A 69-year-old retired male steel-plant worker with a history of cigarette smoking for 50 years, 2 episodes of myocardial infarction about 10 years previously, and 6 hospitalizations for pneumonia in recent years, had undergone abdominal aortic aneurysmectomy with straight Dacron aortic grafting 15 months before admission to our university hospital for evaluation of left lower lobe pneumonia and cachexia. The patient reported a productive cough with whitish sputum, shortness of breath, and night sweats of 3 to 4 months’ duration and a 23-kg weight loss (from 75 to 52 kg) over the last 2 years.

Chest radiography on admission showed a prominent aortic arch, an enlarged left hilum, and lower lobe opacity (Fig 1). Because of the history of chronic tobacco use, recurrent pneumonia, dysphagia, and cachexia, cancer of the lung or esophagus was suspected initially.

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Diagnosis: Aneurysm of the descending aorta with mural thrombus compressing the left mainstem bronchus and atelectasis of the left lower lobe.

The diagnosis was made by computed tomographic (CT) scan of the thorax after intravenous administration of contrast medium and was confirmed by bronchoscopy. The thoracic CT scan revealed an opacity in the lingular segment of the left upper lobe consistent with pneumonia. Furthermore, a large fusiform aneurysm with mural thrombus measuring 9 cm in its widest dimension was found in the descending aorta about 3 to 4 cm from its origin (Fig 2, top). The aneurysm compressed the esophagus and the left mainstem bronchus and totally occluded the left lower lobe bronchus (Fig 2, bottom). In addition, total opacification of the left lower lobe with a positive CT angiogram, an air bronchogram at the periphery, and a fluid bronchogram in the central region were noted. Focal calcification of the aortic intima was also present.

The extrinsic airway compression was confirmed by bronchoscopy. The patient was treated with antibiotics for lingular pneumonia and with intravenous hyperalimentation for malnutrition secondary to chronic dysphagia. Resection of the thoracic aortic aneurysm was planned but was deferred by the patient. The patient subsequently died owing to rupture of the aneurysm.

Compression of the mediastinal structures (eg, trachea, bronchi, pulmonary vasculature, nerve trunks, and esophagus) by atherosclerotic thoracic aortic aneurysm is quite uncommon but has been reported. Compression of the tracheobronchial tree and pulmonary vasculature can also be caused by posttraumatic pseudoaneurysm of the thoracic aorta. An aneurysm or pseudoaneurysm arising from the proximal portion of the thoracic aorta tends to compress the distal portion of the trachea, left mainstem bronchus, and left pulmonary artery. The aortic aneurysm in our patient was located distal to the carina; it partially compressed the left mainstem bronchus and totally compressed the left lower lobe bronchus and esophagus. An aneurysm of the distal thoracic aorta would compress primarily the esophagus.

A thoracic aortic aneurysm is often difficult to detect with conventional chest radiography, as demonstrated in the present case. Chest radiography showed only the left lingular opacity and widened left hilum but neither the aneurysm nor the left lower lobe atelectasis in this patient. Before the advent of CT, aortography was required for demonstration of the aneurysm in such a circumstance. The recurrent pneumonia, a history of smoking, remarkable weight loss, and dysphagia in this patient were more suggestive of a malignant process than an aortic aneurysm. Had CT not been performed right after his admission, the correct diagnosis of the thoracic aortic aneurysm would have been delayed and the patient might have undergone some unnecessary procedures.

Computed tomographic demonstration of the left lower lobe consolidation with a peripheral air bronchogram, central fluid bronchogram, and CT angiogram sign indicated pulmonary atelectasis secondary to bronchial obstruction. The total luminal collapse of the left lower lobe bronchus by a thoracic aortic aneurysm was clearly shown on CT (Fig 2). Occlusion by a bronchogenic tumor or a mediastinal neoplasm could be immediately dismissed. The aneurysm was filled almost totally with mural thrombus. The demonstration of the fluid bronchogram and aortic aneurysm with mural thrombus described above required intravenous administration of a bolus of contrast material.

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