CASE REPORT:

HYDATID CYST INVOLVING LUNG AND HEART

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ABSTRACT: Echinococcosis (Hydatid cyst) is endemic in Pakistan. The usual host of *Echinococcus granulosus* is dog but humans may serve as intermediate hosts if they accidentally ingest ova from contaminated dog feces. Hydatid cyst usually involves Liver, followed by lung. Cardiac involvement is rare (<2%). We are presenting a case of hydatid cyst involving lung and heart simultaneously.

Key Words: Echinococcosis, Hydatid cyst, Heart, Lung

INTRODUCTION

Echinococcal disease is caused by infection with the metacestode stage of the tapeworm Echinococcus, which belongs to the family Taeniidae. Four species of Echinococcus produce infection in humans; *E. granulosus* and *E. multilocularis* are the most common, causing cystic echinococcosis (CE) and alveolar echinococcosis (AE), respectively. The two other species, *E. vogeli* and *E. oligarthrus*, cause polycystic echinococcosis, but the rarely cause human infection.

Unlike liver and pulmonary involvement, cardiac echinococcosis is rare, with an incidence of 0.2% to 2%[1]. Pulmonary and cardiac cysts require various radiologic methods for differential diagnosis because conventional radiographs are inadequate. Computed tomography (CT) is superior for differential diagnosis as it can demonstrate fluid in cystic lesions, air and fluid in cavitatory lesions, and solid densities in complicated cysts[2].Magnetic resonance imaging, echocardiography, and angiography are also valuable tools for the diagnosis of cardiac echinococcosis[2]. A case of pulmonary and cardiac echinococcosis is described.

CASE REPORT:

A 40 years old male, driver by occupation was admitted with complaints of intermittent left sided chest pain and productive cough with hemoptysis for 6 months. He was having fever for 15 days. During last two years the patient was treated with antibiotics for three episodes of pneumonia at different locations in the lungs. His last admission was five months back for pneumonia. He was non-smoker, and did not lose any weight. No history of exposure to pets. His ^{blood} pressure was 110/70 mm Hg, and respiratory rate at rest was 15 breaths•min^{-1}. The heart rate was 80 per minute and EKG showed sinus rhythm.

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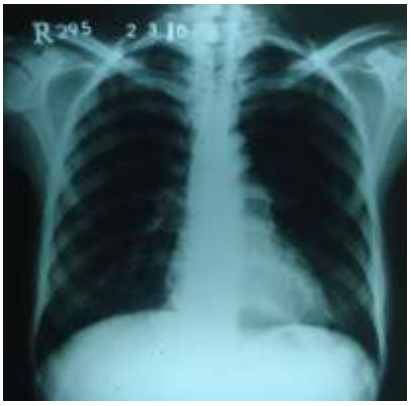
General physical examination and systemic examinations were unremarkable.
Blood picture showed microcytic, hypochromic anemia with ESR of 80 mm in 1st hr. Liver function tests, Urea, creatinine, electrolytes and Random blood sugar were within normal limits. His chest X-ray (Figure-I) was unremarkable at the time of admission.

Figure-I



Chest X-ray done 6 month back (Figure-II), shows and infiltrate in right lower zone which improved (Figure-3) after two weeks of antibiotic treatment.

Figure-II

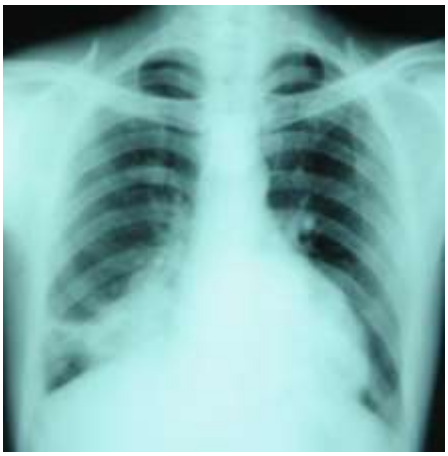
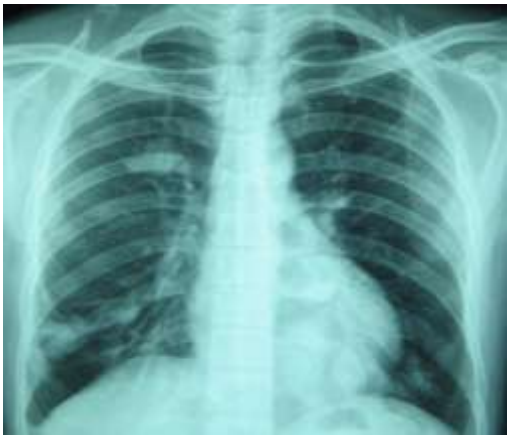


Figure-III



His ECG was normal. At this stage, it was thought that patient is suffering from recurrent pneumonia secondary to some obstructive pathology in bronchial tree. Bronchoscopy was done that did not show any endobronchial lesion or external compression. Bronchial washing for routine culture, AFB smear and culture, fungal smear and culture and cytology were negative. CT scan (Figure IV-VI) was done which showed multiloculated (cart-wheel) cystic mass lesion in right ventricle of heart, compressing left ventricle and deviating interventricular septum towards left side.Multiple similar cysts were seen in both of the lungs involving. both upper lobes, right lower lobe and left lower lobe, apical and basal segments. (largest lesion). Another cyst was seen in right paraesophageal location.

Figure-IV

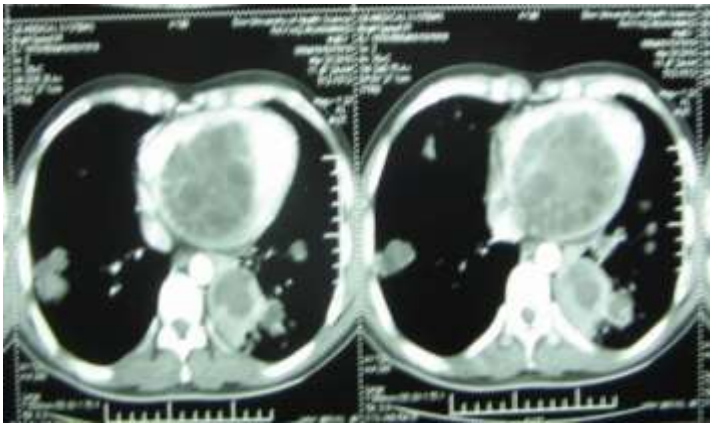


Figure-V

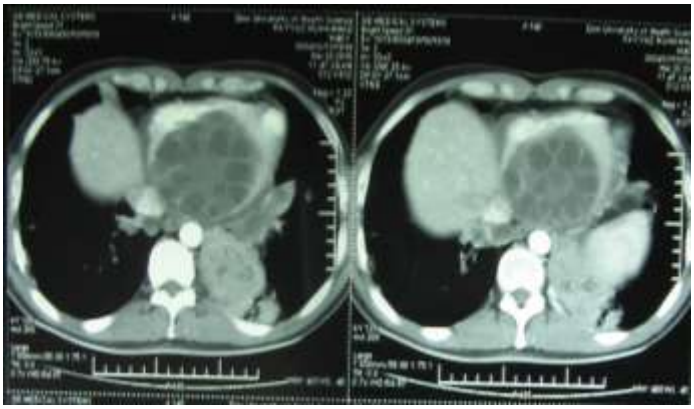
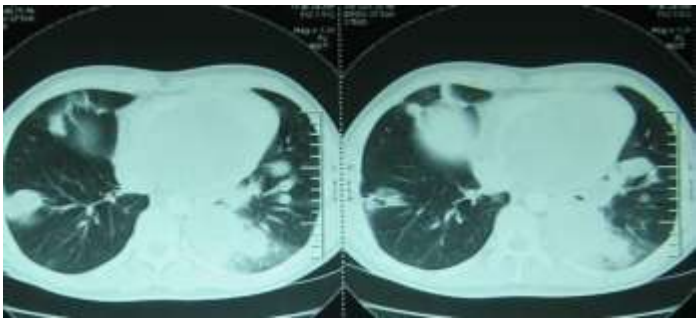


Figure-VI



Echinococcal antibody titre was >1:8194 (Normal < 1:32).

Echocardiography showed normal sized left ventricle, normal left ventricular systolic function, no regional wall motion abnormality, cystic loculated mass in right ventricle posteriorly, paradoxical interventricular septum motion. U/S abdomen was normal

For management of hydatid cysts involving lung and heart, he was started on Albendazole and cardiothoracic surgeon was consulted. During surgery the cyst was found to be adherent to interventricular septum. Surgeon tried to remove it but it was adherent to underlying structure and it was not possible to remove it. So, it was left and patient was advised to continue medical therapy.

DISCUSSION:

Human hydatidosis is typically due to infection with the canine tapeworm *Echinococcus granulosus*. Less common species infecting man are *Echinococcus multilocularis* and *Echinococcus vogeli*. Infection arises from handling dogs with contaminated hair or ingesting contaminated vegetables.

The liver is the most common site of cyst formation, followed by the lung. Cardiac involvement is uncommon (0.5% to 2%)[1, 2]. Among the cardiac involvement Left ventricle being the most common site 60-70%, the interventricular septum 7% and other areas of the heart 23% [2]. Left atrium is least affected 3.7 % [3]. The clinical findings in patients with cardiac hydatid cyst are long asymptomatic periods, retrosternal pain, palpitation, arrhythmia, and dyspnea. Electrocardiographic findings may resemble myocardial infarction and bundle branch conduction disturbances [4.] Cyst in ventricle causes murmur due to obstruction of right ventricular outflow tract or malfunction of papillary muscles. Rupture in pericardium causes acute pericarditis, tamponade or constrictive pericarditis, rupture in ventricle can cause pulmonary hypertension or pulmonary emboli [5].

In the lung, 72% of hydatid cyst involve one lobe, usually the lung base[6]. If the cyst ruptures, a radiological image of the pneumopericyst appears. If the content is completely evacuated to the bronchial tree, a cavity similar to tuberculosis or pulmonary abscess appears. Cough, chest pain and breathlessness are the common presenting symptoms. Hemoptysis as a presenting symptom is common, although massive hemoptysis is rare [6.] Treatment is essentially surgical. The most frequent complications are pleural infection and prolonged air leakage. Operative mortality does not exceed 1% to 2% [7.]

Serology is 80% to 100% sensitive and 88% to 96% specific for liver cysts, but less sensitive for lung 50-56% or other organ 25-56% Currently, polymerase chain reaction (PCR) techniques are only being used for research purposes, but they may have a role to play in diagnosis and species determination in the future [9].

Treatment includes surgical excision, wedge resection, pericystectomy, intact endocystectomy and capitonnage [9]. Bilateral hydatid disease of the lungs may be managed by one- or two-stage surgery *via* bilateral thoracotomy, sternotomy or video-assisted thoracic surgery. Operative mortality is low, morbidity rates are acceptable and the recurrence rate is low [4.] Puncture, aspiration of cyst contents, infusion of scolicidal agent and re-aspiration has been advocated for hepatic cysts. Percutaneous aspiration, injection and re-aspiration have not been used for cardiac echinococcosis [1]. Medical therapy of inoperative cysts with either albendazole produces improvements but cure

rate is approximately 33% [6]. Resection of an intracardiac cyst is recommended to avoid the grave complication of rupture, which is as common as 39%[10].

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