Case 12326

Eurorad

Thoracic South American blastomycosis (paracoccidioidomycosis)

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Section: Chest imaging
Area of Interest: Respiratory system Lung
Procedure: Diagnostic procedure
Imaging Technique: CT
Imaging Technique: CT-High Resolution
Special Focus: Infection Case Type: Clinical Cases
Authors: Duarte Nascimento1, Maruan Hatem2, Rodrigo Muller2, Gustavo Moraes2, Angela Figueiredo3, Armando de Abreu2
Patient: 58 years, male

Clinical History:

A 58-year-old man from Santa Catarina (Brazil), who worked as a farmer, presented to the emergency department with symptoms of chronic cough and low-grade fever for over one year.
Imaging Findings:

Chest radiograph shows patchy multifocal opacities and nodules of various sizes in both lungs (Fig. 1). CT shows multiple nodules (Fig. 2 a)—some of which are cavitated (Fig. 2 d)—ground glass opacities (Fig. 2 b, d) and foci of air space consolidation (Figures 2 c, d).
Discussion:

Paracoccidioidomycosis is the most frequent endemic systemic mycosis in Latin America [1]. It is caused by the fungus Paracoccidioides brasiliensis.
It is more common in men, and those at greatest risk are the ones who come in contact with soil in endemic regions, such as farmers [2]. Infection with P. brasiliensis is acquired in the first two decades of life, by inhalation of the fungus. The evolution to active disease is uncommon in the first years after exposure (acute/juvenile form). It is more common in adults aged 30 and 50 years as reactivation of a latent endogenous focus (chronic/adult form) [3].
The lung is the most commonly affected organ (50-100% of cases) but mucocutaneous lesions are also frequent [4].
The chronic form, which accounts for 90% of cases, is also most commonly associated to pulmonary symptoms/lesions. Pulmonary involvement is rare in the acute form [4].
Pulmonary symptoms are nonspecific and variable. Patients with the chronic form may be asymptomatic initially but usually progress to severe chronic cough, intense dyspnoea, chest pain and haemoptysis [4].
Chest radiographic abnormalities are frequently multiple and nonspecific and include linear and reticular opacities, nodules, patchy ill-defined opacities, airspace consolidation and cavitation [4].
Though the CT findings are also nonspecific (ground-glass attenuation areas, multiple nodules [3], consolidations, interlobular septal thickening and fibrotic lesions [4]) CT may help assessing the extension of the lesions and the response to therapy. Patterns include those of bronchopneumonia, nodules with or without cavitation and miliary disease.
Diagnosis can be confirmed by blood analysis or isolation of the fungus in biologic specimens (e.g. examination of

sputum, bronchoalveolar lavage fluid or biopsy of lesions) [4]. In this patient the diagnosis was based on examination of sputum.
Treatment involves antifungal medications such as Itraconazol and is essential for avoiding progression of the disease and complications such as pulmonary fibrosis.
Awareness of paracoccidioidomycosis' multiple radiologic manifestations, clinical features and epidemiology are essential requirements for an early diagnosis. Paracoccidioidomycosis should always be considered a possibility in patients living in or travelling from endemic areas not responding to conventional antibiotic regimes. The chronic form can occur many years after patients have left an endemic area.
Differential Diagnosis List: South American blastomycosis (paracoccidioidomycosis), Histoplasmosis, Coccidioidomycosis, Tuberculosis, Other blastomycoses

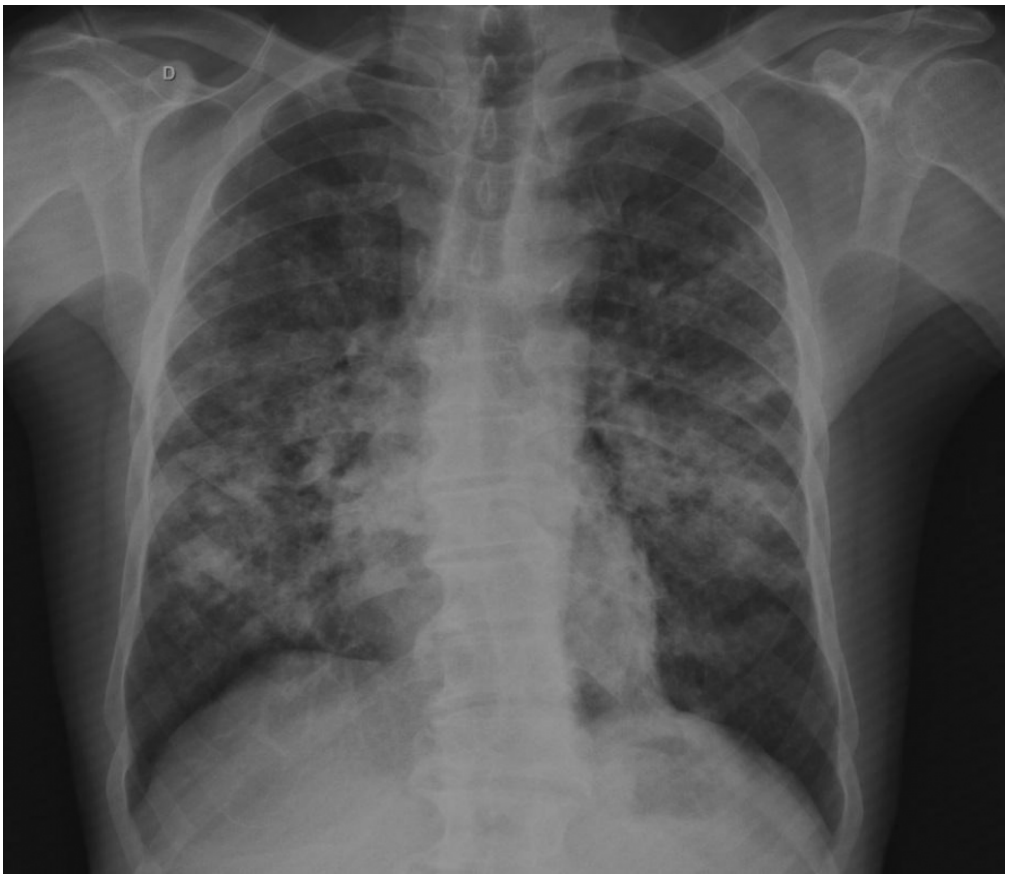
Final Diagnosis: South American blastomycosis (paracoccidioidomycosis)

References:

Arthur Soares Souza, Jr., Emerson Leandro Gasparetto, Taisa Davaus, Dante Luiz Escuissato and Edson Marchiori (2006) High-Resolution CT Findings of 77 Patients with Untreated Pulmonary Paracoccidioidomycosis. American Journal of Roentgenology 187; 1248-1252 (PMID: 17056912)
W. Richard Webb, Charles B. Higgins (2010) Thoracic Imaging: Pulmonary and Cardiovascular Radiology. 403-406
Mariana Palmeiro, Karen Cherubini, Liliane S. Yurgel (2005) Paracoccidioidomycosis – Literature Review. Scientia Medica v. 15, n. 4, 274-278
Barreto M M, et al (2012) Thoracic Paracoccidioidomycosis: Radiographic and CT Findings. RadioGraphics 32:71–84 (PMID: 22236894)

Figure 1

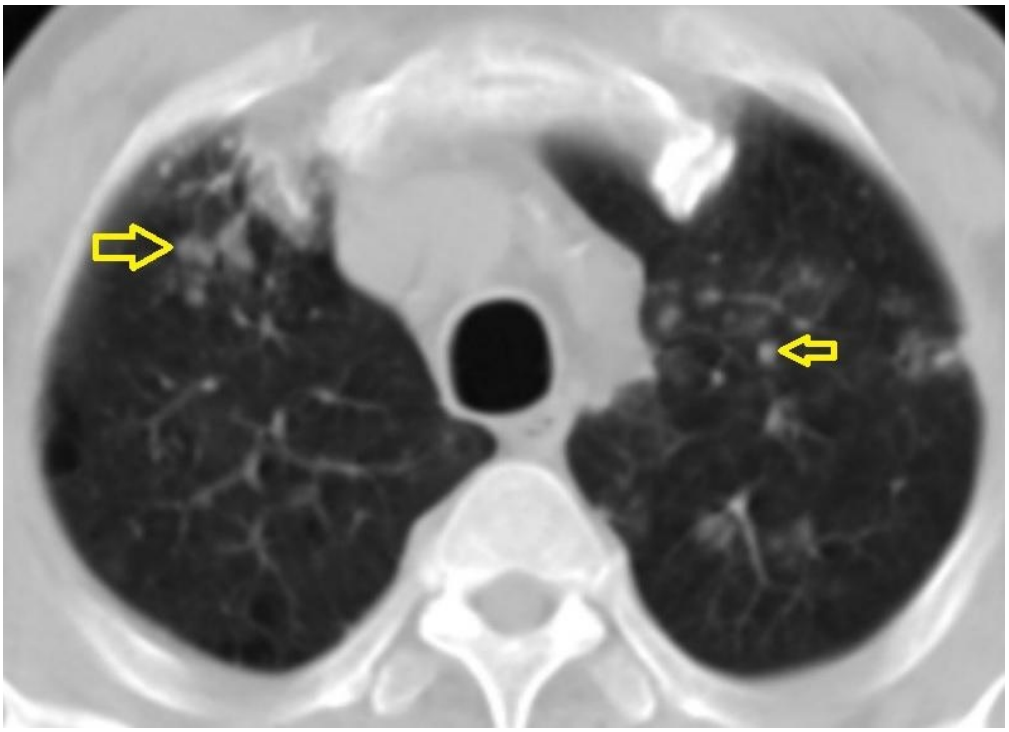
a



Description: Despite its technical limitations (presence of Bucky lines) this Radiograph shows patchy multifocal opacities and nodules of various sizes. **Origin:** Serviço de Radiologia do Hospital Mãe de Deus, Porto Alegre - RS, Brasil

Figure 2

a

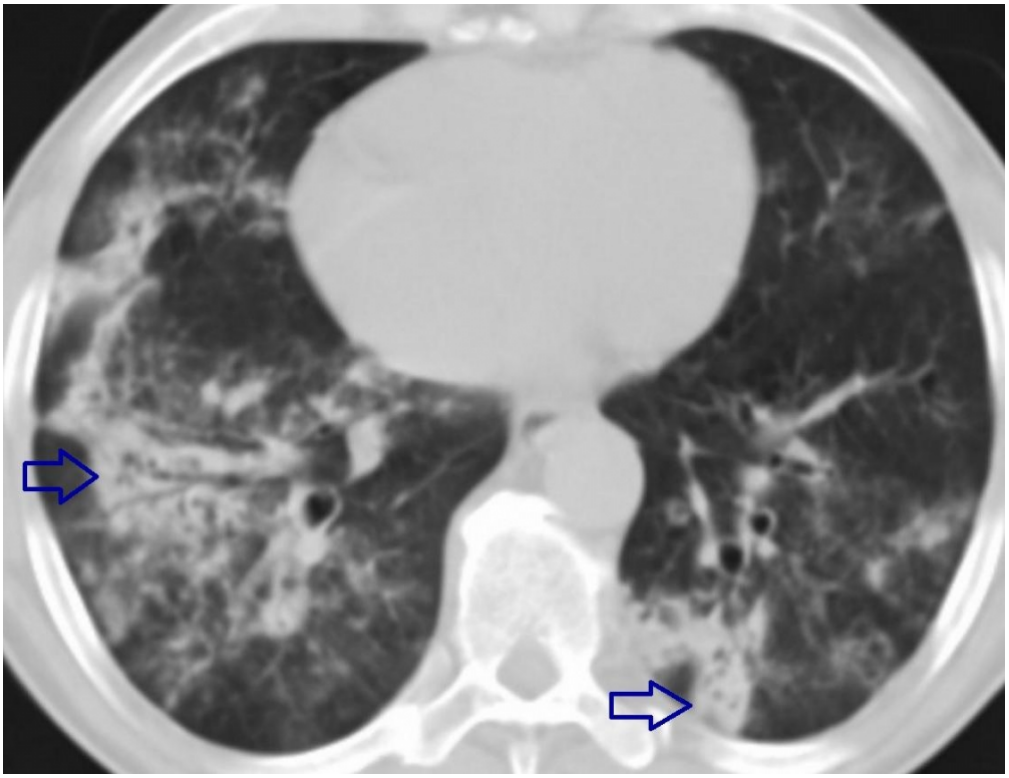


Description: Nodules of variable size are seen. They represent inflammatory exudates filling alveolar spaces. **Origin:** Serviço de Radiologia do Hospital Mãe de Deus, Porto Alegre - RS, Brasil

b

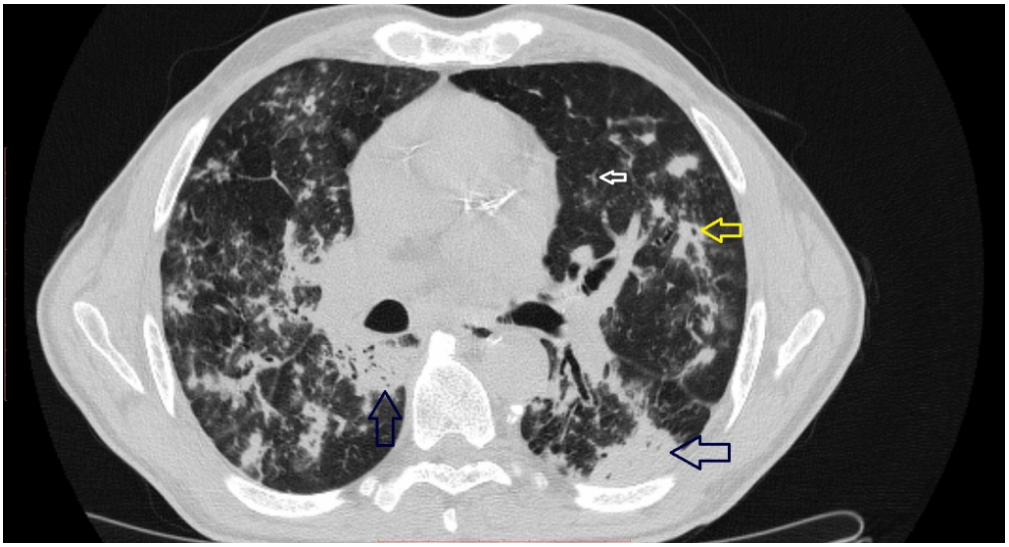
Description: Ground-glass opacity areas (arrows) are suggestive of active inflammation. **Origin:** Serviço de Radiologia do Hospital Mãe de Deus, Porto Alegre - RS, Brasil

c



Description: Though nonspecific, multiple foci of consolidation are typical of paracoccidiomycosis. Both lungs show air-space consolidation with air bronchograms (arrows). **Origin:** Serviço de Radiologia do Hospital Mãe de Deus, Porto Alegre - RS, Brasil

d



Description: HRCT features are similar to other pulmonary blastomycosis: multiple foci of air space consolidation (blue arrows), ground glass opacities and nodules (some of which are cavitated - yellow arrow) and tree-in-bud opacities (white arrow). **Origin:** Serviço de Radiologia do Hospital Mãe de Deus, Porto Alegre - RS, Brasil