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A Case of Sarcoidosis and Galaxy Sign: Diagnostic Dilemma

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ABSTRACT

The galaxy sign was first reported in pulmonary sarcoidosis. From those reports sign became known as one of the characteristic computed tomography (CT) findings of sarcoidosis. Notable feature of Galaxy sign is dense central portions surrounded by partially discrete small nodules. These nodules contain caseating or non-caseating granulomas. Galaxy sign is considered useful signs indicative of pulmonary sarcoidosis. However, pulmonary tuberculosis may also show this finding.

We report a patient who mimic pulmonary tuberculosis in our case. Clinicians should be aware to differentiate and evaluate further before starting treatment for pulmonary tuberculosis in these patients.

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Introduction

Tuberculosis and Sarcoidosis are 2 granulomatous diseases which usually mostly affect the chest and may present with clinical, radiological and even histological similarities, that is why it is often a diagnostic challenge for clinicians and radiologists [1, 2]. Due to marked clinic-radiological similarity of these entities and high prevalence of tuberculosis in our country, these patients receive repeated courses of anti-tubercular therapy (ATT) while lung damage continues to progress.

Case

A 38-year-old man came in outpatient department in our hospital with cough for last few weeks, exertional breathlessness (NYHA class 1) for last few days, mild blood mixed sputum of 1-day duration associated with loss of appetite and significant weight loss ~4 kg in last 3 months. He had a history of allergic cough since childhood with seasonal variations and family history of asthma in his mother also. He was evaluated with chest Xray which revealed non homogenous small nodular opacities in left mid zone-perihilar region. Thoracic CT showed multiple nodular opacities with tree-in-bud pattern in lungs, predominantly in the superior segment of left lower lobe with few nodular opacities in left upper lobe, pattern consistent with galaxy sign with ~12mm non-necrotic subcarinal and para-aortic mediastinal lymph node with bilateral hilar sub centimeter lymphadenopathy.

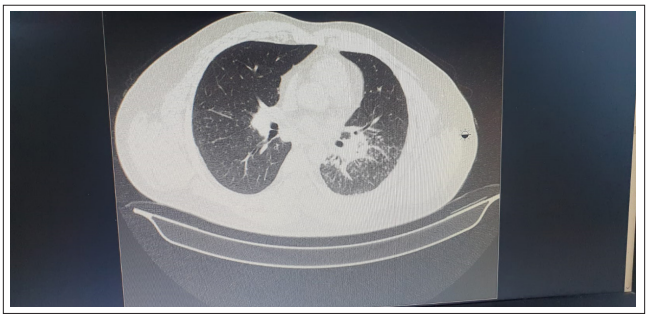

Figure 1: CT Scan Galaxy Sign

Three specimens of sputum for acid-fast smear and Mantoux skin test were found to be negative for MTB. His ACE level was significantly raised 110 (NORMAL 8-52). We found difficulty in reaching to conclusion on clinical basis in between tuberculosis and sarcoidosis. We proceeded further and performed a bronchoscopy and Mycobacterium tuberculosis was ruled out by non-detection of the acid-fast bacilli in culture test of the obtained bronchoalveolar lavage fluid, as well with Gene Expert test of BAL fluid sampling. His lung biopsy showed evidence of non-caseating granulomatous inflammation, Bal fluid cytology also showed collection of epithelioid cells with multinucleate giant cells. These findings help us in making confident diagnosis of sarcoidosis. Corticosteroids were initiated, patient got clinical and radiological response in follow up with clearance of nodular opacities with resolution of mediastinal lymphadenopathy after 5 months of treatment.

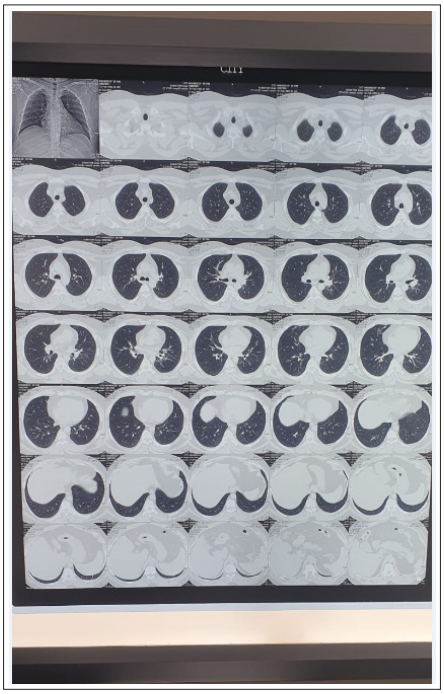

Figure 2: CT Scan After Treatment

Figure 3: CT Scan After Treatment

Discussion

In country like India, where tuberculosis incidence and prevalence are high, it is very difficult to differentiate between tuberculosis and sarcoidosis. Similarly, sarcoidosis always involved lung and mediastinal lymph nodes, showing non-caseous granulomas in about 80%–90% of affected individuals [3, 4]. For this reason, sarcoidosis sometimes would be misdiagnosed as tuberculosis.

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The diagnosis of sarcoidosis is not standardized, but is based on three major criteria: a compatible clinical presentation, the finding of non-necrotizing granulomatous inflammation in one or more tissue samples (not always required, as discussed subsequently here), and the exclusion of alternative causes of granulomatous disease [5].

CT was thought to be an accurate and effective examination for sarcoidosis and mediastinal diseases. The presence of the "cluster" sign and the "galaxy" sign on thoracic CT should suggest the possibility of pulmonary sarcoidosis, TB, or silicosis. Study showed that the "galaxy" sign was considerably more common in patients with pulmonary sarcoidosis than in patients with pulmonary TB, and was associated with a younger age but was not associated with disease severity in sarcoidosis [6]. Nakatsuka et al. reported, the galaxy sign in 16 of 59 (27%) patients with sarcoidosis in their study [7]. Koide et al. also reported a galaxy sign incidence of 23.1% in patients with sarcoidosis [8]. The same appearance can be seen in tuberculosis [9, 10]. In our patient, diagnosis was confirmed with histopathology along with supportive evidence in form of radiological appearance of galaxy sign with presence of high ace levels with exclusion of tuberculosis with negative gene expert for mtb , afb culture negative status associated with montoux test negativity . Silicosis and berylliosis are excluded with thorough occupational history, not going in favor of these diseases. Clinical symptoms alone can overlap in many cases as in our case where it is difficult to differentiate between tuberculosis and sarcoidosis on basis of symptoms only.

Conclusion

Early consideration of diagnostic bronchoscopy with biopsy/tbna for histopathological diagnosis can be decision making procedure in such patients, along with clinic radiological support can help in making correct diagnosis.

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