



Hydatid Cyst Presenting with Massive Unilateral Pleural Effusion

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Abstract

A 13-year-old Hindu female a resident of Jalaun, Uttar Pradesh came with chief complains of right sided chest pain with heaviness for 2 months with low grade intermittent fever for 15 days. She developed dyspnea as well as non-productive cough for 10 days. She has no history of Antitubercular drug intake, chronic respiratory disease, diabetes mellitus or hypertension. A contrast enhanced computed tomography of chest revealed a cystic structure in the lower part of right lung with thick walled smooth with regular contrast enhancement of walls with cystic attenuation but without any sign of calcification. The patient underwent right thoracotomy and pigtail catheter was placed and serofibrinous fluid is aspirated for continuous 4 days. Aspirated fluid is grayish white in color and is negative for bacteriological assay. Enzyme linked immunosorbent assay was positive for *Echinococcus granulosus* serology in high titer.

Keywords: Dyspnea; Fever; Cough; Chest pain; Nova Tec kit Units (NTU)

Introduction

Pulmonary hydatid cyst most commonly occurred by larval stage of *Echinococcus granulosus* which is a zoonotic disease. Human are accidental intermediate host and infection is acquired by ingesting food and soil contaminated by eggs excreted by canine which are the definitive host. Lung is the second most affected organ after the liver. Pulmonary hydatid cyst remains asymptomatic until they get ruptured and patient present with massive productive sputum, hemoptysis and fever. Sometime due to unilateral massive pleural effusion they become symptomatic. Hydatid cyst requires percutaneous drainage or surgery [1].

Case Presentation

A 13-year-old Hindu female a resident of Jalaun, Uttar Pradesh came with chief complains of right sided chest pain with heaviness for 2 months with low grade intermittent fever for 15 days. She developed dyspnea as well as non-productive cough for 10 days. She has no history of Antitubercular drug intake, chronic respiratory disease, diabetes mellitus or hypertension. General physical examinations are within normal limit. Respiratory system examination revealed diminished movement on right chest area with no shifting of trachea and there was no localized tenderness and swelling. On Palpation there was decreased chest expansion on right side as well as tactile fremitus is decreased. On percussion there was dull percussion note on right hemithorax. Auscultation revealed absent breath sound on right hemi thorax with diminished vocal resonance on right side with occasional coarse crackles on right side. Sputum for acid fast bacilli, pyogenic fungal samples are negative. Chest X-ray revealed complete homogeneity on right side with shifting of mediastinum suggestive of massive pleural effusion (Figure 1).

A contrast enhanced computed tomography of chest revealed a cystic structure (Figure 2) in the lower part of right lung with thick walled smooth with regular contrast enhancement of walls with cystic attenuation but without any sign of calcification. There was no significant lymph node enlargement (Figure 3).

The patient underwent right thoracotomy and pigtail catheter was placed and serofibrinous fluid is aspirated for continuous 4 days. Aspirated fluid is grayish white in color and is negative for bacteriological assay. Enzyme linked immunosorbent assay was positive for *Echinococcus Granulosus* serology in high titer (antibody titer 12.44NTU). Albendazole 400 mg is given once daily for 4 weeks with monthly follow up for 2 months. There was complete resolution of symptoms and

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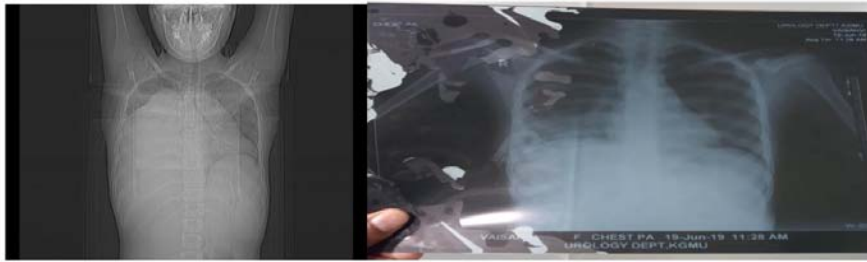


Figure 1: A) Chest X-ray PA view of patient showing right sided massive pleural effusion B) and after placement of thoracotomy tube.

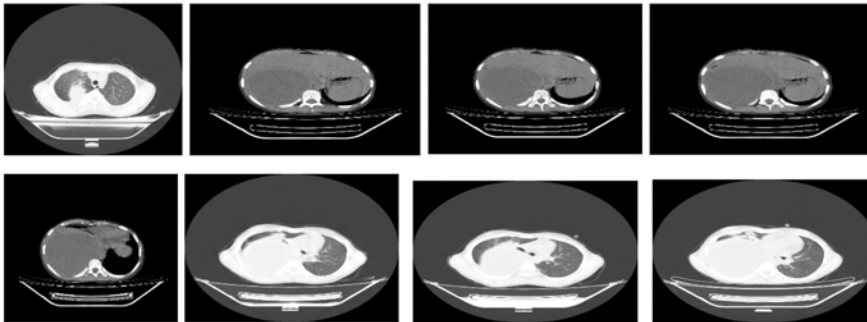


Figure 2: Contrast Enhanced Computed Tomography (CECT) scan of the thorax Well defined cystic lesion in right lower lobe causing collapse of right upper & middle lobes with mediastinal shift.

complete disappearance of pleural cyst and serial hydatid antibody titer decline from 12.44 NTU to 2.6 NTU.

Discussion

Hydatid cyst is endemic in some part of world and is more common in rural area because of close contact with dogs and sheep. Hydatid cyst present more commonly in liver (75%) and followed by lung (15%) and other anatomical location (10%) [2,3]. Hydatid pulmonary cyst are more common in posterior lower lobe than that in anterior location. Hydatid pleural cyst develops inside the parietal pleura but are outside visceral pleura. The unruptured one (uncomplicated) is diagnosed accidentally and has minimal or nil symptoms. Complicated one present with symptoms either because of enlargement or rupture of hydatid pleural cyst. Rupture may occur either in pericardium, lung, mediastinum, pleural cavity or in peritoneal cavity. Rupture of cyst either because of trauma or spontaneously may produce symptoms like chest pain, cough, hemoptysis, fever, breathlessness. Rupture of cyst in pleural cavity may cause empyema, pneumothorax, and effusion. Pleural effusion may get infected most commonly with *Haemophilus influenzae* [4]. Diagnosis depends upon imaging procedure and is well supported by serological and histopathological investigation. Contrast enhanced computed tomography is the best technique to evaluate the location and extent of cyst with nearby structure and additional cyst if present which is not diagnosed in chest X-ray. Density of cyst wall is an important factor to differentiate it in between parasitic and non-parasitic. Hydatid cyst can be simple, complicated and ruptured one. On contrast enhanced computed tomography inverse crescent sign, signet ring sign are seen. Ruptured or complicated cyst in computed tomography appears as detached or collapsed endocytic membrane, collapsed daughter membrane [5,6], calcification rarely occur in pulmonary hydatid cyst which is a common feature of liver hydatid cyst. For postsurgical residual lesions and recurrence magnet resonance imaging is better than computed tomography

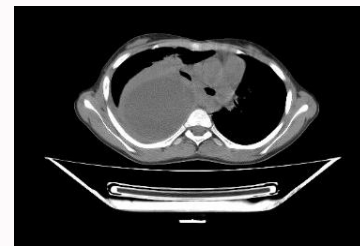


Figure 3: Contrast Enhanced Computed Tomography (CECT) scan Well defined cystic lesion in right lower lobe causing collapse of right upper & middle lobes with mediastinal shift towards left.

scanning [7,8]. Percutaneous aspiration of hydatid cyst fluid is not recommended because of risk of anaphylactic reaction and spillage of hydatid cyst content. Anaphylactic reaction occurs only there is direct contact of hydatid fluid and systemic circulation or only if the person is allergic to hydatid fluid. Characteristic of pleural fluid include eosinophilic predominance and hydatid cyst should be included in differential diagnosis in endemic areas. Surgical treatment is mandatory for ruptured or large cyst which includes complete excision of cyst with maximum preservation of lung parenchyma. Medical treatment includes Albendazole in a dose of 10 mg/kg of body weight for 3 to 4 weeks in specific cases. Depending on location of cyst in thorax various approaches has been postulated posterio-lateral approach is commoner one. One stage surgery is better than two stage surgery because of decreased morbidity, hospital stay and cost. Gold standard is radical removal of germinative membrane and pericyst through appropriate thoracic incision [9,10].

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