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CASE REPORT

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Pseudoaneurysm of the thoracic aorta secondary to pleural hydatidosis: A case report

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ABSTRACT

Hydatid disease is a zoonotic infection caused by the larval stage of *Echinococcus granulosus*, most frequently affecting the liver and lungs. Vascular involvement is sporadic, and a pseudoaneurysm of the aorta as a complication of thoracic or pleural hydatidosis is exceptional. We report a rare case of a 39-year-old male patient from an endemic rural area, followed for pleural hydatidosis, who presented in the emergency department with chest pain and hemoptysis. Computed tomography angiogram revealed a pseudoaneurysm of the aortic isthmus adjacent to a pleural hydatid cyst, associated with pulmonary fistulization and vertebral erosion. Emergency surgical management was attempted; however, the patient died intraoperatively due to refractory hemodynamic instability. This case highlights the importance of cross-sectional imaging in diagnosing vascular complications of hydatid disease.

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Pseudoaneurysm; hydatic cyst; computed tomography angiogram

Introduction

Hydatid disease is a parasitic zoonosis caused by *Echinococcus granulosus* or *Echinococcus multilocularis*, endemic in sheep-raising regions such as North Africa and the Mediterranean basin [1]. The liver and lungs are the most commonly affected organs, accounting for nearly 90% of cases [2]. Primary involvement of the aorta or periaortic tissues is extremely rare, and pseudoaneurysm formation secondary to hydatid cyst erosion has been only sporadically reported [3,4].

According to a recent systematic review, arterial involvement represents a very small proportion of echinococcosis cases, with the aorta being the most frequently affected vessel among arterial localizations [5]. Pleural hydatidosis is an uncommon thoracic manifestation, and its vascular complications are even rarer. Cross-sectional imaging, particularly computed tomography (CT) angiography, plays a central role in diagnosis and preoperative planning [6]. We describe the imaging findings and diagnostic challenges in a patient with pleural hydatidosis complicated by a pseudoaneurysm of the descending thoracic aorta.

Case Report

A 39-year-old man, living in a rural endemic area with regular exposure to dogs and sheep, was followed for left pleural hydatidosis. There was no history of trauma or prior cardiovascular disease. He was admitted for evaluation of acute left-sided chest pain and mild hemoptysis evolving over 24 hours. On admission, the patient was hemodynamically stable, and cardiovascular auscultation was unremarkable. Laboratory tests revealed moderate eosinophilia, positive hydatid serology (ELISA), elevated inflammatory markers, and negative blood cultures.

Chest X-ray demonstrated broadening of the aortic knob and opacities in the left hemithorax (Fig. 1). Computed tomography angiogram (CTA) revealed multiple large multiloculated cystic lesions occupying the left pleural space (maximum diameter = 5 cm) with daughter cysts and peripheral calcifications (Fig. 2), in close contact with the aortic arch. A saccular pseudoaneurysm of the aortic isthmus (maximum diameter = 32 mm), partially thrombosed, was identified, contiguous with the cyst (Fig. 3). A fistulous tract between

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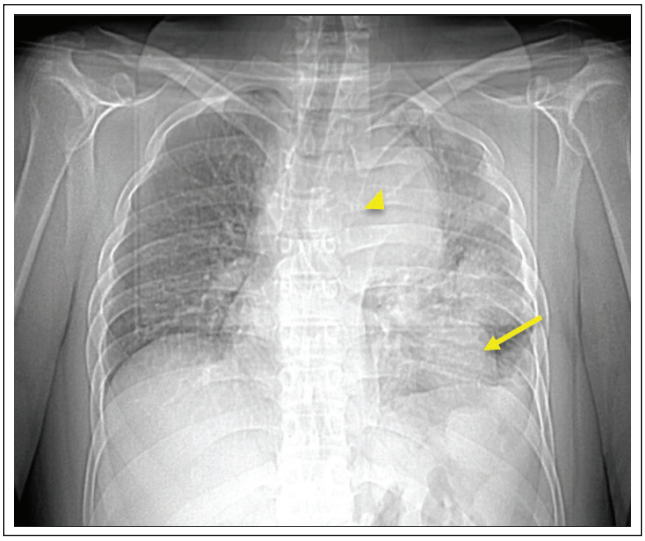


Figure 1. Scout image, broadening of the aortic knob (arrowhead) and opacities in the left hemithorax (arrow).

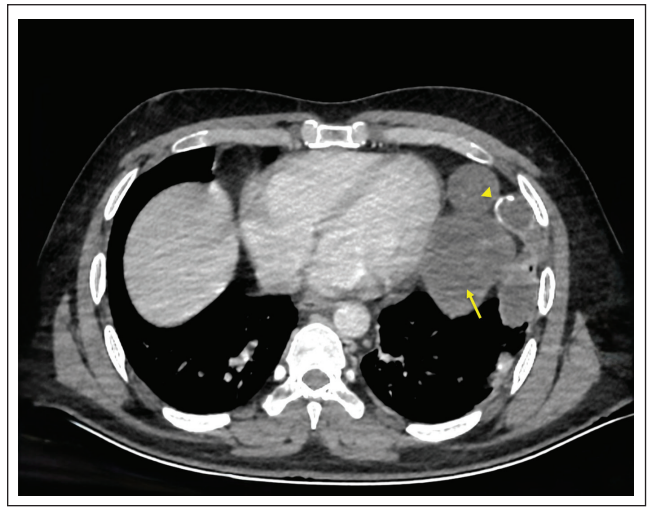


Figure 2. CT angio, in the axial plan. Multiple large, multiloculated cystic lesions occupying the left pleural space (arrow), with the mural calcifications (arrowhead).

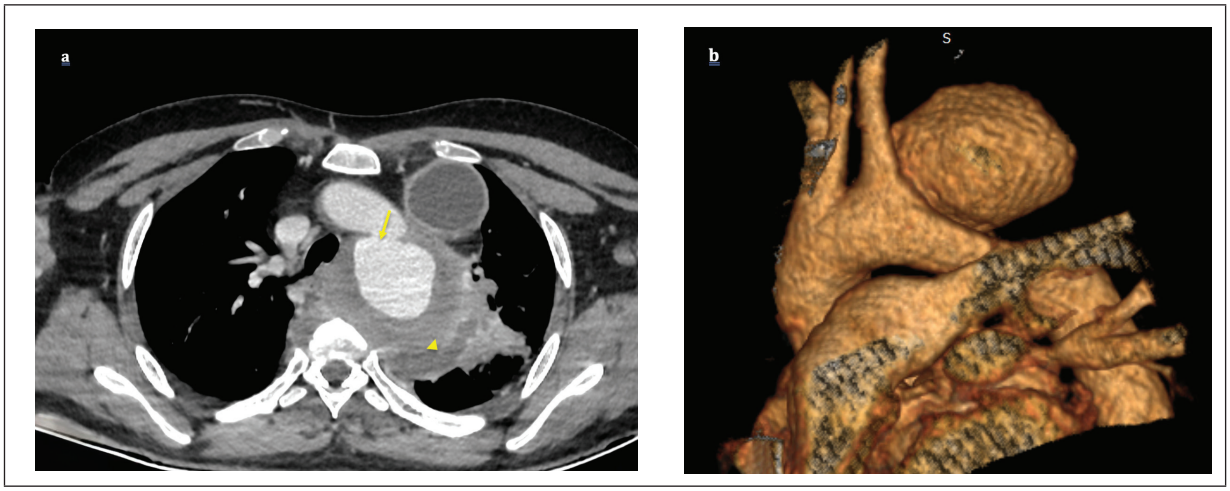


Figure 3. (a) CT angio, in the axial plan showing a saccular aortic isthmus pseudoaneurysm partially thrombosed (arrow), with a large fissure connecting it to the pulmonary parenchyma (arrowhead) (b) Volume rendering showing a saccular aortic isthmus.

the pseudoaneurysm and the adjacent lung parenchyma was noted, explaining the hemoptysis, as well as erosion of the adjacent thoracic vertebral bodies (T5–T6) (Fig. 4).

The diagnosis of aortic pseudoaneurysm secondary to pleural hydatid cyst erosion was established.

Given the high risk of rupture, emergency open surgical management was undertaken. A left posterolateral thoracotomy was performed. Intraoperative findings included dense inflammatory adhesions, a ruptured pleural hydatid cyst with contamination of the operative field, and a fragile aortic wall at the pseudoaneurysm site. After cystectomy and irrigation with scolicidal agents, direct repair of the aortic defect was attempted under proximal and distal vascular control.

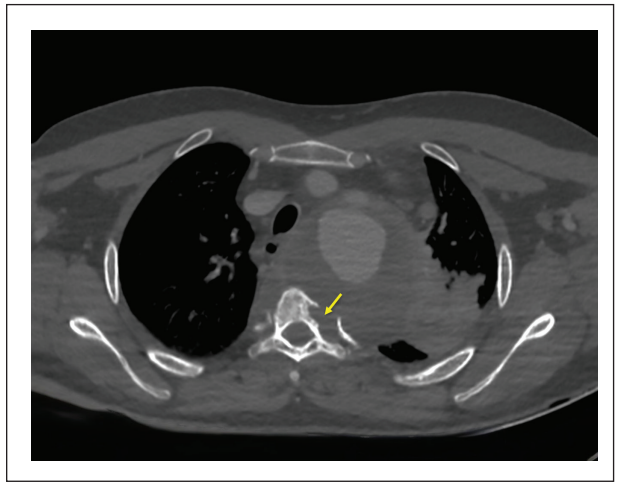


Figure 4. CT angio, in the axial plan in bone window showing a vertebral erosion (arrow).

Despite aggressive anesthetic and surgical resuscitation, the patient developed severe refractory hemodynamic instability with massive bleeding and died on the operating table. Postoperative follow-up could not be obtained due to intraoperative death.

Discussion

Hydatid disease remains a major public health concern in endemic regions. Vascular involvement accounts for less than 2% of cases and is associated with high morbidity and mortality [5]. Pseudoaneurysm formation is thought to result from chronic inflammatory erosion of the arterial wall, progressive pressure necrosis caused by the expanding cyst, and possible secondary infection.

Pulmonary fistulization and vertebral erosion, as observed in our patient, indicate advanced local disease and explain the acute presentation with hemoptysis. CTA is the imaging modality of choice, allowing precise assessment of pseudoaneurysm morphology, neck characteristics, and relationships with adjacent structures.

Management is particularly challenging. Open surgical repair is generally recommended in contaminated surgical fields, while endovascular techniques such as thoracic endovascular aortic repair may be considered in selected cases, either as a bridge or definitive therapy. However, the risk of graft infection remains a major limitation [7]. Despite prompt intervention, mortality remains high in emergency presentations, as illustrated by our case.

Conclusion

Aortic pseudoaneurysm secondary to pleural hydatidosis is a rare but devastating complication. Early diagnosis using CTA is crucial. Despite appropriate surgical management, prognosis may be poor, highlighting the severity of vascular involvement in hydatid disease and the importance of preventive strategies in endemic areas.

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