Case Report

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Ruptured Pulmonary Hydatid Cyst: A Case Report

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Abstract

Introduction: Hydatid cyst disease (hydatidosis or echinococcosis) is an important parasitic disease in all societies engaged in agriculture and animal husbandry, where environmental health and preventive medicine measures are insufficient. Lung hydatid cyst is a zoonotic infection caused by larval forms (metasestod) of E. granulosus (EG).

Case report: In our case, a 77-year-old woman was admitted to the Emergency Department with cough sputum and high fever. The patient had complaints of cough and sputum after exercise for 5-6 days in her anamnesis, fever and fatigue in the last 2 days. Physical examination revealed that the oropharynx was normal, both hemithoraxes were participating in the respiration equally, and the right lung basal breathing sounds were reduced by listening. Upon detecting an appearance compatible with abscess on chest radiography, the patient underwent thoracic tomography for further examination and treatment. After our evaluations, the patient was operated by thoracic surgery with the diagnosis of ruptured pulmonary hydatid cyst.

Conclusion: This case is presented to emphasize the importance of physical examination and imaging methods in patients presenting to the emergency department with classic upper respiratory tract infection or community-acquired pneumonia clinic.

Keywords: Pulmonary Hydatid Cyst, Pulmonary Abscess, Case Report

Introduction

Hydatid cyst is a parasitic infectious disease caused by Echinococcus granulosus, which is common in nature and is frequently encountered in our country. It is prevalence is approximately 50-400 / 100,000 and its incidence is 3.4 / 100,000. Echinococcus granulosus is very common in the world and is a common parasitic disease in countries where agriculture and animal husbandry are common, mostly transmitted to human by dog feces. Embryo, which is separated from the egg in the duodenum by the water and food after the eggs are eaten by the dog faeces and spread to the external environment, settles the liver most frequently via the vena porta or lymphatic system and secondly into the lungs. They take the form of larvae in the settled areas, causing hydatidosis (hydatid cyst) formation[1].

Complications such as hemoptysis, respiratory failure, anaphylactic shock, pneumothorax, empyema, lung abscess may occur due to ruptured cyst in the lung[2]. This case was presented to the emergency department in order to draw attention to the importance of physical examination and imaging methods in patients presenting with classic upper respiratory tract infection or community-acquired pneumonia clinic.

Case Report

A 77-year-old female patient was admitted to the emergency department with complaints of cough sputum and high fever for 2 days. Vital signs of the patient; fever: 38,0 ^{O}C Respiratory Rate: 19/min Pulse: 90/min Blood Pressure: 132/78 mmHg Blood Sugar: 150 mg/dL SO_2: % 95. The patient had complaints of cough and sputum after exercise for 5-6 days in her anamnesis, fever and fatigue in the last 2 days, she was admitted to the green area of emergency department. Physical examination revealed that the oropharynx was normal, both hemithoraxes were participating in the res-

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piration equally, and the right lung basal breathing sounds were reduced by listening. Abdominal and neurological examination was normal. It was recorded that she had essential tremor in her medical history and that she used Dideral (Propranolol) regularly.

Pneumonia was considered as a preliminary diagnosis and a chest radiograph was taken and routine blood tests were performed. Laboratory tests results were Hemoglobin: 12,77/gr, white blood cell (WBC); 14.890/mm^3, neutrophil; %78 , C reactive protein (CRP);108.8 mg/dL, glucose: 165 , creatinine: 0,71, D-Dimer: <140 mg/dL. A chest x-ray showed a circular lesion in the lower lobe of the right lung that yielded air-fluid levels (Picture 1). Tomography of the lung showed a large ruptured hydatid cyst in the lower lobe of the right lung (Picture 2). The patient was administered intravenous paracetamol and 500 mg metronidazole in the emergency department in accordance with the clinical symptoms and diagnosis. At the same time, the patient with shortness of breath inhaled Ipratropium bromide-salbutamol and Budesonide 2 times 20 minutes apart.

In the patient's history, it was learned that cough with serous water came about 5 to 6 days ago after exertion but when it comes to water swallowed. The patient was consulted with Thoracic Surgery for the diagnosis of ruptured lung hydatid cyst and was operated with the diagnosis of ruptured lung hydatid cyst. Cystotomy was performed through the right lower lobe posterolateral through the parenchyma. Intracystic fluid aspirated, membrane was removed and was cleaned with povidone iodine. Two thoracic drains were followed up in the intensive care unit and then in the thoracic surgery clinic. The patient was discharged with full recovery after being followed up in the thoracic surgery department for 1 week postoperatively.

Discussion

The diagnosis of hydatid cyst is made by taking anamnesis, physical examination, laboratory findings and imaging methods. Chest X-ray, Thorax Ultrasonography and Tomography imaging methods are diagnostic methods. Indirect Hemagglutination, Indirect Fluorescent Antibody and Enzyme Immunoassay (EIA) and Complement Fixation (Weinberg) tests are used in diagnosis. Techniques such as Indirect Hemagglutination Test and ELISA are used for the detection of antibodies (Ig G1, G2 and G4) produced by Echinococcus multilocularis and Echinococcus granulosus. Western Blot test is used as verification test. Does not exclude diagnosis due to negative test results of up to 50% in hydatid cyst. The presence of scolexes in pathological examination of sputum is pathognomonic finding in diagnosis[1].

The diagnosis of hydatid cyst is made by radiological examinations. Noninvasive imaging techniques such as chest radiographs and thorax tomography are used for the diagnosis of pulmonary cysts. Intact cysts appear as smooth rounded opacity on plain chest X-ray, and well-circumscribed, smooth and thin wall surrounded by homogeneous fluid density on computed tomography. Air penetration between the pericyst and cystic membrane creates the appearance of crescent. This view is called ‘meniscus sign’. It is a very specific radiological finding for hydatid cyst, indicating that the cyst is about to explode. If the parasite membrane is fully ruptured and some amount of cyst fluid is expectorated, the membrane collapses and falls on to the fluid. In this situation, the collapse membrane images floating on the liquid together with the air-liquid level form the “lotus flower”

Figure 1: Chest radiograph consistent with abscess giving air fluid level in the lower lobe of the right lung

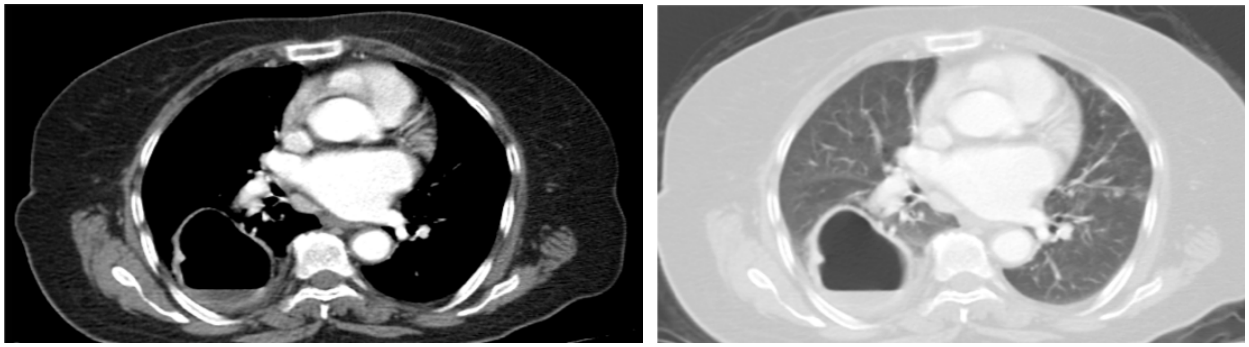

Figure 2: : Thorax tomography revealed a large ruptured hydatid cyst in the lower lobe of the right lung

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sign[3,5,6,7]. In our patient, imaging findings were consistent with abscess giving air-fluid level in the right lung lower lobe on chest X-ray, and a lesion compatible with large ruptured hydatid cyst cavity in the right lower lobe on thorax tomography.

Primary treatment of pulmonary hydatid cyst is surgery. Intact cysts should be operated immediately due to the risk of infection and rupture. Even if the parasite inside the cyst has died, the remaining germinative membrane should be removed by operation as it may be the source of infection. Today, parenchymal preservative surgical methods (enucleation, cystotomy-capitonage, pericystotomy and wedge resection) in hydatid cyst surgery used[8,9,10]. Resective surgery can be performed if more than 50% of the lobe is devastated[4]. Surgical method applied in our patient, the most common surgical method was cystotomy-capitonage.

Considering the clinical and diagnostic methods, this case is presented to draw attention to the importance of physical examination and imaging methods in patients presenting to the emergency department with classical upper respiratory tract infection or community-acquired pneumonia clinic.

Conclusion

We believe that physical examination findings and imaging methods are also important in patients presenting to the emergency department with cough, nonspecific fever and sputum complaints. Since our country is geographically located in the endemic region, we think that it should be considered in the differential diagnosis because of the prevalence of hydatid cyst cases.

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