caused a vascular filling defect and included a pulmonary artery hydatid cyst. In our case, the preliminary diagnosis of hydatid cyst was made based on a pulmonary CT angiography taken while the patient was hospitalized, but after greater knowledge of the patient's history was obtained, a pathological diagnosis was made based on a biopsy of the area in which the cyst was located. Aili et al. (9) reported on a case who was diagnosed with a non-thrombotic pulmonary embolism due to hepatic hydatid disease. The primary treatment for hydatid cysts involves the surgical resection of the area using parenchyma-preserving procedures as much as possible, with the initiation of medical treatment after surgery (10). In the presented case, the patient was considered unresectable due to extensive parenchymal involvement and so was limited to medical treatments. Previous studies have reported oral mebendazole or albendazole therapy to effective treatments for pulmonary hydatid cyst (11,12). Studies show that approximately 70% of patients with pulmonary hydatid disease respond to medical treatment to some extent (12,13).

In conclusion, pulmonary hydatid cyst is a benign pathology that can develop in all age groups and is a non-thrombotic embolus with strong associations with morbidity and mortality if the diagnosis is delayed. The diagnosis and treatment of the condition are thus important, and it should not be forgotten that radiologically, hydatid cysts in the lung can mimic many pathologies, especially malignancies and pulmonary thromboembolisms..

CONFLICTS OF INTEREST

None declared.

AUTHOR CONTRIBUTIONS

Concept - M.N.Ş., M.Y.Y., C.A., B.S., O.T.; Planning and Design - M.N.Ş., M.Y.Y., C.A., B.S., O.T.; Supervision - M.N.Ş., M.Y.Y., C.A., B.S., O.T.; Funding - M.N.Ş., M.Y.Y.; Materials - M.N.Ş., B.S.; Data Collection and/or Processing - M.N.Ş., C.A.; Analysis and/or Interpretation - M.N.Ş., O.T.; Literature Review - M.N.Ş., C.A.; Writing - M.N.Ş., B.S.; Critical Review - M.N.Ş., C.A.

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