

# A Case of Un-ruptured Hepatic Hydatid Cyst: A Rare Cause of Eosinophilic Pleural Effusion

Sunil Kumar, Jimit Nitin Mistry, Sheena Taneja, Manish Advani

Department of Respiratory Medicine, Pacific Medical College and Hospital, Udaipur, Rajasthan, India

## Abstract

Cystic echinococcosis in humans is caused by incidental ingestion of water or food contaminated by embryonated eggs of *Echinococcus granulosus*. Pleural involvement in hydatid disease occurs through transdiaphragmatic spread or intrapleural rupture of a liver or lung cyst. In rare circumstances, a hydatid cyst may accompany pleural effusion. Here, we report a rare case that presented to us with right-sided gross pleural effusion. On evaluation, a large hydatid cyst was found in the left lobe of the liver without any sign of intrapleural or transdiaphragmatic rupture. The pleural fluid was exudative, eosinophilic, and had raised adenosine deaminase. This case depicts the rare presentation of disease and highlights the importance of clinical examination.

**Keywords:** Echinococcus, eosinophilic effusion, hydatid cyst

## INTRODUCTION

Larvae of *Echinococcus granulosus* cause hydatid cyst disease. It may involve any organ of the human body, but the liver is the most commonly affected site (in a roundabout 75%), followed by lung (approximately 15%) and other anatomic locations (10%).<sup>[1]</sup> In the liver, it more commonly involves the right lobe. Pleural involvement in cystic hydatidosis commonly occurs by transdiaphragmatic rupture of hepatic or splenic cyst into the pleural space. A lung cyst may rupture in the pleural cavity causing pleural effusion, empyema, or hydropneumothorax. In rare circumstances, a simple un-ruptured lung or liver hydatid cyst may be accompanied by a pleural effusion.<sup>[2-6]</sup> Pleura also has been reported to be a primary site of hydatid cyst.<sup>[7]</sup> Here, we report an interesting case of an un-ruptured large liver hydatid cyst who presented to us with respiratory problems because of gross right-side pleural effusion.

## CASE REPORT

A 75-year-male from the rural Chittaurgarh, Rajasthan, presented to the pulmonary medicine outdoor unit with chief complaints of difficulty breathing and dry cough for 1 month. He had no history of fever, anorexia, or weight loss. He was a farmer by occupation and had a smoking history of around 12

pack-years. He had an unremarkable past and family history. His general physical examination and vital signs were within the normal range. Cardiovascular and neurological examination was unremarkable. We found a firm, nontender, mobile lump with cough impulse on abdominal examination [Figure 1]. On interrogation, the patient admitted the presence of that lump for the last 1 year with gradual progression. Chest examination findings were compatible with right-sided pleural effusion. His chest radiograph revealed right-sided moderate pleural effusion without any obvious parenchymal lesion. Ultrasound abdomen showed a large (141 mm × 134 mm) hydatid cyst within the left lobe of the liver. The cyst also contained multiple daughter cysts within. He was hospitalized with a presumptive diagnosis of liver hydatid cyst with right-sided pleural effusion for further evaluation and management.

Contrast-enhanced computed tomography (CT) of the chest and abdomen was done to look for any lung involvement

**Address for correspondence:** Dr. Sunil Kumar,

Department of Respiratory Medicine, Pacific Medical College and Hospital,  
Bhilo ka Bedla, Udaipur - 313 001, Rajasthan, India.  
E-mail: [dr.sunil2004@gmail.com](mailto:dr.sunil2004@gmail.com)

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**For reprints contact:** [WKHLRPMedknow\\_reprints@wolterskluwer.com](mailto:WKHLRPMedknow_reprints@wolterskluwer.com)

**How to cite this article:** Kumar S, Mistry JN, Taneja S, Advani M. A case of un-ruptured hepatic hydatid cyst: A rare cause of eosinophilic pleural effusion. *Indian J Respir Care* 2022;11:187-9.

**Received:** 20-01-2022 **Revised:** 23-02-2022

**Accepted:** 07-03-2022 **Published:** 08-04-2022

### Access this article online

Quick Response Code:



Website:  
[www.ijrc.in](http://www.ijrc.in)

DOI:  
10.4103/ijrc.ijrc\_19\_22

or signs of cyst rupture. The abdomen CT confirmed a large (139 mm × 128 mm) hydatid cyst in the left lobe of the liver without any indication of transdiaphragmatic rupture to the lung or pleural cavity. The cyst also contained multiple daughter cysts within [Figures 2 and 3]. Thorax CT was suggestive of gross effusion on the right side without any cystic lesion. The lung window also showed centrilobular emphysema and a few fibrotic bands on the right side [Figure 4]. His routine blood analysis and Echinococcus antibodies were normal (absolute eosinophil count: 141/mm<sup>3</sup>, serum immunoglobulin G for Echinococcus: 0.2 IV). His induced sputum was negative for aerobic culture, acid-fast bacilli stain, and mycobacterial gene expert. The sputum was also negative for *Echinococcus scolex*. The Mantoux test showed 3 ml of indurations after 72 h of the test. The pleural fluid was pale yellowish. On analysis, the fluid was exudative (protein: 4.72), eosinophilic (12% eosinophils), and had raised adenosine deaminase (62.2 U/L). Pleural fluid microbiology for mycobacteria, pyogenic bacteria, and Echinococcus was negative. A diagnosis of eosinophilic pleural effusion (EPE) secondary to un-ruptured hepatic hydatid

diseases was established, and the patient was referred to a gastroenterosurgeon for further management.

## DISCUSSION

EPE is described by the presence of more than 10% eosinophils in pleural fluid, and EPEs account for roughly 10% of all exudative pleural effusions.<sup>[8]</sup> The most common causes of EPE are air and blood in the pleural cavity. After excluding air and blood, the most common causes are idiopathic (39.8%), malignancy (17%), parapneumonic (12.5%), transudate (7%), tuberculosis (5.6%), pulmonary embolism (4.3%), other (12.8%), and collagen vascular diseases (3%).<sup>[9]</sup> Parasite diseases such as paragonimiasis, hydatidosis, amebiasis, and ascariasis can cause EPE on rare occasions.

Hydatid cyst is a slow-growing disease and frequently unnoticed by the patient. An un-ruptured cyst has minimal symptoms and is sometimes diagnosed accidentally. The presentation of liver hydatid cyst is usually limited to abdominal complaints until it grows enough to cause lung compression and other viscera or rupture in the peritoneum or



Figure 1: Large lump in epigastrium



Figure 2: Computed tomography coronal view showing hydatid cyst

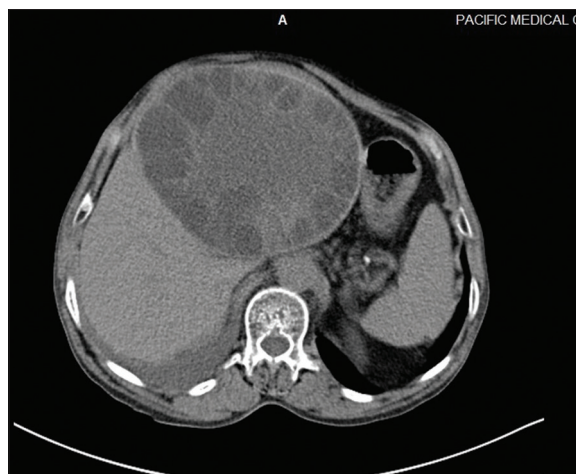


Figure 3: Computed tomography abdomen axial view showing hydatid cyst

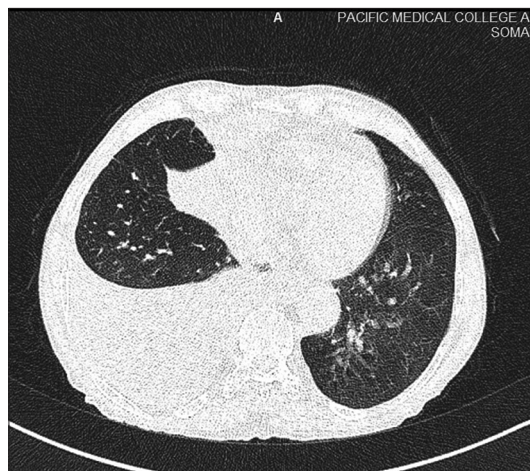


Figure 4: Computed tomography lung window showing pleural effusion

pleura. Transdiaphragmatic spread of a liver cyst is found in around 0.16%–16% of the cases, while intrapleural rupture of a lung or liver cyst is observed in less than 5% of the cases.<sup>[2,3,6]</sup> The rupture of a hydatid cyst can occur either spontaneously when the cyst grows to 7–10 cm in diameter or secondary to infection or trauma.<sup>[10]</sup> Transdiaphragmatic or intrapleural rupture of hydatid cyst can cause pleural effusion, empyema thoracic, pneumothorax or hydropneumothorax, thickened pleura, lung atelectasis, and bronchopleural fistula and can initiate a life-threatening anaphylactic reaction.

The common symptoms of un-ruptured liver hydatid cyst are abdominal pain, jaundice, or right hypochondrium palpable mass. Pleural effusion in an un-ruptured liver hydatid cyst is rare presentation. The pleural fluid in these patients had been described as exudative and eosinophilic in literature.<sup>[3,4]</sup> The effusion due to parasitic diseases usually has higher eosinophil percentages.

The diagnosis of hydatid cyst is usually established based on ultrasound or radiological imaging with excellent accuracy. In addition, serological tests are reliable screening tools, including immunoelectrophoresis and enzyme-linked immunosorbent assay. Numerous recombinant proteins (Rec) and related peptides, mainly derived from the antigens B and 5, have been tested for detection and follow-up of antibodies in correlation with ultrasonography findings. Surgical removal of a cyst followed by albendazole therapy is the treatment of choice for the hydatid cyst. Surgical options consist of conservative and radical approaches. Conservative techniques used are PAIR, PAIRD, MoCaT, or PEVAC. Radical procedures include total pericystectomy, partial hepatectomy, or lobectomy.

We found a raised adenosine deaminase apart from high protein and eosinophils in our case. These findings may indicate a tuberculous pathology, but other tests such as chest radiology, sputum microbiology, pleural fluid microbiology, and Mantoux tests were inconsistent with pleural tuberculosis. This case depicts the rare presentation of diseases and highlights the importance of thorough clinical examination.

Un-ruptured liver hydatid cyst can cause pleural effusion even without lung involvement and transdiaphragmatic rupture to

the pleural cavity. One should not forget parasitic etiology in the case of eosinophilic pleural fluid.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published, and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

### Acknowledgment

The author wants to acknowledge the patient.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

## REFERENCES

1. Engin G, Acunaş B, Rozanes I, Acunaş G. Hydatid disease with unusual localization. *Eur Radiol* 2000;10:1904-12.
2. Rakowe R J, Milwidsky H. Hydatid pleural disease. *Am Rev Respir Dis* 1964;90:623-31.
3. Barzilai A, Pollack S, Kaftori JK, Soudry M, Barzilai D. Splenic echinococcal cyst burrowing into left pleural space. *Chest* 1977;72:543-5.
4. Jerray M, Benzarti M, Garrouche A, Klabi N, Hayouni A. Hydatid disease of the lungs. Study of 386 cases. *Am Rev Respir Dis* 1992;146:185-9.
5. von Sinner W. Pleural complications of hydatid disease (*Echinococcus granulosus*). *Rofö* 1990;152:718-22.
6. Ozvaran MK, Ersoy Y, Uskul B, Unver E, Yalcin E, Baran R, *et al.* Pleural complications of pulmonary hydatid disease. *Respirology* 2004;9:115-9.
7. Moreno-Licea C, Medina-Franco H, Guerrero-Ixtláhuac J, Chablé-Montero F. Primary Pleural hydatid cyst: Case report and literature review. *annals of medicine and surgery: Case reports*. 2021;2:1-8. [<http://doi.org/10.29337/amscr.3>].
8. Kalomenidis I, Light RW. Eosinophilic pleural effusions. *Curr Opin Pulm Med* 2003;9:254-60.
9. Light RW. *Pleural Diseases*. 6<sup>th</sup> ed. Philadelphia, PA 19103 US: Lippincott Williams & Wilkins; 2013. p. 94-5.
10. Sadrieh M, Dutz W, Navabpoor MS. Review of 150 cases of hydatid cyst of the lung. *Dis Chest* 1967;52:662-6.