A 16-year-old girl from an area in Brazil where tuberculosis was endemic was admitted because of recurrent chest pain, progressive dyspnea with exertion, and inability to climb more than 1 flight of stairs. She described fatigue, weight loss, night sweats, and adenopathy of her right axilla and neck during the previous 3 months. On admission she looked distressed, with a heart rate of 76 bpm and blood pressure of 110/55 mm Hg. The ECG demonstrated sinus rhythm with first-degree heart block (Figure 1).

Her admission chest radiograph demonstrated cardiomegaly with pulmonary edema (Figure 2). Her cardiac enzymes were negative. The patient underwent cardiac evaluation with 2-dimensional echocardiography (not shown), which revealed an interatrial septal mass, mild tricuspid regurgitation, preserved systolic function, and moderate pericardial effusion.

For further characterization of the mass, cardiovascular magnetic resonance imaging (MRI) was performed. Coronal black-blood T2-Turbo Spin Echo and T2-Short T1/Tau Inversion Recovery images of the chest showed adenopathy of the right axilla and a multicystic mass located on the posterior mediastinum (Figure 3). Four-chamber view cine-MRI demonstrated mitral and tricuspid regurgitation, pericardial effusion, and an interatrial septum mass (Figure 4A and 4B). A large retrocardiac pulsatile lesion involving the distal thoracic aorta was also noted (Figure 4 and Movie I of the online-only Data Supplement). Delayed-enhancement MRI confirmed the rounded interatrial septal mass with no evidence of enhancement, consistent with a hematoma of the interatrial septum (Figure 4C), possibly secondary to a leaking aortic root pseudoaneurysm (Figure 5B and Movie II of the online-only Data Supplement).

Time-resolved contrast-enhanced 3-dimensional magnetic resonance angiography demonstrated multiple pseudoaneurysms extensively distributed throughout the ascending and descending thoracic aorta. Longitudinal aorta and 4-chamber views further depicted partially thrombosed pseudoaneurysms, extensive thickening, and late enhancement of the thoracic aortic wall (Figures 4C and 5), indicating a likely inflammatory cause.

Excisional biopsy of her palpable cervical node was performed after her purified protein derivative test proved to be highly reactive (18 mm). The biopsy results demonstrated caseous and noncaseous necrotizing granulomas with positive culture for acid-fast bacilli (Figure 6).

The patient was given an antitubercular 4-medication regimen. Planned surgical intervention decision was precluded when the patient experienced sudden hypovolemic\(\text{Figure 1. First-degree atrioventricular block on ECG.}\)
shock and was unresponsive to the standard resuscitatory maneuvers.

Tuberculous pseudoaneurysms of the aorta are exceedingly rare, but the lesion is uniformly fatal if not diagnosed promptly. Typical clinical scenarios include evidence of tuberculous lymph nodes in 70% of cases, with 1 or more of 3 presentations: (1) fever and persistent pain related to the location of the aneurysm, (2) hypovolemic shock or other evidence of massive bleeding, or (3) pulsatile, rapidly expanding para-aortic mass. The perforation of the aortic wall is generally surrounded by thrombotic debris and inflammatory tissue. Cardiovascular magnetic resonance provides a comprehensive and noninvasive imaging tool for integrated evaluation of the morphology, physiology, and tissue characterization of the heart and great vessels. Combined antitubercular chemotherapy and surgical intervention seem to offer the best chance for a cure and constitute the only way to salvage patients with this disease.1

Disclosures
None.

References

Figure 3. Coronal views of the chest (T2-TSE [A] and T2-STIR [B]) showing multiple enlarged right axillary lymph nodes (A, open arrows) and a large multilocular cystic mass (B, white arrows), with inner meniscus-shaped hypointense components (A, black arrow, thrombus). Smaller lesion with identical signal characteristics is demonstrated in the aortopulmonary window (B, white arrow).

Figure 4. Steady-state free-precession 4-chamber view cine MRI (A, diastole; B, systole) showing mildly reduced global systolic function, pericardial effusion, and small bilateral pleural effusions. The interatrial mass (A, arrows) demonstrated signal characteristics similar to those of a thrombus, consistent with an atrial septum hematoma (C, black arrow). A thick-walled and pulsatile para-aortic mass (B, solid arrow) is seen contiguous to an azygoesophageal recess adenopathy (B, open arrow). Four-chamber view delayed-enhancement magnetic resonance imaging characterized diseased wall structure as a laminar thrombus (C, asterisk) and extensive inflammatory vessel wall changes (C, white arrow).
Figure 5. Time-resolved maximum-intensity projections magnetic resonance angiography of the thoracic aorta (contrast-enhanced 3-dimensional magnetic resonance angiography) at different contrast circulation times (A, 14 seconds; B, 19 seconds; C, 24 seconds) demonstrating multiple pseudoaneurysms involving the ascending aorta, distal aortic arch, and descending thoracic aorta. Thrombi and wall changes are depicted on longitudinal view delayed-enhancement MRI (D, arrows).

Figure 6. Granulomas in a lymph node show caseating necrosis (above) and nonnecrotizing features (below) and are associated with multinucleated giant cells. Stained with hematoxylin and eosin. Magnification ×100.
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