

# Disseminated Tuberculosis Presented with Mediastinal Lymphadenopathy, Nodular Thickening of Pleura and Liver Involvement in A Diabetic Patient

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## Abstract

Tuberculosis can involve many organs and have a broad spectrum of image presentation. It may resemble malignant diseases and thus confuse the judgment of the clinician. We report a 60-year-old diabetic woman suffered from chronic cough for 2 years and whose computed tomography scan revealed multiple pleural nodules with mediastinal lymphadenopathy and multiple liver masses. We approached this case as malignant disease initially but found it to be a systemic tuberculosis infection after a series of examinations. Tuberculosis may have radiological presentation like malignant disease. Physicians should consider tuberculosis as a possibility for those patients with underlying diseases, which can potentiate tuberculosis infection. ( J Intern Med Taiwan 2007; 18: 356- 359 )

**Key Words :** Extrapulmonary, Tuberculosis, Mediastinal lymphadenopathy, Pleura, Liver

## Introduction

Tuberculosis infection ( TB ) is an important public health problem. The global prevalence of *Mycobacterium tuberculosis* infection has been estimated at 32% ( 1.86 billion people ) and the annual number of new cases has been given as 7.96 million <sup>1</sup>. *Mycobacterium tuberculosis* infection can involve many organs. The lung is the most common lesion

site but extrapulmonary involvement is not uncommon especially in immunocompromised patient. In addition to the typical radiological presentation of pulmonary TB, the infection can mimic many diseases with a variable image manifestation. Here we present one disseminated tuberculosis patient of mediastinal lymphadenopathy together with pleural and liver involvement but without visible lung parenchyma lesion found.

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## Case Report

A 60-year-old female patient had suffered from chronic dry cough for two years. She came to our hospital for second opinion because malignancy was suspected after radiological examination ( Chest X-ray ( CXR ) and chest computed tomography ( CT ) ) at another hospital. Her daily activity and exercise tolerance were good during these two years. There were no fever episodes and no body weight loss in her history. Neither was there any chest wall pain or complaints of abdominal discomfort. CXR showed nodularity along right side pleura ( Fig. 1 ). Contrast enhanced CT revealed multiple right nodular pleural thickening, multiple lymph nodes in the mediastinum ( Fig. 2 ); however, no lung parenchyma lesions were found and multiple lobulated hypodense lesions were found in the liver ( Fig. 3 ). The physical examination did not find any palpable lymph nodes. The biochemical examination showed hyperglycemia ( fasting blood sugar: 302 mg/dL ), abnormal liver function ( aspartate aminotransferase: 91 IU/L, alanine

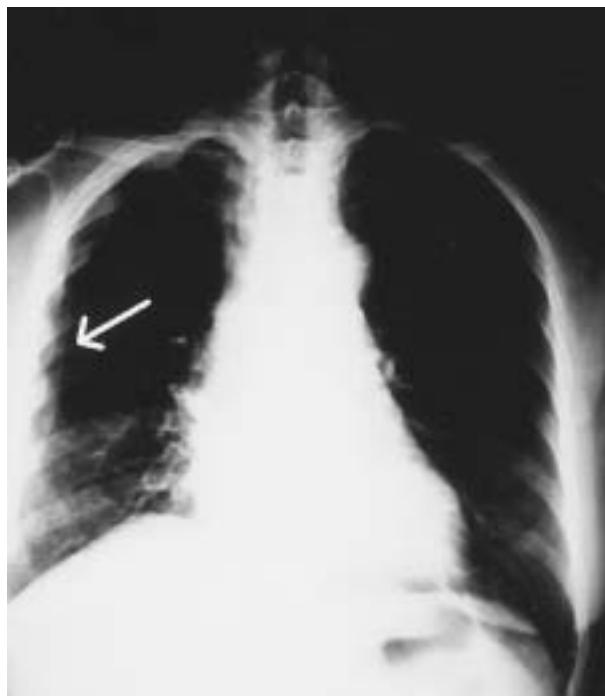


Fig.1.CXR showed nodularity ( arrow ) along right side pleura

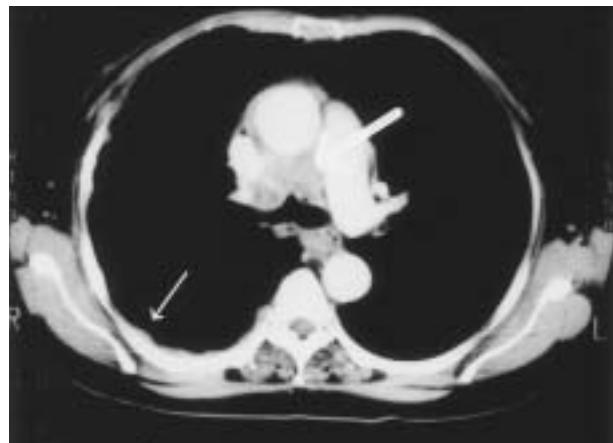


Fig.2.Chest CT revealed multiple right lung nodular pleural thickening ( thin arrow ) and multiple lymph nodes ( thick arrow ) in the mediastinum



Fig.3.Multiple lobulated hypodense lesions ( arrow ) were found in the liver

aminotransferase: 187 IU/L, alkaline phosphatase ( ALP ): 776 IU/L, bilirubin total/direct: 0.6 mg/dL /0.2 mg/dL ) and inversion of the albumin to globulin ratio ( albumin: 3.8 g/dL, globulin: 4.1 g/dL ). Diabetic mellitus was diagnosed in this admission. The hepatitis markers examination revealed HBs antigen: negative, anti-HBs antibody: positive and HCV antibody: negative. The hemogram was within the normal range. The patient was subjected to a liver needle biopsy of the hepatic hypodense lesion. Bronchoscopic examination was also performed and copious purulent sputum in the bronchial trees was found as well as slightly widened carina with some nodular lesions. Bronchiolo-alveolar lavage ( BAL ) and biopsy were carried out

during the bronchoscopic examination. In addition, mediastinoscopy was performed on the mediastinum lymph nodes to obtain a biopsy sample. Pathological examination of the bronchoscopic and mediastinoscopic biopsies showed caseating granulomatous inflammation. Pathological examination of liver biopsy specimen also showed fibronecrosis and granulomatous inflammation with giant cells. A nested polymerase chain reaction ( PCR ) assay with IS6110 as the target of amplification for *Mycobacterium tuberculosis* was positive in the BAL specimen. Later, *Mycobacterium tuberculosis* was isolated from the BAL specimen and the mediastinoscopic biopsy. Systemic tuberculosis was diagnosed and the patient started to receive anti-tuberculosis chemotherapy with isoniazid 300mg, rifampin 600 mg, pyrazinamide 1500 mg, and ethambutol 800 mg for 2 months, and isoniazid 300mg, rifampin 600 mg, pyrazinamide 1500 mg for another 10 months ( The patient's body weight was 60 kg ). A chest CT examination after 6 months of treatment showed marked shrinkage of mediastinal, pleural and hepatic lesions; and some bronchiectasis changes were also found at right middle and right lower lobes. Liver function tests returned to normal limit and ALP also showed significant improvement ( from 776 IU/L to 323 IU/L ) 4 months later. In addition, the patient no longer complained of cough and her general condition had improved since treatment.

## Discussion

Systemic involvement of liver macronodular lesions together with pleural nodular thickening and mediastinal lymphadenopathy was a very unusual manifestation of tuberculosis. It was not reported to the best of our knowledge. This is not surprising that we approached this case as a malignant disease in the beginning and tuberculosis was diagnosed following serial non-disputed evidences.

TB pleurisy is a common site of extrapulmonary tuberculosis. However, it is unusual to have multiple

pleural nodules without a visible pulmonary parenchyma lesion. These multiple pleural nodules may resemble a manifestation of malignant mesothelioma, pleural lymphoma, hematogenous pleural metastases and malignant thymoma<sup>2</sup>. The majority of pleural metastasis can be found in patients with lung cancer, ovarian or gastric cancer<sup>3</sup>. Tuberculous pleuritis with pleural masses or nodules presentation was very unusual and only described in few patients<sup>4,5</sup>. It is not easy to differentiate these diseases by such radiological presentation. Disappearance of pleural nodular lesion following anti-tuberculosis treatment confirmed its nature. In addition, mediastinal lymphadenopathy without parenchyma consolidation is also an uncommon radiological presentation in adult tuberculosis. Lymphoma, sarcoidosis, neoplasm and histoplasmosis are the more common causes of the mediastinal lymph nodes enlargement. However, tuberculous adenopathy is preponderant in the right paratracheal nodes<sup>6</sup>. The adenopathy of our case was also preponderant in the right paratracheal and tracheobronchial areas. Multiple right pleural nodules of the patient might have contributed to the predominant right side lymphadenopathy.

Hepatic tuberculosis may presented as three forms: miliary or pulmonary tuberculosis with diffuse liver involvement, primary hepatic miliary tuberculosis and focal hepatic nodular lesions<sup>7,8</sup>. Millary pattern is more common in hepatic tuberculosis. Macronodular formation is rare and often shows as low density and non-enhancing, with or without a thick enhancing rim, on CT<sup>9,10</sup>. Our patient presented with multiple hypodense macronodular patterns. This can simulate metastases, abscess or primary hepatobiliary malignancy. At present there are no specific radiological features, which may allow diagnosis of abdominal tuberculosis. The presence of a pulmonary lesion may give a suggestion of the possibility of tuberculosis infection.

Our case demonstrated that tuberculosis infection might have variable presentation. The radiolog-

ical lesions in our patient were so extensive that it confused us and was presumed to be malignancy initially. Diabetes mellitus without control may be one of the reasons. We emphasized that tuberculosis should be considered in patients with relatively extensive radiographic findings but disproportionately minor clinical symptoms<sup>11</sup>.

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## 糖尿病病人感染瀰漫性結核病呈現縱膈 淋巴病變、肋膜結節狀肥厚及肝臟侵犯

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## 摘要

結核病能在身體的許多器官中造成感染，它在影像學上也可以有各種不同的呈現方式，有時甚至會模仿成類似惡性疾病的影像，因而造成臨床醫師判斷上的困擾。我們在此報告了此方面的一個特殊病例。一位60歲的女性病患，本身有糖尿病病史，咳嗽已經有兩年了，她的胸部電腦斷層顯示肋膜上有許多結節且有胸部縱膈腔淋巴病變以及多發性肝臟腫塊。一開始我們以為這是惡性疾病併轉移的病例，但經過一系列的檢查後，才發現這是結核菌感染所造成。由於結核病在影像上多樣化的表現，我們建議臨床醫師，在病人本身的慢性疾病為結核病的好發因子時，要將結核病感染列為考慮的鑑別診斷之一。