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Case report

A case report of atypical sarcoidosis misdiagnosed as tuberculosis

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Abstract

Tuberculosis is one of the common chronic infectious diseases of respiratory system in China, and presents high morbidity, high drug resistance and the specific imaging characteristics. This paper focused on a case report of atypical sarcoidosis which was misdiagnosed as tuberculosis before operation. CT imaging was discussed by contrast with clinical manifestations, aiming to survey the imaging differences between atypical sarcoidosis and tuberculosis and improve the clinical differential diagnosis.

Keywords: Tuberculosis; Atypical sarcoidosis; Medical imaging

1. Introduction

Tuberculosis is one of the widespread, infectious diseases, which was caused by various strains of mycobacteria, typically Mycobacterium tuberculosis. China is the second largest country in the world, in terms of morbidity of tuberculosis. As reported in 2000 by literature of the epidemiological investigation, approximately 550 million people have suffered from Mycobacterium tuberculosis infection, with active cases of more than 4.5 million, of which total acquired drug resistance rate had reached up to 46.5% [1]. Due to the aging and increasing number of tuberculosis cases, imaging of some of these infections showed atypical. Similarly, sarcoidosis always involved lung and mediastinal lymph nodes, showing non-caseous granulomas. For this reason, sarcoidosis sometimes would be misdiagnosed as tuberculosis. However, this misdiagnose should be avoid for the treatments of these two diseases are definitely different. For the purpose of surveying the imaging differences between atypical sarcoidosis and tuberculosis, and improving the clinical differential diagnosis there between, this paper focused on a case report of atypical sarcoidosis which was misdiagnosed as tuberculosis before operation, and CT imaging was discussed by contrast with clinical manifestations.

2. Case report

A 49 years old, female patient was hospitalized for abdominal discomfort, low grade fever (with the highest body temperature to be 37.8 °C) and long time cough lasting for about half a month. The cough presented as irritating cough accompanied with nausea, but without phlegm and emesis. It is known that the patient is healthy ordinarily and no obvious inducement was found for these above mentioned symptoms. Therefore, a series of regular examinations were carried out, including laboratory examination, bronchoscopy, CT scanning, and biopsy and pathological diagnosis.

The regular laboratory examination was showed in Table 1. Additionally, plenty of lymphocytes and less mesothelial cells were detected in pleural effusions, without finding heterocyst.

For the bronchoscopy, no obstruction was visible within the left principal bronchus and its branches. No hyperaemia, edema and erosion were found in the lumen mucous

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Table 1
Results of laboratory examination.

Items	Results
Leucocyte	9.7 × 109/l
Granulocyte occupancy	87.9%
Acid-fast bacilli test	–
Erythrocyte sedimentation rate	13 mm/h
CA125	116.0 U/ml
Total protein	45.7 g/l
Rivalta test	+

membrane. No stenosis and neoplasm were visible within the lumen. Mucous membrane was normal in the right upper lobe bronchus while mild hyperemia was found in the mucosa of right lower lobe bronchus, and the corresponding lumen showed with mild distortion and obvious neoplasm development. It was shown with bronchial ridge hypertrophy and enlargement. There was apparent stenosis in the lateral bronchus of the middle-lobe, showing with white moss-like secretions. The bronchial mucosa was a bit brittle and would bleed when touched.

For regular CT examination, irregular pulmonary consolidation was presented in the middle and lower lobes around the right hilum, with mean CT value of 44HU; bronchus shadow with narrowed lumen was visible inside the lumen, and swelling lymph node shadow was likely to be visible in the mediastinum; and, a small amount of pleural effusion was presented in the right thorax, while no obvious abnormity was visible in the left one (Fig. 1). For the contrast enhanced CT scanning, equally enhancing lesions were presented inside the lung and around pulmonary hilus, with the mean CT value of 98HU during arterial phase (Fig. 2A), and local stenosis occurred inside the pulmonary artery; by contrast, during the venous phase, the mean CT value was 98 HU (Fig. 2B); multiple lymphadenectasis presented as equal enhancements were found within the right pulmonary hilus and mediastinum (behind the left atrium), while multiple small nodular shadows were visible in the right pleura; and no obvious lymphadenectasis was presented in the left pulmonary hilus.

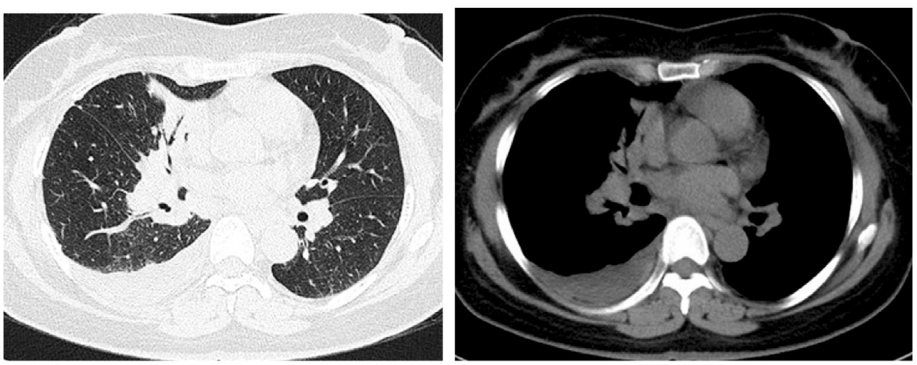
2.1. Biopsy and pathological examination

Biopsy was carried out for the right pleura under thoracoscope, and it was shown that about 500 ml pale yellow effusion was presented in the right thorax, and there were also pleural edema, thickening and adhesion in the right chest. Unequal multiple small nodules with diameters from about 0.3 cm to about 0.5 cm was found on the right side of the pleura, mediastinum, pericardium and pulmonary surface, and lump appeared around the right pulmonary hilus (Fig. 3). For further confirmation, the pathological diagnosis was carried out, which showed granulomatous inflammation accompanied with small necrosis, and the possibility of tuberculosis was not excluded. The results of acid fast stain were showed in Fig. 3. Ultrasonic bronchial endoscopy (Ebus) was carried out under general anesthesia, and the lymph node on the punctured right bronchus (region 4R) and subcarinal (region 7) lymph node were sent for biopsy, of which the results showed noncaseating granulomas (Fig. 4).

3. Discussion

Sarcoidosis is a systemic disease which is characterized by the presence of noncaseating granulomas, with the thoracic involvement occurs in about 80%–90% of affected individuals [2,3]. Granulomas tend to involve pleural lymphatic, interlobular septa, bronchia and subpleural region. Pathologically, sarcoidosis is characterized by the gathering of plenty of active macrophage, and T lymphocyte, Th1 cytokines, interferon-γ and tumor necrosis factor were released for generating granuloma. The cause of sarcoidosis is still unknown, but common presented in 20–40 year old individuals and more in male patients, with slight symptom or no symptom (occupy about 30%–50%). Most patients would be self-healing or healed after hormone therapy, however, about 20%–25% would develop to irreversible pulmonary fibrosis, leading to respiratory function failure, or even death (about 5%–10%) [4].

CT was thought to be an accurate and effective examination for sarcoidosis and mediastinal diseases. The typical manifestation included bilateral hilar lymphadenophathy



A B

Fig. 1. Regular CT scanning near the hilar.