

Pulmonary tuberculosis in a male with sarcoidosis

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A 45-year-old nonsmoking male patient was admitted with a nonproductive cough. He was in the follow-up for sarcoidosis stage II for 2 years. This was based on computed tomography findings of enlarged mediastinal lymph nodes and multiple small scattered nodules. Fine-needle aspiration of the left paratracheal lymph node revealed epithelioid histiocytes and multi-nucleated giant cells. Smear and culture for acid-fast bacilli (AFB) of bronchial washings and lymph node aspirate were negative. As the patient was asymptomatic with normal respiratory function tests, he was under observation.

On the current admission, the physical examination was unremarkable. The erythrocytes sedimentation rate was 8 mm/hour. There was a very large number of parenchymal nodules mainly in the upper and perihilar zones in his chest X-ray (CXR), with parenchymal fibrotic changes (Figure 1). Smear for AFB of bronchial washings was negative. After 8 weeks, the culture on Löwenstein-Jensen medium of bronchial washings was positive for AFB. Anti-tuberculous treatment (ATT) was started. Drug susceptibility testing showed sensitivity to all first-line drugs. He tolerated the ATT well. There was no improvement on radiological imaging. He was discharged and treated as an out-patient in a continuation phase. The smear-negative samples after 2 and 6 months were culture negative. The CXR after the completion of the ATT did not show an improvement. He was seen in the out-patient department till the completion of the ATT. Then he was lost for further follow-up.

Sarcoidosis is recognized as noncaseating granulomas in contrary to caseating granulomas in tuberculosis (TB). *Mycobacterium tuberculosis* (MTB) may be an etiological agent in sarcoidosis [1]. The annual incidence of sarcoidosis varies from 0.73 per 100 000 in Japan to 71/100 000 in African-American females [1]. In 2017, there were fewer than 10 new TB cases per 100 000 population in high-income countries, 150–400 in high TB burden countries, and above 500 in countries including Mozambique, the Philippines and South Africa [2].

In an Indian prospective study, 48% of all sarcoidosis patients had mycobacterial DNA and that was higher ($p < 0.001$) compared to the controls [1]. However, the study was performed in a high TB burden country.

3% of cases of parenchymal nodules and masses in sarcoidosis show cavitation [3]. A case of primary cavitory sarcoidosis which was initially treated as TB was reported [3]. In order to differentiate sarcoidosis from TB, endobronchial ultrasonography may help. Heterogeneous echotexture (53.4% vs 12.6%) and coagulation necrosis (26.1% vs 3.3%) were more frequent in TB lymph nodes [4].



Figure 1. Diffuse bilateral and ill-defined interstitial nodules in the upper lobes and perihilar regions. Bilateral symmetrical hilar lymphadenopathy

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The socio-demographic features of these patients were explored. People with sarcoidosis were older, better educated, had a higher BMI and socioeconomic status [5]. In contrast, tobacco smoking and biomass for cooking were more frequent in TB.

Mycobacterial antigens may be responsible for initiating granulomas in sarcoidosis. Negative results of the histological stains or cultures may indicate that tests are not sensitive enough to detect these antigens. Apparently, TB and sarcoidosis may be a spectrum of the same disease [1]. The difference in the immune response of the host may result in a varying degree of presentation.

Though our patient presented first with sarcoidosis, later he developed TB. So the mycobacterial antigens might have not been detected at first. It is crucial to remember about this association as the misdiagnosis of TB may cause the spread of the disease with the immunosuppressive therapy.

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