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# Hematemesis or hemoptysis? Pulmonary hydatidosis presenting with hemoptysis, case report

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## Abstract

**Background** Pulmonary hydatidosis is a zoonotic infection caused by the tapeworm of the genus Echinococcus.

**Case presentation** In this case report we present a case of a 38-year-old woman presenting with hemoptysis as a manifestation of pulmonary hydatidosis. Hemoptysis was falsely interpreted at first as hematemesis leading to multiple non-indicated gastroscopies. The patient was diagnosed by pathological examination of the lobectomy sample.

**Conclusions** Proper history, in differentiating hemoptysis from hematemesis, guides proper management. Also, pulmonary hydatidosis should be considered in the differential diagnosis of cavitary lung lesions, especially in endemic areas.

**Keywords** Hydatid, Hemoptysis, Pulmonary hydatidosis

## Background

Pulmonary hydatidosis is a zoonotic infection caused by the tapeworm of the genus Echinococcus. It is transmitted to humans after exposure to food and water contaminated by the feces of an infected definitive host (dogs). The liver is the most commonly affected site followed by the lung. The lung may be involved without the liver due to the hematogenous spread of the larvae [1, 2].

In this case report, we present a case of a 38-year-old woman presenting with hemoptysis as a manifestation of pulmonary hydatidosis.

## Case presentation

Thirty-eight years old woman, housewife, married with 4 children, lives in a village in Giza, Egypt, with a history of exposure to cattle and sheep.

She was discovered to be hepatitis C virus positive and treated in 2019 with a sustained viral response.

She presented to the acute medicine unit complaining of hematemesis not associated with melena, hemodynamic instability, or disturbed consciousness level. Urgent gastroscopy revealed mild antral gastritis with no evidence of recent bleeding.

The patient reported two similar attacks 7 months before, with the upper endoscopy performed each time and showed the same results.

Upon evaluation of the patient's complaint, she reported that she actually expelled bright blood with no food particles (Fig. 1), not associated with chest trauma, melena, nausea, or vomiting, so the possibility of hemoptysis, rather than hematemesis, has been raised.

Eleven months before, the patient developed acute left inframammary chest pain that was stabbing, non-radiating, and increased with breathing. It was also associated

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**Fig. 1** Bright red blood favoring hemoptysis over hematemesis

with cough and expectoration of a large amount of yellowish, foul-odor sputum increasing on lying on the right side. There was a history of fever, associated with rigors with no diurnal variation, along with dyspnea on moderate exertion, not associated with orthopnea or paroxysmal nocturnal dyspnea.

At that time, a chest computed tomography (CT) performed at the chest hospital was interpreted as a lung abscess. Tuberculin skin test and sputum analysis by Ziehl–Neelsen stain were negative She received antibiotics with partial improvement of her symptoms, however exertional dyspnea persisted.

She underwent a radiology-guided tru-cut biopsy from the lesion. The biopsy revealed a fibroinflammatory myofibroblastic tumor. The possibility of IgG4-related disease was raised, in spite of the absence of immunophenotyping and in spite of the absence of serum immunoglobulin G 4 level, and the patient received steroids 20 mg/day for 3 months.

However, the patient showed no improvement regarding chest pain, exertional dyspnea, or imaging. CT showed no improvement regarding the size, shape, and density of the lesion.

By examination, the patient was fully conscious, afebrile, and vitally stable, blood pressure was 120/80 with no postural changes, the pulse was regular 80/min, and the respiratory rate was 20/min. Examination of the head, neck, and extremities was unremarkable.

By chest examination, there was tenderness over intercostal spaces in the left inframammary area, normal vesicular breathing, normal percussion, and no additional sounds.

Otherwise, cardiac, neurological, abdominal, and musculoskeletal examinations were apparently free.

Basic labs, including CBC, were normal apart from erythrocyte sedimentation rate which was 120 mm in the first hour, and hypoalbuminemia. Virology for hepatitis B and human immunodeficiency virus was negative. The swab for a rapid antigen of COVID-19 was negative. HbA1c was 5%. The abdominal ultrasound was normal.

Contrast-enhanced scan of the chest showed that the apical segment of the left lower lobe is the seat of lobulated non-enhancing spiculated soft tissue mass with central few air loculi within and surrounding subsegmental consolidative patches with overlying thickening of related pleura (Fig. 2).

Tuberculin skin test and sputum analysis by Ziehl–Neelsen stain were negative. Quantiferon TB Gold was Negative. ANCA (pANCA and cANCA) profile was negative.

Chest consultation for bronchoscopy concluded that this was a peripheral lesion that was inaccessible by bronchoscopy. Cardiothoracic surgery consultation recommended surgical removal for suspicion of malignancy. So, a lobectomy was performed.

The pathological examination revealed a secondary infected hydatid cyst with a laminated chitinous wall with superimposed large aspergilloma and palisaded granuloma. Unfortunately, hydatid serology was not available in our lab at that time.

## Discussion and conclusions

We present a case of a 38-year-old female who presented with hemoptysis that was falsely interpreted at first as hematemesis.This highlights the importance of differentiating both presentations from each other, especially among junior doctors.

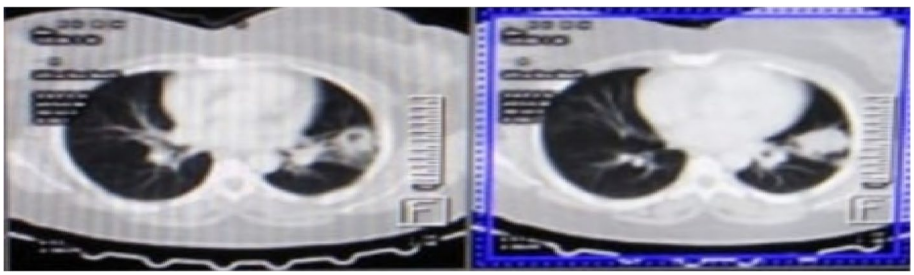

**Fig. 2** Left-sided apical lobulated mass with air loculi within

Hemoptysis is a rare manifestation of pulmonary hydatidosis and is rarely reported in the literature. It may occur if there is an invasion of a bronchus or vessels [3, 4].

Our case was diagnosed at first, outside our center, as an inflammatory myofibroblastic tumor (IMT) of the lung. IMT is a condition that may be benign or undergo malignant transformation. It may occur due to a genetic mutation or secondary to infectious or autoimmune diseases. Patients may be asymptomatic, or present with cough, hemoptysis, dyspnea, pleuritic pain, constitutional symptoms, or pneumonia. Pathologically, there is a proliferation of spindle cells with a dense polymorphic infiltrate of inflammatory cells, with a focal storiform architecture (with Immunoglobulin-G 4 related disease IgG4-RDas a differential diagnosis) [5, 6]. It is assumed that the first biopsy was obtained from the periphery of the lesion leading to the false diagnosis of IMT, probably highlighting the fact that obtaining a sufficient sample guides proper pathological diagnosis. Also, IgG4 -RD is a possibility when storiform appearance is there in the pathology; however, immunotyping is one way of differentiation.

The differential diagnosis for solitary cavitary lung lesion is; pulmonary abscess, mycobacterium tuberculosis infection, malignancy, granulomatosis with polyangiitis, sarcoidosis, Langerhans cells histiocytosis and IgG4-RD [7]. Lastly, pulmonary hydatidosis should be considered in the differential diagnosis of any cavitary lung lesion.

Surgical intervention is the treatment of choice for cystic pulmonary hydatidosis especially in cases of large cysts that are superficial and likely to rupture, infected cysts, cysts in vital anatomical locations, and cysts exerting a substantial mass effect. While medical treatment may be tried in smaller cysts. Postoperatively, all patients should receive albendazole (10 mg/kg per day) for 6 months to prevent recurrence of the disease [2]. Our case needed surgical excision even before diagnosing hydatidosis for fear of malignancy and received postoperative albendazole.

To conclude, we present a case of a 38-year-old female who presented with hemoptysis that was falsely interpreted at first as hematemesis. And after two biopsies, she was diagnosed with pulmonary hydatidosis. Our case highlights the fact that precise history guides proper management. Also, pulmonary hydatidosis should be considered in the differential diagnosis of any cavitary lung lesion.

**Abbreviations**

| | |
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| cANCA | Cytoplasmic antineutrophil cytoplasmic antibodies |
| COVID-19 | Coronavirus disease 2019 |
| CT | Computed tomography |
| IgG4-RD | Immunoglobulin G 4-related disease |
| IMT | Inflammatory myofibroblastic tumor |
| pANCA | Perinuclear antineutrophil cytoplasmic antibodies |
| TB | Tuberculosis |

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**Authors' contributions**
Hala Ibrahim El Gendy is the primarily responsible consultant, Moustafa Ali Saad and Yumn A Elsabagh wrote the discussion, and Galila Gamal is the responsible resident and wrote the primary version of the case. All the authors revised the whole manuscript and approved the final amendments.

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## Declarations

**Ethics approval and consent to participate**
The patient gave an informed consent for the case report.

**Consent for publication**
The patient gave an informed consent for publication.

**Competing interests**
The authors declare that they have no competing interests.

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