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Radiology

A Rare Etiology of Pulmonary Embolism: Case Report

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Abstract **Case Report**

The pulmonary hydatid cyst is the second most common localization of *Echinococcus granulosus* larvae subsequent to the liver. It is a benign condition with serious potential complications. We present the case of pulmonary hydatid embolism following lung hydatid cyst, diagnosed through CT angiography.

Keywords: Pulmonary hydatid embolism, echinococcus granulosus, endemic regions, dyspnea, thoracic CT angiography.

INTRODUCTION

Hydatid lung disease is a relatively frequent pathology, observed mainly in Mediterranean regions [1]. Often affecting the liver and lungs [2].

Surgical treatment is the gold standard, with low complication and fatality rates.

Hydatid pulmonary embolism is an exceedingly rare complication caused by the rupture of a hepatic or cardiac hydatid cyst [3] or even more rarely from the direct contiguity of a pulmonary hydatid cyst with pulmonary arteries.

We report the case of a of hydatid pulmonary embolism diagnosed through CT angiography in a man, presenting with rapidly deteriorating dyspnea..

CASE PRESENTATION

A 67-year-old man consulted for rapid exacerbation of his dyspnea staged NYHA III as well as a dry cough. The patient reported no chest pain or hemoptysis.

Patient admitted a history of type 2 diabetes, active smoking, and ischemic heart disease with a coronary bypass in 2017. He reported having been diagnosed with lung hydatid disease with no documents.

The patient was in good general condition: conscious, tachypneic, and afebrile.

Chest X-ray showed some bilateral nodular opacities and rounded air images, especially in the right lung (Fig. 1).

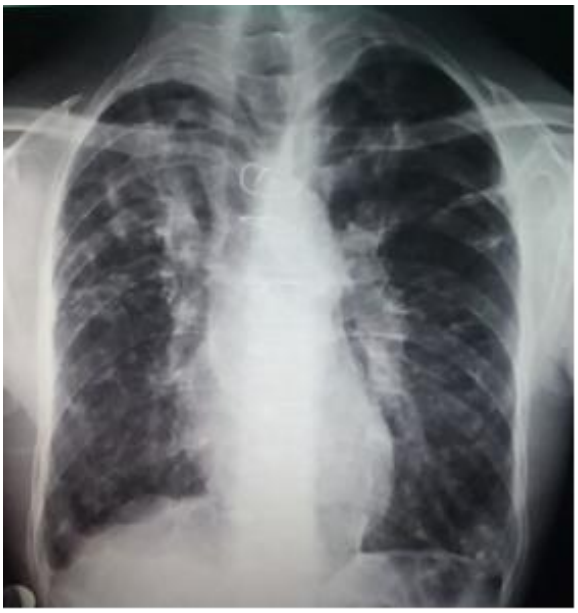

Figure 1: Frontal chest X-ray showing some nodular opacities predominantly at the hilar level and in the right lung field.

Chest angiography found a few well-defined round and oval-shaped intraparenchymal cystic lesions related to hydatid daughter cysts. We also noted the presence of similar cystic lesions within the right

pulmonary artery and right lobar dividing branches without downstream opacification testifying to pulmonary embolism of hydatid origin (Fig. 2).

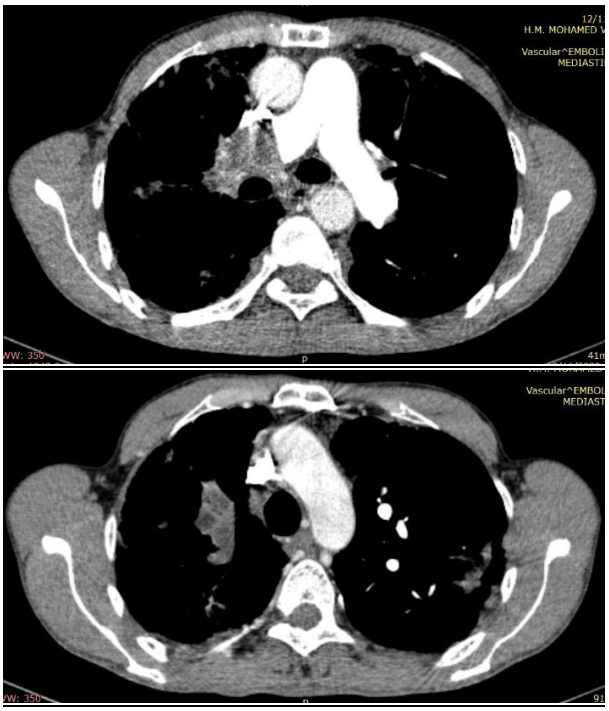

Figure 2: Chest angiography in axial slices and mediastinal windows showing A: cysts in the right pulmonary artery (red star) and B: hydatid daughter cysts in its right lobar dividing branches (blue star).

Imaging observed an emphysematous lung with diffuse septal and non-septal thickening and mosaic perfusion, and atelectasis (Fig. 3).

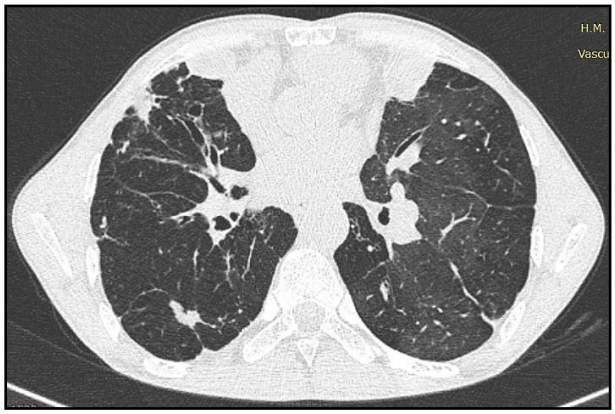

Figure 3: Chest CT scan in axial section and parenchymal window showing architectural disorganization with retractile lesions and pulmonary ventilation disorder.

Chest CT scan in axial section and parenchymal window showing architectural disorganization with retractile lesions and pulmonary ventilation disorder.

No hepatic hydatid lesions were noted on the abdomen images.

The patient was referred for further specialist management.

DISCUSSION

To this day, pulmonary hydatid disease is a public health issue, considered endemic in many Mediterranean countries [1].

The infecting organism is the tapeworm: *Echinococcus granulosus* which lives and procreates in the jejunum of dogs. Its eggs are then excreted and then accidentally ingested by intermediate hosts, in this case, humans, then release their larvae into the duodenum and regain the portal circulation, most are then trapped in the liver, while few spread to other organs, developing into cysts.

Prognosis is generally good but can become life-threatening due to complications.

Hydatid pulmonary embolism is an exceptional and potentially fatal complication due to the risk of acute fatal complications such as anaphylactic shock [4].

Symptoms are varied, non-alarming, and unspecific, they range from simple malaise or rash to acute anaphylactic shock [5] or respiratory failure due to pulmonary embolism.

It may also be discovered incidentally during a follow-up of hydatid lung disease, as was the case reported by Rabah et al., [6].

The diagnosis is based on imaging findings. Thoracic CT angiography is the most specific. It shows the location of the hydatid cysts, pulmonary artery obstruction, and right cardiac implications.

Treatment of such cases is challenging with no standard protocol.

Surgery is the first-line treatment in most cases of pulmonary arterial hydatidosis. It is mainly conservative, with resection of hydatid cysts [7].

Medical treatment helps reduce the postoperative spread and can be used exclusively if surgical treatment is contraindicated.

Prevention remains the therapeutic option.

CONCLUSION

This report shows the importance of thoracic CT angiography in the diagnosis of non-thrombotic pulmonary embolism due to pulmonary hydatid disease.

Exposure to *Echinococcus granulosus* in endemic regions as well as imaging findings supplies compelling evidence for the diagnosis of Hydatid pulmonary embolism.

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