

A Difficult Diagnosis: Concomitant Antisynthetase Syndrome and Coccidioidomycosis Infection

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1. Introduction

Antisynthetase syndrome (AS) is an idiopathic autoimmune inflammatory myopathy. With an incidence of 5.6 per million population it is considered extremely rare. It is characterized by the presence of specific antibodies directed against aminoacyl tRNA synthetases, which leads to a spectrum of clinical manifestations such as interstitial lung disease and myositis. Coccidioidomycosis is a primary pulmonary mycosis caused by the inhalation of spores from the dimorphic *Coccidioides spp* fungus. Its clinical manifestations range from mild symptoms to a fatal multisystemic disease. It primarily affects immunocompromised individuals. Antisynthetase syndrome's radiological pulmonary presentation can mimic fungal infections, complicating its diagnosis and management [1].

2. Case Presentation

A 52-year-old female patient with a history of Antisynthetase syndrome presents to the ED with a 12-hour history of worsening dyspnea, fever, myalgias and arthralgias. The

patient was on a pharmacological regimen with prednisone (2.5 mg daily) and methotrexate (20 mg weekly). Upon admission, the patient presented tachycardia, diaphoresis, tachypnea, and an oxygen saturation of 95% with low flow oxygen system with FiO₂ at 28%. Fine bilateral subscapular rales were evident. Laboratory tests revealed leukocytosis (17,000 cells/mL) with a predominance of neutrophils (85%). Elevated procalcitonin levels (0.28 ng/dL) and erythrocyte sedimentation rate (0.6 mm/s).

Imaging studies revealed bilateral diffuse alveolar patterns on the Chest X-ray (Fig. 1) and ground-glass opacities with air bronchogram and bilateral nodules were observed in the Thorax CT scan. (Fig. 2) Given the clinical presentation and radiological findings, an inflammatory process secondary to Antisynthetase syndrome was suspected. Therefore, therapy with antiCD20 immunomodulators (Rituximab) was initiated. Simultaneously, possible infectious processes, such as, viral infections, disseminated histoplasmosis and *P. jirovecii* infection were studied and ruled out [2].

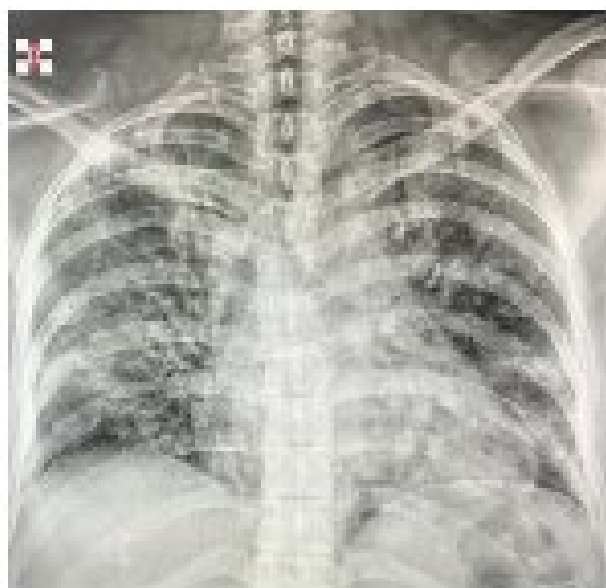


Figure 1: Chest Xray



Figure 2: Chest Ct Scan

Coccidioides immunofluorescence assay (IFI) antibodies were positive, leading to the diagnosis of coccidioidomycosis, which was treated with Amphotericin B. Despite the treatment, the patient's condition deteriorated, necessitating mechanical ventilation and she eventually succumbed 8 days after admission [3].

3. Discussion

The immunosuppression caused by the chronic use of methotrexate and steroids may have been a determining factor in developing pulmonary coccidioidomycosis in this case. Furthermore, the use of immunomodulators possibly exacerbated the infectious condition of this patient. The similarity in clinical and radiological presentation between Antisynthetase syndrome and disseminated coccidioidomycosis likely complicated the diagnosis process. Managing such cases requires a delicate balance

between addressing the autoimmune component while effectively treating the fungal infection. The concomitant coccidioidomycosis infection.

References

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