



Giant Rasmussen's aneurysm

Mauro Terra Branco¹, Denise Fabri Engracia Mello^{2,3},
Ibrahim Nabil Abdel Fattah Ibrahim⁴, Edson Marchiori⁵,
Marcus Vinicius Nascimento Valentin^{2,3,4}

TO THE EDITOR:

A 58-year-old man was admitted to the emergency room with a three-month history of cough, expectoration, and weight loss. He reported two episodes of hemoptysis in the last 30 days. Physical examination revealed rhonchi and decreased breath sounds on the right side. A complete blood count was normal. A chest X-ray showed extensive opacification of the right hemithorax, with apical sparing and obliteration of the outline of the ipsilateral heart, hemidiaphragm, and costophrenic sinus (Figure 1A).

A CT scan of the chest showed extensive cavitory consolidation in the right lung parenchyma, with air surrounding a nodule of approximately 9.5 cm × 7.0 cm within the consolidation, characterizing the air crescent sign (Figures 1B and 1C). The nodule showed intense enhancement after intravenous administration of iodinated contrast medium, being consistent with aneurysm formation (Figures 1D and 1E). Sputum examination and bronchoalveolar lavage were positive for AFB, confirming the presence of *Mycobacterium tuberculosis* and establishing a diagnosis of Rasmussen's aneurysm (RA). The patient was started on antituberculosis treatment. He was referred for endovascular embolization but died before the procedure was performed.

An air crescent is a collection of air in a crescentic shape that separates the wall of a cavity from an inner mass or

nodule. Although aspergilloma (a fungus ball caused by *Aspergillus* spp. colonization) is the most common cause of an intracavitary nodule, a number of other conditions should be included in the differential diagnosis, including neoplasms (particularly bronchial carcinoma), recovery from angioinvasive aspergillosis, RA, and clots. Other, rarer, causes include foreign bodies, thick pus, dehydrated caseous material, teratoma, and hydatidosis. A useful imaging criterion for the differential diagnosis is a change in the position of the nodule in the cavity when patient position is changed, especially during examination in the supine and prone positions. It is extremely important to determine whether the central mass is free or attached to the cavity wall because, unlike a fungus ball or a clot, cavitory lung cancer and RA present as masses that are fixed to the cavity wall; that is, they do not move when patient position is changed.⁽¹⁻³⁾ However, this technique is not useful in the evaluation of large intracavitary masses, as in the case of our patient.

Given the recent rise in reported cases of *M. tuberculosis* infection worldwide, it is extremely important to recognize the complications and sequelae of tuberculosis. In patients with confirmed tuberculosis, aspergilloma is the most common cause of an intracavitary mass/nodule. Other, less common, causes include RA. RA is a rare condition that primarily affects young men and represents a

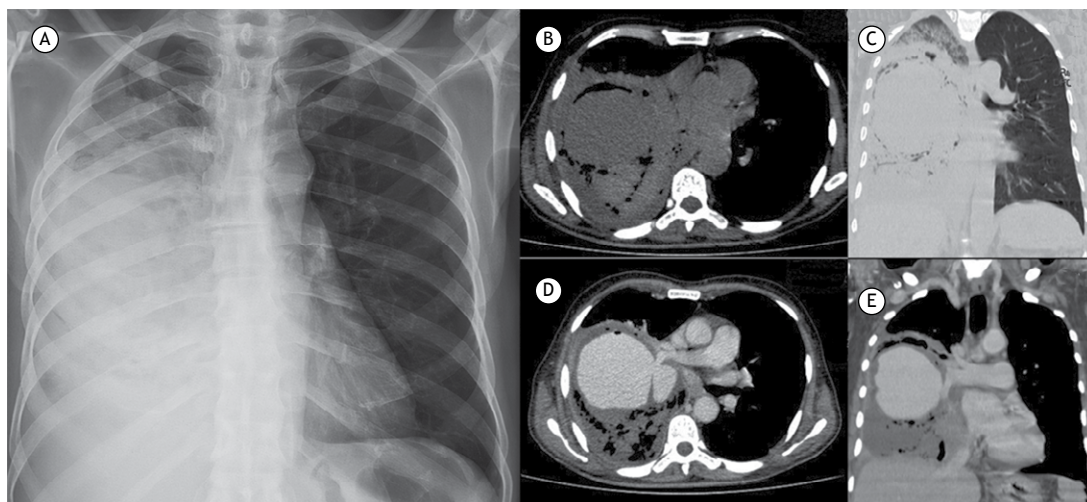


Figure 1. Anteroposterior chest X-ray (in A) showing opacification of the lower two thirds of the right lung. Unenhanced axial CT scan (in B) and coronal reconstruction (in C) showing extensive parenchymal consolidation, with air surrounding a nodule within the consolidation (the air crescent sign). Intravenous contrast-enhanced axial CT scan (in D) and coronal reconstruction (in E) showing intense enhancement of the intracavitary mass, leading to a diagnosis of aneurysm formation.

1. SETRA – Serviço Terceirizado de Radiologia, Rio Claro (SP) Brasil.
2. Documenta Clínica Radiológica, Ribeirão Preto (SP) Brasil.
3. MED Medicina Diagnóstica, Ribeirão Preto (SP) Brasil.
4. Centro Universitário Barão de Mauá, Ribeirão Preto (SP) Brasil.
5. Universidade Federal do Rio de Janeiro, Rio de Janeiro (RJ) Brasil.

pulmonary artery pseudoaneurysm secondary to pulmonary tuberculosis. Progressive weakening of the arterial wall occurs as tuberculous granulation tissue replaces the adventitia and media of the artery. The granulation tissue in the vessel wall is then gradually replaced by fibrin, resulting in arterial wall thinning. Hemoptysis is often the initial clinical manifestation of RA, and can be massive and fatal. In patients with tuberculosis, hemoptysis can be due to aspergilloma, bronchiectasis, neoplasms, chronic bronchitis, and vascular complications such as pseudoaneurysms. Contrast-enhanced chest CT is the preferred imaging technique for the evaluation of pulmonary hemorrhage. RA appears as a markedly enhanced nodule within

the wall of a tuberculous cavity or consolidation. The optimal treatment of massive hemoptysis in patients with RA is a matter of debate. Endovascular occlusion of the neck of the aneurysm can provide a positive outcome in the treatment of RA. Surgical excision is recommended when specialized radiological procedures are unavailable or when there is considerable lung destruction.^(4,5)

In summary, although aspergilloma is the most common cause of intracavitary nodules in patients with tuberculosis, a number of other conditions should be included in the differential diagnosis, including RA. Early diagnosis allows appropriate treatment, reducing the risk of death from massive bleeding.

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