

Hydatid Cyst Presenting With Endobronchial Rupture

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Abstract

Diagnosis of lung hydatidosis becomes difficult with unusual radiographic findings especially with rupture of hydatid cyst. Here we present the case of a patient who presented with hydatid cyst with endobronchial rupture. A 40-year-old woman presented with a 3-year history of cough with mucoid expectoration, breathlessness on exertion, intermittent fever and left-sided chest pain. Chest radiograph and computed tomography of chest showed a mass obstructing the left main bronchus and post-obstructive cavity formation. Fluorodeoxyglucose positron emission tomography (FDG-PET) showed uptake [maximum standardised uptake value (SUVmax) 2.5 G/mL] in left lower lobe cavity. Fiberoptic bronchoscopy showed obstruction of the left main bronchus with white gelatinous material. After the bronchoscope was withdrawn, the patient expectorated large quantities of this material. Histopathological examination of the aspirated membrane showed laminated acellular layer and focal inner germinal layer suggestive of hydatid cyst. [Indian J Chest Dis Allied Sci 2015;57:191-193]

Key words: Hydatid cyst, Endobronchial rupture, Bronchoscopy.

Introduction

Hydatid cyst is a zoonosis caused by the larvae of tapeworm *Echinococcus*. Various species of *Echinococcus* cause human disease, most common being *Ecchinococcus granulosus*. Humans are the accidental and dead-end host for the larvae. The most common site is liver followed by lungs. The clinical features depend on the size and location of the cyst. Diagnosis is usually made by a combination of clinical features, radiology, serology and histopathology in most of the cases.

Case Report

A 40-year-old woman was symptomatic since three years with a history of cough with mucoid expectoration that was not associated with haemoptysis, breathlessness on exertion, intermittent fever and left-sided chest pain. For these complaints she was evaluated at a local hospital and treated empirically with anti-tuberculosis (anti-TB) treatment. In view of persistence of symptoms and radiological findings after completion of anti-TB treatment she was referred to our hospital.

On clinical examination she had loss of volume on left side with reduced breath sounds over left lower hemithorax. Haematological and biochemical laboratory investigations were within normal limits. Chest radiograph showed a homogeneous opacity (Figure 1) over the left lower hemithorax with shift of the mediastinum to the left side. Computed tomography (CT) of the chest (Figure 2) showed mass obstructing the left main bronchus and post obstructive cavity

formation. ¹⁸fluorodeoxyglucose positron emission tomography (FDG-PET) scan showed maximum

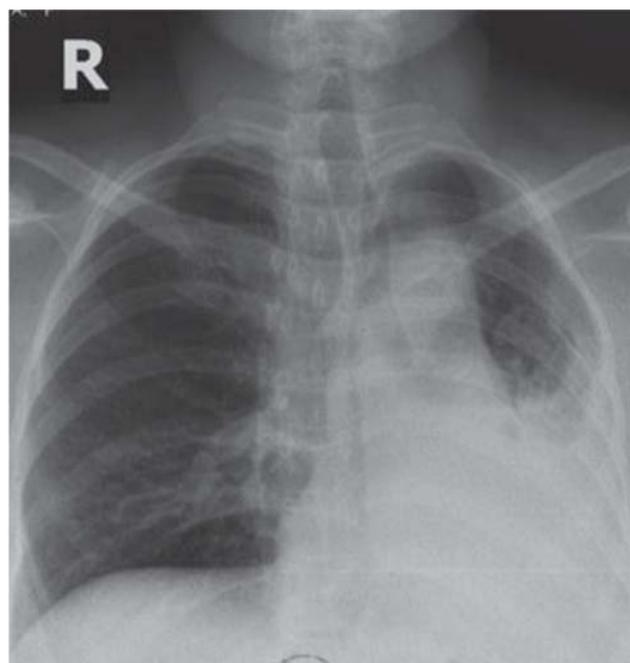


Figure 1. Chest radiograph (postero-anterior view) showing left lower lobe collapse.

standardised uptake value (SUVmax 2.5 G/mL) in the left lower lobe cavity. Fiberoptic bronchoscopy (FOB) showed obstruction of the left main bronchus with white gelatinous material. After the bronchoscope was withdrawn, the patient expectorated large quantities of this material. Histopathological examination of the

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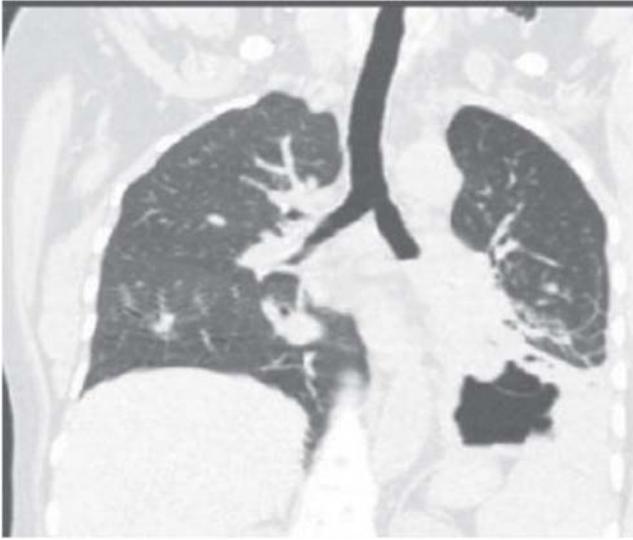


Figure 2. CT thorax (coronal section) showing necrotic mass occluding left main bronchus with cavity in the left lower lobe.

aspirated membrane showed laminated acellular layer and focal inner germinal layer suggestive of hydatid cyst (Figure 3). Serum immunoglobulin G (IgG) against *Echinococcus* by enzyme-linked immunosorbent assay (ELISA) was positive (0.48 U).

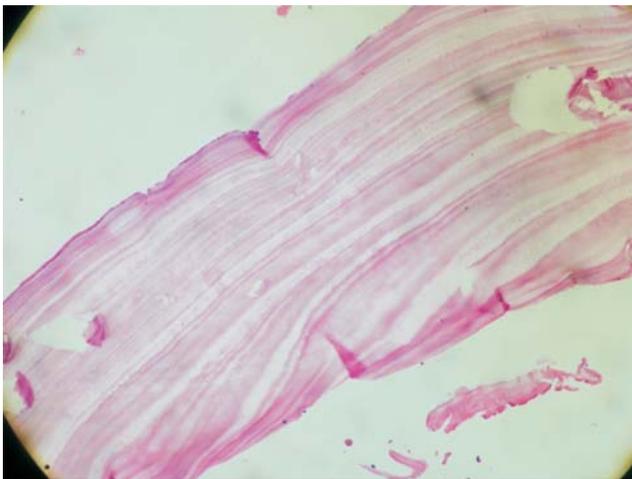


Figure 3. Photomicrograph showing laminated acellular layer and focal inner germinal layer suggestive of hydatid cyst (Haematoxylin and Eosin $\times 400$).

Post-bronchoscopy chest radiograph (Figure 4) showed clearing of opacities and residual lower lobe cavity. Repeat CT of the chest (Figure 5) showed complete disappearance of lesion in the left main and the left lower lobe bronchi with residual cavity in the left lower lobe.

A diagnosis of left lower lobe hydatid cyst with endobronchial rupture was made and patient was started on oral albendazole (10 mg/kg/day) and referred for surgical management. The patient though refused surgery, after three months of albendazole therapy showed reduction in size of the cyst.

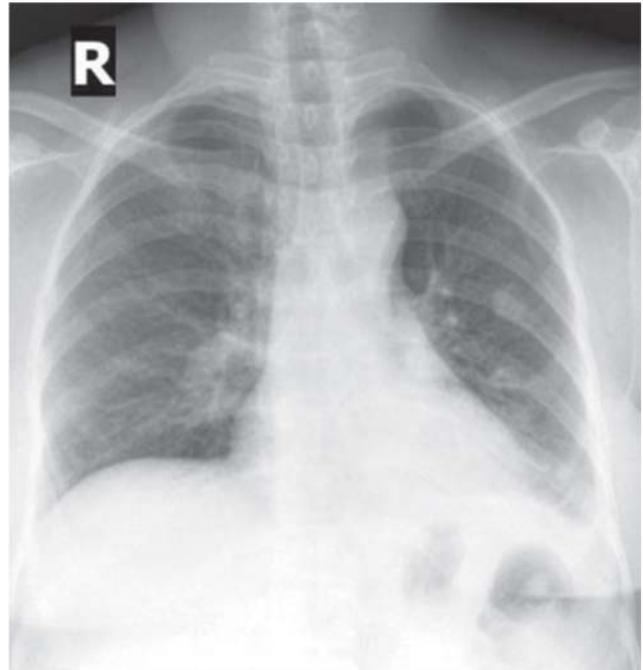


Figure 4. Chest radiograph (postero-anterior view) obtained post-bronchoscopy showing clearing of opacities and residual cavity.

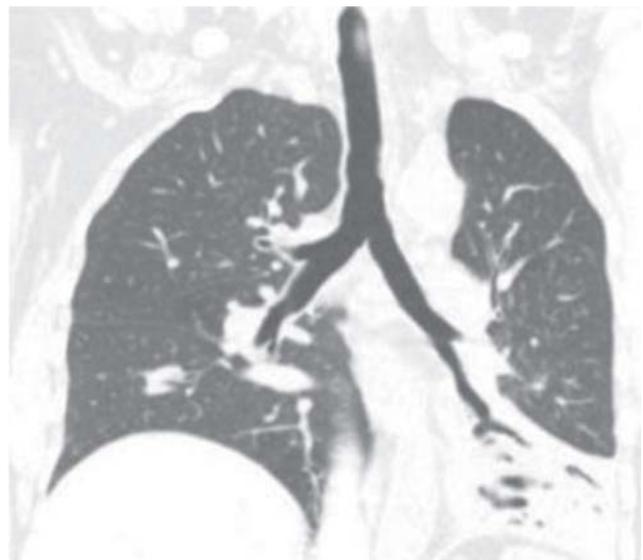


Figure 5. Computed tomography of thorax (coronal section) obtained post-bronchoscopy showing complete disappearance of the lesion in the left main and left lower lobe bronchi with residual cavity in the left lower lobe.

Discussion

Hydatid disease is endemic in many parts of the world. Though India is not a sheep rearing country, hydatid disease is still prevalent in India. Although hydatid disease can develop anywhere in the human body, the liver is the most frequently involved organ (52%-77%), followed by the lungs (10%-40%).¹ The clinical features of pulmonary hydatid disease include cough, dyspnoea and sometimes haemoptysis.² The typical lung cyst caused by hydatid disease can be easily diagnosed on

radiology by various signs. These are “crescent sign” or “meniscus sign”, “Cumbo sign”, “serpent sign”, “water-lily sign” or “Camelotte sign”, “mass within a cavity” or Monod’s sign.^{3,4} Rupture of hydatid cyst in pleura or bronchus present with atypical radiological findings which may be confused with various lung conditions, like tuberculosis and malignancy.⁵ Our patient also had unusual presentation as a mass occluding the left main bronchus with post-obstructive abscess formation mimicking an endobronchial tumour. Up to 30% of pulmonary cysts may rupture and invade bronchi or pleura.⁶ Rupture can occur spontaneously when the size reaches 7-10 cm in diameter and secondarily due to an infectious process, trauma to chest, coughing or after needle aspiration.⁷ Endobronchial material is expectorated spontaneously or require bronchoscopic evacuation. Extruded cyst fragments have been reported to lodge in the bronchi of the same and the opposite lung resulting in acute airway obstruction which needed an emergent bronchotomy.⁸ Endobronchial location of hydatid disease is rare and can simulate endobronchial tumours. A study of 23 surgically treated patients of hydatid disease,⁹ two patients had unusual locations, being purely intrapleural and endobronchial. In up to 2%-9% of the cases, expectoration of the cyst membrane may be a valuable clue to the cyst rupturing into the bronchi.¹⁰ Bronchoscopic assessment in our patient confirmed the diagnosis of endobronchial rupture of hydatid and aided therapeutic removal of endobronchial membranes.

Studies^{11,12} have shown importance of fiberoptic bronchoscopy in the diagnosis of complicated pulmonary hydatid disease. CT has an accuracy of 98% to demonstrate the daughter cysts.¹³ Enzyme-linked immunosorbent assay by using the purified antigen B rich fraction has greater than 99% specificity and is also highly sensitive.¹⁴ Treatment of choice is surgery, but medical management with mebendazole or albendazole for uncomplicated pulmonary echinococcosis has been found to be useful particularly in small and young cysts.¹⁵ The surgical options for lung cysts include lobectomy, wedge resection, pericystectomy, intact endocystectomy and capitonnage.¹⁶ Medical therapy is usually considered as supplemental to surgical therapy. In non-surgical cases, alternative techniques such as puncture aspiration injection respiration (PAIR) can be considered.¹⁷ Albendazole therapy for about an year has been found effective as a primary treatment in about 41% to 57% of patients.^{2,18}

In conclusion, hydatid disease should be considered as one of the important differential diagnosis in patients presenting with cystic and mass lesions as endobronchial obstruction especially in countries

where the disease is endemic. A high index of suspicion is required for the diagnosis in patients with atypical presentation.

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