**Case Report:**

**Pulmonary Cystic Echinococcosis Presenting as Refractory Lung Abscess in a 14 Year Old Child**

**Authors**
Divya Mahajan, Department of Pathology,
Nadia Shirazi, Department of Pathology,
Sohaib Ahmad, Department of General Medicine,
Santosh Kumar, Department of Pediatric Surgery,
Meena Harsh, Department of Pathology,
Himalayan Institute of Medical Sciences, Swami Rama Himalayan University, Dehradun, India.

**Address for Correspondence**
Dr Nadia Shirazi,
Associate Professor,
Department of Pathology,
Himalayan Institute of Medical Sciences,
Swami Rama Himalayan University, Jolly Grant, Dehradun,
Uttarakhand, India
E-mail: shirazinadia@gmail.com

**Citation**

**Open Access Archives**
http://cogprints.org/view/subjects/OJHAS.html
http://openmed.nic.in/view/subjects/ojhas.html

Submitted: Feb 19, 2016; Accepted: Apr 18, 2016; Published: May 30, 2016

**Abstract:** The prevalence of hydatid disease in North India is higher than it is actually diagnosed and reported. It manifests as a wide variety of symptoms due to different organs affected by the disease. We describe a young girl with clinical and radiological features of suppurative lung abscess subjected to lobectomy due to lack of response to appropriate antibiotic therapy. Surgery was curative as histopathology of the resected specimen clinched the diagnosis of pulmonary cystic hydatid.

**Key Words:** Lung abscess, echinococcosis, pulmonary cystic hydatid

**Introduction:**
Pulmonary cystic echinococcosis is a zoonotic disease caused by larvae of the dog tapeworm Echinococcus granulosus. Humans are accidental hosts and are usually infected by handling infected dogs.[1] The disease is endemic mainly in the Mediterranean countries (particularly Greece), the Middle East, the Baltic areas, South America, India, northern China, and other sheep-raising areas; however, owing to increased travel and tourism all over the world, it can be found anywhere, even in developed countries.[2] In India, hydatid disease is common in almost all states particularly Andhra Pradesh and Tamil Nadu.[3] The liver is predominantly affected in adults while in children, the lungs are affected with a predilection (60%) for the right lung and the lower lobes.[4] Majority of the children remain asymptomatic until the cyst enlarges sufficiently or ruptures. Lung involvement presents as chronic cough, dyspnea, pleuritic chest pain, and hemoptyis. A pulmonary hydatid cyst is mostly diagnosed by radiological imaging, physical examination and clinical findings. The current gold standard for diagnosis is serology test for echinococcosis which detects IgG antibodies to hydatid cyst fluid-derived native or recombinant antigen B subunits.[5]

This report lays stress on the fact that hydatid cyst should be suspected in cystic, secondarily infected lesions affecting any organ in the body especially in endemic areas.

**Case Report**
A 14-year-old girl presented with chief complaints of dull aching, non-progressive pain in left supraclavicular region, cough and undocumented low grade fever since 1 year. Chest X-ray was suggestive of an inhomogeneous opacity without air bronchogram in the middle zone of left lung. The patient received multiple courses of antibiotics for the same without any improvement. Anti-tubercular drugs were also tried for a duration of 2 months without any symptomatic relief. Thereafter, she was referred for further treatment to our institute.

She was afebrile though the cough and pain persisted. The sputum examination was unremarkable and the chest skigram (Figure 1) was similar to the previous x-ray films. Computed Tomography (CT scan) thorax revealed well defined hypoechoic cystic lesion of size 4.4x4.3x3.7 cm (volume 38.2ml) in the lower lobe of left lung with surrounding consolidation. A CT-guided aspiration was performed and the gram stain as well as culture and sensitivity were non rewarding. A provisional diagnosis of lung abscess refractory to medical management was made and the patient was referred for surgical management.
Figure 1: X-Ray chest showing inhomogeneous opacity in the middle zone of left lung

Figure 2: Left lower lung lobectomy specimen with area of cavitation containing white membrane like material

Lobectomy of the lower lobe of left lung was done which revealed collapsed hydatid cyst (Figure 2). On microscopic examination lamellated hyaline membrane of ectocyst of hydatid cyst was seen (Photomicrograph 1). Surrounding lung parenchyma had dense acute inflammatory infiltrate rich in eosinophils. (Photomicrograph 2). Serology for echinococcosis was positive when performed post-operatively. The patient is being followed-up regularly and is doing well.

Discussion

Lung is considered a favorable site for echinococcosis in the pediatric age group because it allows a rapid growth in size of cyst due to its compressible nature, vascularization and negative pressure. [5] Pulmonary hydatid disease affects the right lung in 60% of cases, 30% exhibit multiple pulmonary cysts, 20% bilateral cysts and 60% are located in the lower lobe. [4] There was no history of contact with pets in our case and the infection may be due to eating contaminated raw vegetables and drinking water.

The patients usually present with symptoms produced by mass effect of cyst on surrounding tissues. The common symptoms documented in literature are cough (53-62%), chest pain (49-91%), dyspnea (10-70%), hemoptysis, malaise, nausea, vomiting and thoracic deformations. [6] Indirect hemagglutination test is positive in only 50% of pulmonary hydatidosis. Chest X-ray or CT scan is the most important diagnostic method in pulmonary echinococcosis demonstrating one or more homogenous round or oval masses with smooth borders surrounded by normal lung tissue. Diagnosis is supported by serology in the majority of cases.

Surgery is the main therapeutic approach for the removal of parasite, preventing intraoperative dissemination. A study by Shehatha et al in Iraq in 2008 stated that pneumonectomy should be reserved for larger cysts, dense secondary inflammation or complicated cases with bronchiectasis or hemoptysis. [7] Use of pre surgical chemotherapy reduces the chances of seeding and recurrence. Treatment using benzimidazoles is the preferred treatment when surgery is not available, or complete removal is not feasible. [8] Complications following surgery are rare and include pleural infection and prolonged air leakage. Operative mortality rate is less than 1-2%. [9]

Conclusion

There is limited literature on pulmonary cystic echinococcosis from India despite its high expected prevalence. In our case, the long standing pulmonary hydatid cyst was not diagnosed clinically or radiologically and was treated as refractory lung abscess.

References