

Massive haemoptysis due to aortobronchial fistula caused by pulmonary hydatidosis

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TO THE EDITOR: A 56-year-old woman was recently admitted with recurrent large-volume haemoptysis associated with left-sided tearing thoracic pain. Growing up on a sheep farm in rural New South Wales, she had been diagnosed at age 8 years with pulmonary hydatidosis, which remained dormant on periodic clinical assessments. However, 2 years before presentation she

started to cough up gelatinous material containing scolices of *Echinococcus granulosus*. Surgery was declined at that time due to the anticipated complexity of the operation and associated high perioperative risk. Long-term anthelmintic therapy was commenced.

On admission, a computed tomography (CT) scan showed a contained aortic pseudoaneurysm (Box), consistent with rupture of the aorta into the hydatid cyst. Other images showed the cyst containing gas, indicating communication with the airway.

After stabilisation, the patient was transferred to a cardiothoracic centre. A left upper lobectomy with dissection and removal of the mediastinal cyst was undertaken through a median sternotomy, and the aortic fistula was successfully repaired using bovine pericardial strips. Intraoperatively, there was no evidence of pericardial involvement. Histopathological examination showed a disrupted and degenerate hydatid cyst without a germinal layer and no protoscolices. The patient received albendazole for 6 months after surgery and her recovery was uneventful.

Hydatid disease is caused by the intestinal parasitic tapeworm *E. granulosus* which, in Australia, is most prevalent in the eastern half of NSW at higher altitudes.¹ Symptomatic intramural aortic-wall hydatidosis causing aortic-wall rupture and pseudoaneurysm formation has been described in fewer than a dozen cases.²

Hypotheses for arterial-wall invasion include dissemination during cardiac surgery; entry through vasa vasorum or pre-existing small intimal tears or aneurysms; or partial incorporation of the aortic wall into the hydatid pericyst.^{2,3}

We identified four case reports in adults describing fistula formation between a pulmonary hydatid cyst and the aorta, including three European cases³⁻⁵ and one South African case (published twice).^{6,7} All patients were middle-aged men: two presented with chest pain and large-volume haemoptysis, one with anaphylactic shock and bilateral ischaemic lower limbs from aortic-wall hydatid cyst emboli, and one with a cyst eroding the abdominal aorta (found incidentally during surgery for a coeliac trunk aneurysm). One patient died during removal and another patient after removal of the primary cyst.

Haemoptysis in pulmonary hydatid disease is a common presenting symptom. Mechanisms include pressure erosion of a bronchus, obstructive infection, cyst rupture or — very rarely, and emphasised in our case — erosion of a major vascular structure.

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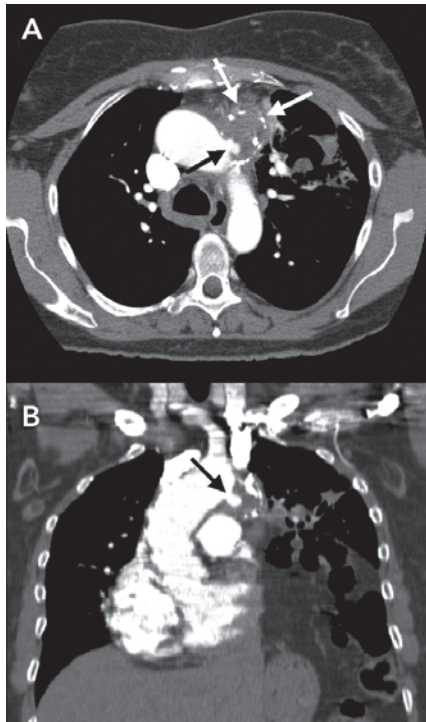
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Aortobronchial fistula resulting from pulmonary hydatidosis



A: Contrast-enhanced thoracic computed tomography scan showing consolidation and cavitation within the left upper lobe. A multiloculated 4 cm diameter peripherally calcified hydatid cyst was present in the medial aspect of the left upper lobe (white arrows), penetrating under the aortopulmonary window. Contrast medium extended posteriorly into the base of the lesion, suggestive of an aortic leak (black arrow).

B: Coronal reconstruction of the aortic arch demonstrated a round collection of contrast medium with a 1.4 cm base (black arrow), consistent with a contained saccular aortic pseudoaneurysm. ♦