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Unveiling a Silent Threat: Emergency Handling of Ruptured Pulmonary Hydatid Cyst

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Abstract:

Background: Hydatid disease, caused by infection with the metacestode of Echinococcusgranulosus, is a zoonotic disease with a global distribution. Pulmonary hydatid cysts (PHC) can lead to severe complications, especially upon rupture.

Case Presentation: We report the case of a 24-year-old male from a rural area who presented with breathlessness on exertion, right-sided chest pain, vomiting, fever, weight loss, dry cough, and anorexia. Initial vital signs included a temperature of 102°F, pulse rate of 109/min, respiratory rate of 36/min, blood pressure of 130/90 mmHg, and SpO2 of 80% on room air.

Materials and Methods: Diagnostic imaging included chest X-ray, point-of-care ultrasound, and high-resolution computed tomography (HRCT) of the thorax. Blood tests were conducted to assess inflammatory markers. The patient was managed with oxygen therapy, intravenous (IV) antibiotics, antipyretics, and fluids. Consultations with a Pulmonary Physician and Cardiothoracic and Vascular Surgeon (CTVS) led to a right lateral thoracotomy for cyst excision. Postoperative care included Albendazole 400mg BD.

Results: Post-surgery, the patient recovered without complications and was discharged asymptomatically. Follow-up imaging showed a well-expanded right lung and resolution of symptoms.

Conclusion: This case underscores the importance of prompt surgical intervention in the management of ruptured pulmonary hydatid cysts, combined with appropriate conservative treatment, to ensure a favorable outcome.

Introduction:

Hydatidosis, caused by infection with the metacestode of Echinococcusgranulosus, is a silent zoonotic disease with a worldwide distribution. The most common sites for cysts are the liver and lungs, but they may also occur in the spleen, brain, eyes, heart, bone marrow, and kidneys.Primary infection often occurs in childhood, with the lungs being the most common site in children. Due to the slow growth of cysts, hydatidosis is often asymptomatic until the cyst expands over several years after infection, frequently identified incidentally during imaging studies.

Symptomatic hydatidosis of the lung typically follows cyst rupture, which can occur spontaneously or due to trauma. Pulmonary hydatidosis causes symptoms such as unexpected cough onset, fever, hemoptysis, and anaphylactic shock. A pulmonary hydatid cyst (PHC) may rupture into the pleural cavity or bronchus.

Case History:

A 24-year-old male from a rural area presented to the Emergency Room (ER) of Parul Sevashram Hospital (PSH) with breathlessness on exertion (MMRC grade 3), right-sided chest pain, and a sense of impending doom (gabharaman) for 4-5 days. He reported a history of vomiting and fever for two months, weight loss, dry cough worsening at night, and anorexia for three months. There was no history of hemoptysis. On presentation, his vital signs were: Temperature - 102°F, Pulse Rate - 109/min, Respiratory Rate - 36/min, Blood Pressure - 130/90 mmHg, and SpO2 - 80% on room air.

Diagnosis:

- A chest X-ray (PA view) indicated a thick-walled cavitary lesion with an air-fluid level in the lower right lung.

- Point-of-care ultrasound showed moderate right-sided pleural effusion (190 cc).

- CECT thorax revealed a well-defined cystic lesion with an internal air-fluid level in the right lower lobe and internal laminated floating membranes, suggestive of a ruptured hydatid cyst. Additional findings included mild right-sided pleural effusion, ground glass opacity in the left lung parenchyma, and a few sub-centimetric right upper para-tracheal lymph nodes. No liver cysts were detected on abdominal tomography.

- Modified Zeihl Neelsen stained smears showed no acid-fast bacilli.

-Blood Investigations:

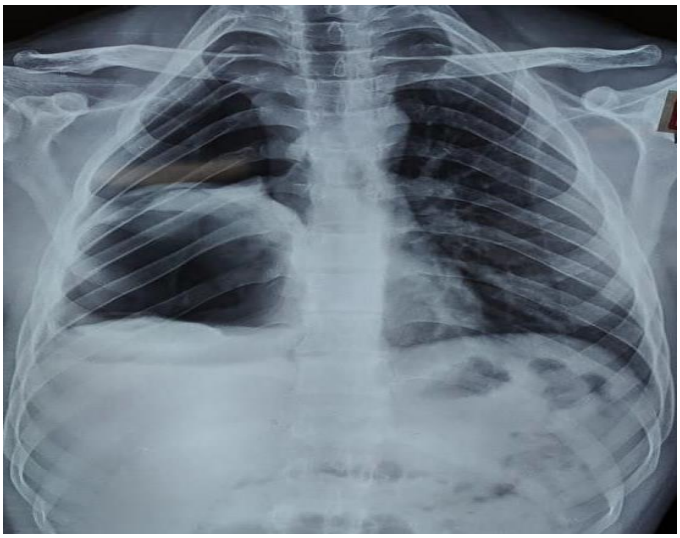
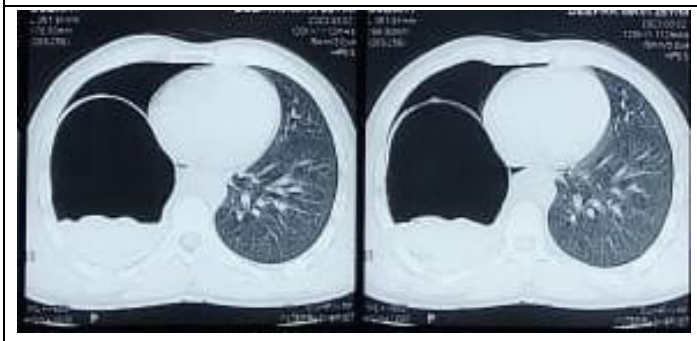
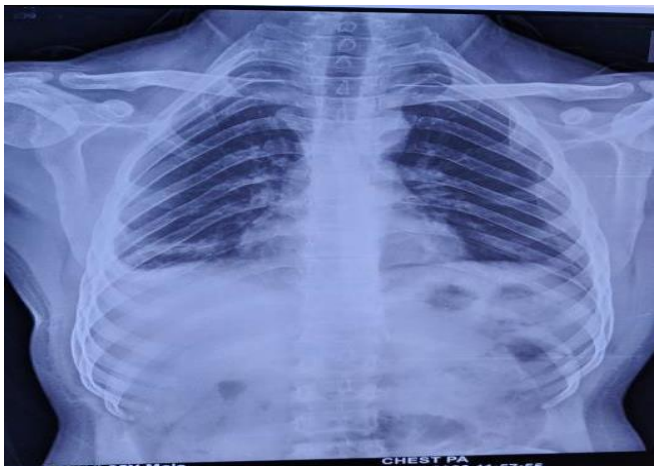
- Hemoglobin: 12.4 g/dl

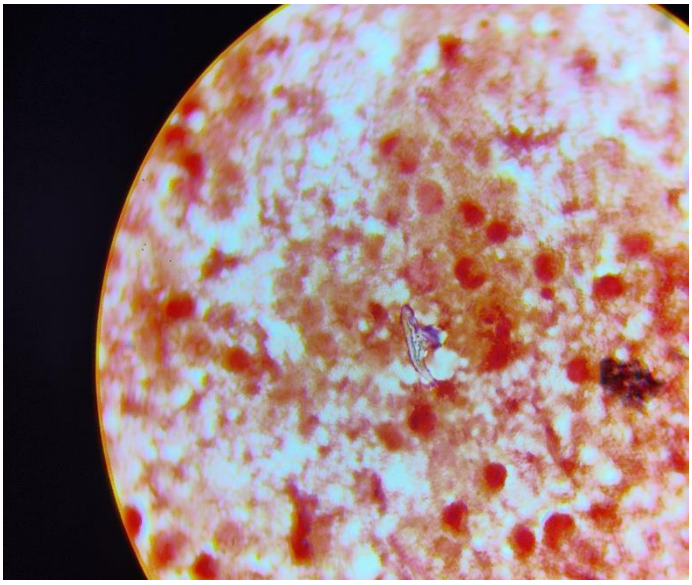
- WBC: 20,810/ microliter

- Platelets: 564,600/microliter

- CRP: High

- Lactate: High

	**IMAGE 1**:: Initial X-ray suggestive of the thick walled cavitory lesion with air fluid in right lower zone of lung.
	**IMAGE 2** : Computerized tomography scan suggestive of cystic lesion in the right lower lobe posteriorly
	**IMAGE 3**: chest X-ray on follow up

	**IMAGE 4**;The direct smear and modified Zeihl Neelsen stained smears few hooklets of echinococcusgranulosus

Management:

- Oxygenation initiated with 95% saturation maintained in the ER.

- IV antibiotics, antipyretics, and fluids administered.

- Consultations with a Pulmonary Physician and CTVS.

- Patient transferred to the Emergency Medicine ICU.

- Cyst excision through right lateral thoracotomy performed on the 6th day.

- Postoperative prescription: Tablet Albendazole 400mg BD (15mg/kg/day).

- Six-month follow-up showed a well-expanded right lung on chest X-ray and complete resolution of symptoms.

Discussion:

Hydatid disease is endemic in developing countries. Rupture of a Pulmonary Hydatid Cyst (PHC) into the bronchus can cause severe complications, including breathing difficulty, respiratory failure, severe cough, chest pain, fever, and weight loss, as observed in this case. Surgical intervention combined with conservative treatment is the mainstay of managing ruptured PHC.

Outcome:

After definitive diagnosis, surgery was performed, followed by conservative treatment, and the patient was discharged asymptomatically.

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