

A Case of Pulmonary Tuberculosis Presenting as Multiple Nodular Opacities on a Chest X-Ray

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ABSTRACT

Tuberculosis is widely prevalent in India. The presentation of pulmonary tuberculosis as multiple nodular opacities on a chest X-ray is very infrequent. We report such a case in a 30-year-old man, who presented with the complaints of dyspnea and responded to anti-tuberculosis treatment.

Keywords: Dyspnea, multiple nodular, pulmonary tuberculosis

Introduction

It is a challenge to make a diagnosis of multiple pulmonary nodules on a chest radiograph and metastatic deposits in lungs are supposed to be the commonest cause.^[1] The usual radiographic manifestations of pulmonary tuberculosis are parenchymal infiltrations in the apical and posterior segments of the upper lobe.^[2] But multiple bilateral nodules in pulmonary tuberculosis form an unusual presentation on a chest X-ray.^[3]

Case Report

A 30-year-old man presented to the emergency with complaints of fever with chills since 15 days along with progressive dyspnea, cough and sputum since five days. On examination the patient had bilateral diffuse ronchi with extensive coarse crepitations, was dyspneic and tachypneic. He had an SpO₂ = 64% without oxygen, blood pressure (BP) = 130/70 mm of Hg, pulse = 110 bpm, temperature-102°F. He was admitted to the intensive care unit and was put on oxygen support using a face mask at a rate of 2–6 liters per min. The patient was empirically placed on piperacillin-tazobactam combination, moximycin and was nebulized with salbutamol. The investigations sent included a chest X-ray, electrocardiography, ultrasound abdomen, sputum examination, urine examination, blood cultures, liver

function and renal function tests. A bedside two dimensional trans-thoracic echocardiography was normal. All the blood examination reports were normal and the cultures were sterile. The sputum examination revealed the presence of acid-fast bacilli. The chest X-ray showed bilateral multinodular opacities involving the middle and lower zones with nodules varying in size from 1–3 cm [Figure 1]. The ultrasound abdomen showed hepatomegaly 14 cm below the right costal margin, splenomegaly 9 cm. Based on the chest X-ray a differential diagnosis was made which included lymphoma, benign tumors, septic emboli, inflammatory granulomas (tuberculosis, nocardiosis, fungal infection) or non-infectious granulomas (sarcoidosis, rheumatoid nodules, Wegener's granulomatosis). The patient was initiated on anti-tuberculosis treatment which included rifampicin, isoniazid, pyrazinamide, ethambutol and streptomycin. Symptomatic improvement in the clinical status of the patient was noticed after seven days as the dyspnea and tachypnea were relieved, he was afebrile and he maintained saturation above 95% without oxygen support. The patient was discharged after 20 days on anti-tuberculosis therapy.

Discussion

The diagnosis of a case of multiple nodular shadows on chest X-ray is most commonly a metastatic lung cancer. Other causes included in the differential diagnosis are lymphoma, benign tumors, septic emboli, inflammatory granulomas (tuberculosis, nocardiosis, fungal infection) or non-infectious granulomas

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Figure 1: Chest X-ray PA view showing multiple nodular opacities

(sarcoidosis, rheumatoid nodules, Wegener's granulomatosis).^[1,4-7] It is customary to differentiate multiple pulmonary nodules from multifocal patchy opacities in the lung in a similar manner as a solitary nodule is differentiated from regional consolidation. Pulmonary nodules have a homogenous appearance and their borders are sharply defined. The classical pattern of disseminated (miliary) tuberculosis consists of discrete pinpoint nodules distributed evenly throughout the lung fields. The frequency of miliary pattern in disseminated tuberculosis has varied in different series from 37.5% to 92.7%. The interval between hematogenous dissemination and the development of radiographic evidence of pulmonary nodules may be several weeks. Bilateral nodular lung opacities suspicious of metastatic disease on chest radiography and high-resolution CT scan have been found to be tubercular in various case studies.^[8,9]

Tuberculoma of the lung is a round or oval lesion commonly situated in the right upper lobe. Benign pulmonary nodules are multiple, dense, small (<3 cm) in size and have smooth borders. Multiple satellite nodules are commonly found in granulomatous lesions. Sputum smears and cultures for tubercle bacilli usually give negative results. In contrast to miliary nodules and tuberculomas, the pattern of multiple bilateral discrete

pulmonary nodules (as seen in the present case) is not generally recognized as a radiographic presentation of pulmonary tuberculosis.

It can be concluded that whenever multiple nodular shadows are observed and they have sharp margins, are calcified, dense and have homogenous distribution a differential diagnosis of pulmonary tuberculosis should always be considered.

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