An Unusual Cause of Hemorrhagic Left Pleural Effusion
(See page 1448 for the Photo Quiz)

Figure 1. CT scan showing a contrast-enhanced saccular mass, 5 cm in diameter, appended to the descending aorta at the T8 level. An ovoid collection near the anterolateral border of the descending aorta communicated with the aortic lumen and was consistent with a pseudoaneurysm. A large left pleural effusion, responsible for a passive lower lobe flattening, was also noted.

Diagnosis: Ruptured mycotic aneurysm of descending thoracic aorta caused by infection due to *Salmonella enterica*, mimicking community-acquired pneumonia.

A CT scan (figure 1) showed a contrast-enhanced saccular mass, 5 cm in diameter, appended to the descending aorta at the T8 level. An ovoid collection near the anterolateral border of the descending aorta communicated with the aortic lumen and was consistent with a pseudoaneurysm. A large left pleural effusion, responsible for a passive lower lobe flattening, was also noted. A 1-stage posterolateral thoracotomy was performed. When the chest was opened, the aneurysm ruptured completely. A femorofemoral cardiopulmonary bypass was required to control bleeding and to assure distal body perfusion after aortic cross-clamping. The aneurysm was resected, and the aorta was sutured using a prosthetic lateral patch (Dacron). *Salmonella enterica* was isolated from culture of the resected aneurysm; it was established that this strain was identical to the strain of *Salmonella enterica* that had earlier been isolated from pleural fluid. Gastroscopic examination showed a slightly atrophic mucosa, which could explain the unexpected survival.
of *Salmonella* species following oral ingestion of amoxicillin-clavulanate; this survival might have been due to abnormally high pH. The source of the patient’s infection remained unknown. No immunodeficiency was found. The only risk factor that the patient had for mycotic aneurysm was hypertension for 20 years, which had been treated by an angiotensin-converting enzyme inhibitor (Enalapril; Merck). The patient was treated with ofloxacin for 3 months; no relapse occurred during 2 years of follow up.

Mycotic aneurysms are localized abnormal dilations of the arterial walls that develop secondary to an infective process that causes destruction of the wall. Descending aortic aneurysms often progress undiagnosed on chest radiographs because of their posterior location. Patients may, therefore, present with rupture that requires emergency surgery, which is often unsuccessful [1].

The diagnosis of hemorrhagic pleural effusion includes traumatic injury, pleuropulmonary malignancy, tuberculosis, pulmonary thromboembolic disease, subphrenic disease (e.g., splenic injury), a hemorrhagic diathesis, and a dissecting aneurysm of the descending aorta [2]. We suggest that ruptured (mycotic) aneurysm of descending thoracic aorta be added to this list.

Pleural drainage is probably best avoided, because it may lead to complete rupture of the aneurysm into the pleural space by restoring the physiological negative pleural pressure. Therefore, it is much better to determine the original cause of the pleural effusion and to treat it accordingly.

In our case, as in previous series [3], CT scanning is crucial for diagnosis. CT features of mycotic aneurysm of the aorta included hazy aortic wall with rupture, gas-forming inflammation around the aneurysm, retroperitoneal paraaortic fluid collection and vertebral erosion, and thrombus formation within a false lumen after aneurysmal rupture. A pulmonary infiltrate may be observed surrounding the aneurysm.

The main complication of mycotic aneurysm of the aorta, apart from uncontrolled sepsis, is rupture, which is observed in >18% of cases. Rupture can occur into the left pleural cavity, into the lower lobe of the left lung (resulting in an hemoptysis), or into the mediastinum. The 2 former events are specific of a descending aortic localization.

The treatment of aortic mycotic aneurysms combines antibiotic therapy and surgery [4]. Most studies have shown that prognosis is improved by early diagnosis and surgical intervention.

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