Case report: Radiological presentation of pulmonary sporotrichosis

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Section: Chest imaging
Area of Interest: Thorax
Procedure: Education
Imaging Technique: Conventional radiography
Imaging Technique: CT
Special Focus: Cavitation Case Type: Clinical Cases
Authors: Fong, M.S.; Rego, C.T.O.; Leite, L.C.; Novillo, A.A.; Filho, R.C.A.; Farias, L.S.L.; Mogami, R.
Patient: 35 years, male

Clinical History:

A 35-year-old male patient, resident of Rio de Janeiro, smoker (32 packs per year), with hyporexia, dyspnoea, chest pain and weight loss. Respiratory examination showed reduced vesicular sounds in the right lung apex and crackles in the middle third of the left lung and apexes. No skin lesions or lymphadenopathy.

Imaging Findings:

Chest computed tomography performed within a few hours of admission to our hospital showed multiple bilateral centrilobular nodules, which reflected filling of small airways, traction bronchiectasis and irregular excavations with thickened walls in the right upper lobe, lingula and right lower lobe superior segment. Ground-glass opacities were adjacent to excavated lesions and no lymphadenopathy was present.

Discussion:

Sporotrichosis is the most prevalent subcutaneous mycosis worldwide, caused by the fungus Sporothrix. It has an estimated annual incidence of 48-98 cases per 100,000 inhabitants in endemic areas (tropical/subtropical countries). The incidence in non-endemic areas are not well estimated, but there are few reports of accidental exposure, where clinical diagnosis may be difficult particularly due to the heterogeneous morphology of lesions [1].

Pulmonary sporotrichosis is an uncommon condition that usually presents as a chronic pulmonary disease. It is divided into two distinct radiological presentations, due to the types of inoculation of the pathogen [2, 3, 4, 13].

Primary pulmonary sporotrichosis results of direct inhalation of Sporothrix schenckii. It is an extremely rare disease, affecting less than 1% of the patients infected by the fungus [3, 7, 13]. In general, it affects middle-aged men, with chronic obstructive pulmonary disease, alcoholism, chronic use of corticosteroids and immunosuppressive diseases. The main sites of involvement are the upper lobes, where a granulomatous inflammatory reaction is initiated, resulting in central caseous necrosis and pulmonary excavation. When multiple cultures for tuberculosis are negative or when anti-tuberculous therapy fails, pulmonary sporotrichosis should be considered [3, 5, 10, 13].

Other cases of disseminated infection are usually secondary to traumatic inoculation through the skin, with
haematogenous or lymphatic spread [3, 4, 7].

We report a case with multiple excavated areas, the largest one in the right upper lobe, and multiple bilateral centrilobular nodules, predominantly located adjacent to the excavated lesions. These findings were consistent with primary pulmonary sporotrichosis [3, 4, 5].

Laboratory confirmation is necessary due to the non-specific clinical-radiological findings, including direct examination of tissue biopsy specimens, bronchoalveolar lavage or pus in localised disease, or sputum, urine, blood, cerebrospinal and synovial fluids in disseminated infections, depending on the affected organs. In pulmonary involvement, high serologic titers or skin-test positivity, with positive sputum/pleural fluids culture, or lung biopsy can confirm the disease. In this case, after empirical treatment failure for tuberculosis, positive sputum culture and serology for sporotrichosis were required [4, 7, 13], followed by itraconazole therapy.

The treatment of choice is itraconazole 400mg/day/year. Liposomal amphotericin B is reserved for refractory or severe cases [2, 3, 6, 8, 9]. In localised disease, early surgery is recommended. In this case, Liposomal amphotericin B was necessary after treatment failure with itraconazole [3]. Therefore, it is important to recognise the radiological patterns of pulmonary sporotrichosis, since it can be confused with other causes of excavated lesions, especially tuberculosis, another Brazilian endemic disease.

**Differential Diagnosis List:** Primary pulmonary sporotrichosis, Tuberculosis, Histoplasmosis, Paracoccidioidomycosis

**Final Diagnosis:** Primary pulmonary sporotrichosis

**References:**


Figure 1

Description: Cavity with thickened walls in the right upper lung and bilateral reticular interstitial pattern. The hilar structures are distorted due to volume loss of the right upper lobe. No lymphadenopathy was seen.

Origin: Department of Radiology, HUPE-UERJ, Rio de Janeiro, Brazil.
Description: Cavity with thickened walls in the right upper lung and bilateral reticular interstitial pattern. The hilar structures are distorted due to volume loss of the right upper lobe. No lymphadenopathy was seen. (lateral view) Origin: Department of Radiology, HUPE-UERJ, Rio de Janeiro, Brazil.
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(MinIP). **Origin:** Department of Radiology, HUPE-UERJ, Rio de Janeiro, Brazil.