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Hydatid Cyst Mimicking Lung Cancer

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Abstract

Hydatid cyst is a parasitic disease which mostly effects liver. Second most common affected organ is the lung. Pulmoner Hydatid cysts are often asymptomatic and diaognosed incidentally.Cough, hemoptysis, dyspnea, fever, and chest pain can be seen in symptomatic patients. Serological tests and characteristic radiological features provides the diagnosis in many uncomplicated pulmonary hydatid cases. However, complicated hydatid cysts may be confused with other pulmoner patholgies. In that case pathological procedure via biopsy is needed in order to distinguish the diagnosis. Major treatment is surgery.

This article aims to present a 21 year old case of complicated hydatid disease confused with lung cancer in terms of radiologcal features.

Introduction

Hydatid cyst is a parasitic disease caused by echino coccus granulosus, a cestode. Its prevalence is 1-500 / 10000 and its incidence is 5-20 / 10000 worldwide. In Turkey, it has a prevalence of 0.87 to 6.6 / 100,000 and incidence of 3.4 / is 100000. It is observed in developing countries dealing with livestock. Although it is observed in almost every region of Anatolia in Turkey, it is more frequently seen in central, eastern and southeastern Anatolia. Hepatic hydatid infection is the most common location; 76% of cases involve the liver. [1,2]

Second most common affected organ is the lung. The hydatid cyst is more frequently located in the right lower lobe in the lung and is more common in women[3]. Usually asymptomatic cyst is diagnosed incidentally. The symptoms vary according to the location and size of the cyst. There may be symptoms such as cough, hemoptysis, dyspnea, fever, and chest pain. Complicated hydatid cysts can be misdiagnosed with various lung pathologies. In this article, we aimed to present a case of complicated hydatid disease confused with lung cancer.

Case

21 year old female patient had complaints of dyspnea, fever, chest pain for a few days and intermittent hemoptysis for approximately 2 years. In physical examination heart rate was 80 beats per minute, O2 saturation was % 97, body temperature 38 °C; there was minimal rhonchi in the right lower zone with auscultation.

In laboratory findings; white blood cell count was 18000 /mm^3, Crp was 206 mg/L. The chest radiograph showed an irregularly limited opacity in the right middle and lower zone (Figure1a). In the thorax computerized tomography (CT), there was a hyperdense mass of soft tissue with a lobulated contour of approximately 50x60x85 mm, begining from the superior segment of the right lower lobe extending to the laterobasal segment and diaphragmatic pleura (Figure1b,c). There was minimal pleural thickening on right medial basal section and minimal pleural effusion on right.

Positron emission tomography–computed tomography (PET-CT), applied for malignancy scan ,revealed a lobulated contoured mass lesion of the right lung lower lobe posterobasal with a size of 59x53x85 mm,

pleural-based, centrally hypometabolic (necrotic) and elevated marginal fluorodeoxyglucose (FDG) uptake (suv max : 12,6) (Figure1d). There were lymph nodes showing increased FDG uptake with 18 mm biggest diameter in the right upper and lower paratracheal, right parasternal and subcarinal areas (suv max : 7,78). All these findings canalized the clinicians to the initial diagnosis of a tumoral mass. Thus in able to achieve a definite diagnosis, tru-cut biopsy was performed from the lesion containing solid components with thorax ultrasound. Interestingly pathology result came as hydatid cyst.

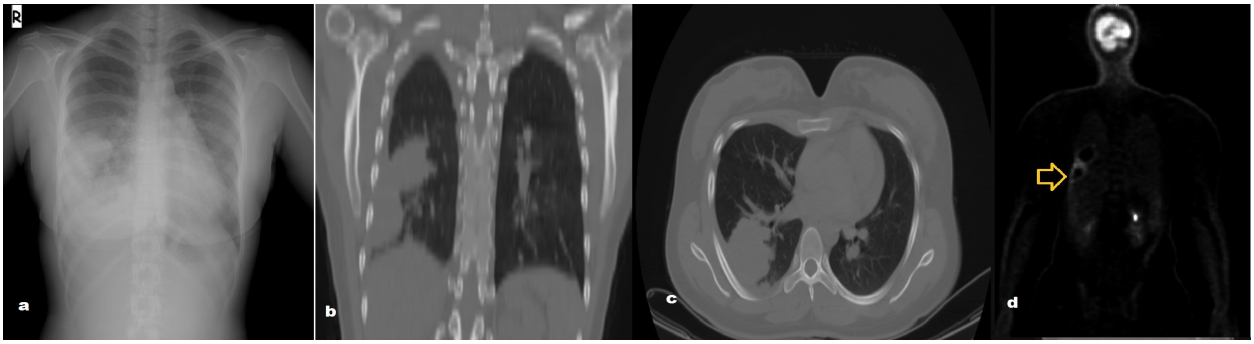

Fig 1. *a) Chest xray shows density on right inferior lobe b)CT coronal plane c)CT axial plane d)PET-CT*

Indirect haemagglutination test (IHA) for the diagnosis of hydatid disease was positive, ARB stain for tuberculosis was negative. In the preoperative sputum culture, enterobacter cloacae complex was produced and antibiotherapy was administered. The patient were prepared for surgery. Thoracotomy was performed. Hard solid lesions, which were approximately 3x3x 3.5 cm in the inferior lobe superior segment and 2x3x2.5 cm adjacent to the diaphragm in the inferior lobe laterobasal segment, were palpated. The lung parenchyma around the lesions were consolidated. Cystotomy was performed for each lesion, dense infected - looking content was aspirated, the germinative membrane was removed and capitonnage procedure was applied (Figure2). Partial decortication was performed for parietal pleural thickening. On postoperative days 3 and 5, the apex and basal drain were removed. The patient did not develop postoperative complications and was discharged with andazole treatment.

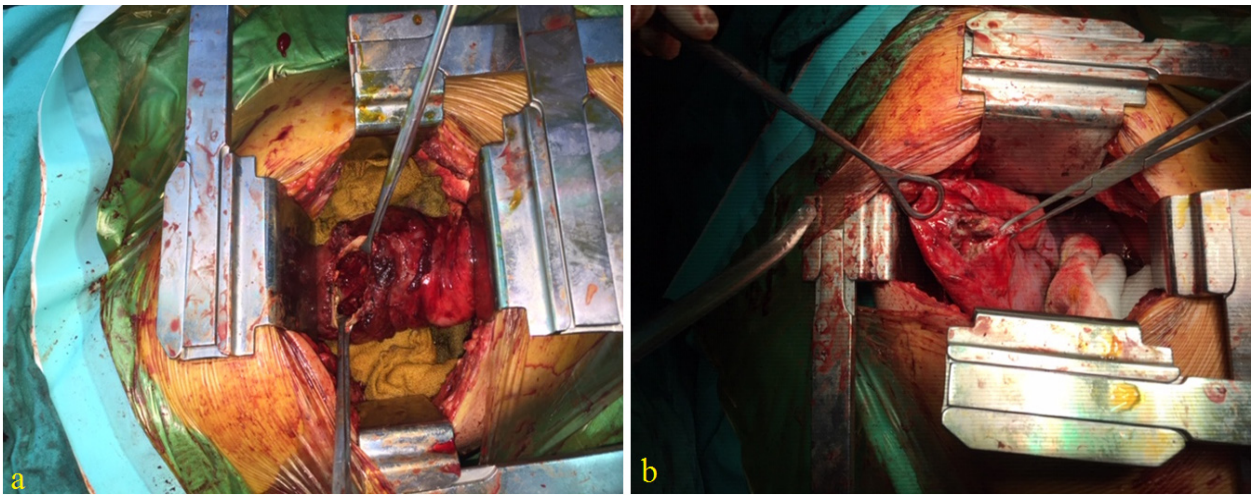

Fig 2. *a) Cyst in the superior segment of the right inferior lobe b) Cyst adjacent to the diaphragm in the right inferior lobe laterobasal segment*

Discussion

Hydatid cyst is a parasitic disease. It often affects the liver and lungs. It is most commonly located in the right lower lobe in the lung.[3,4]

Cysts that are usually asymptomatic are detected incidentally on chest X-ray. Patients may have symptoms such as cough, hemoptysis, dyspnea, fever and chest pain. Expectoration of cyst fluid and cyst membrane due to cyst perforation; hydropneumothorax or empyema

may be observed by opening the cyst to the pleura.[4] Our patient had hemoptysis for 2 years, had cough for 3 days, had dyspnea and chest pain. The lesion was localized to the right lower lobe.

Eosinophilia may be seen in laboratory tests to detect hydatid cyst. White blood cells, sedimentation and crp elevations are observed in infected cysts. Various serological tests are used in the diagnosis of hydatid cyst. Negative serological test results do not exclude hydatid cyst. The indirect hemagglutination test has high sensitivity in ruptured hydatid cyst.[5] In our case white blood cell and crp elevation were present. IHA was positive in serological tests.

Radiological examinations have an important role in the diagnosis of the disease. In the chest X-ray, round, uniformly limited density is observed. In CT, they are round or oval lesions with central fluid density.[6] Radiological signs of ruptured hydatid cyst are lotus flower, meniscus sign, air-fluid levels, lesions with air in the middle without air fluid level, pneumonia, atelectasis.The most prominent radiological finding in ruptured hydatid cyst is the air fluid level. In addition, ruptured infected cysts may represent with thickened cyst wall, pleural effusion, pleural thickening and pneumothorax.[7] İn our case, there was a mass of soft tissue density in the lower lobe of the right lung in the thorax CT not consistent with usual hydatid cyst findings. Minimal pleural thickening and effusion may also seen in malignant diseases.

PET-CT is a method used in oncological diseases. Increased uptake can be observed in inflammatory diseases. Increased FDG uptake is observed in the periphery of the cyst in complicated cases of hydatid cyst. PET-CT may play a role in the assessment of the degree of disease and response to treatment, as well as the detection of ruptured and infected hydatid cysts.[8] In the PET-CT of our case, a mass lesion with peripheral FDG uptake, without central FDG uptake (necrotic), was evaluated. This image may be present in malignant diseases, as well as observed in ruptured hydatid cysts claimed by Kumar et al.

Ruptured cysts become infected and become complicated. In such cysts, patients may be mis diagnosed. Gürsoy et al. revealed that complicated hydatid cysts were confused with various diseases. These patients were diagnosed with thoracic empyema, lung cancer, mediastinal mass, bullous lung disease, tuberculous pleurisy before the operation. All patients were hydatid cysts.[9] In a case report by Ağladıoğlu et al, thorax CT revealed a mass in the lower lobe of the right lung. Taking into account the region where the patient lives, IHA test was done and it came positive.[10] Although the thoracic CT and PET-CT in our patient were considered to be malignant, the result of IHA and biopsy taken with the thorax US came as hydatid cyst and the diagnosis was certain preoperatively.

Treatment of lung hydatid disease is surgery. The most preferred method in the surgery of lung hydatid cyst is cystotomy and capitonage. Albendazole is given to prevent postoperative complications.[11] Cystotomy and capitonnage were performed, albendazole was administered before discharge of our patient who had the diagnosis of ruptured hydatid cyst.

Conclusion

Complicated hydatid cysts can be confused with malignant lesions of the lung. Hydatid cyst should be considered in the differential diagnosis of solid lung pathologies in the endemic areas of the disease.

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