

## CASE REPORT

# A case of pulmonary tuberculosis presenting as a large pseudo-tumour

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## Abstract

Despite the many major developments in identifying the disease, the diagnosis of tuberculosis can still be very challenging specially when it encounters unusual picture. This is a case report of 27-year-old Asian male with pulmonary tuberculosis presented with a well-defined large and rounded mass-like opacity on chest radiographs which resembled a tumour. A subsequent CT scan suggested tuberculosis as a possibility and eventual fine needle aspiration results confirmed the diagnosis. It is of crucial importance that clinicians are well attentive to this rare presentations of tuberculosis to make sure that appropriate laboratory tests are conducted and correct treatment is administered in order to manage patients properly at earlier stages and to avoid any residual complication.

## Keywords

Tuberculosis, Atypical, Radiographs

## 1 Introduction

Despite the many major developments in identifying the disease, the diagnosis of tuberculosis can still be very challenging, especially when it is faced by unusual pictures. Patient with tuberculosis may present with atypical, unusual or complex features. So delay in diagnosis is very common which leads to increase in number of cases of extra-pulmonary tuberculosis.

## 2 Case report

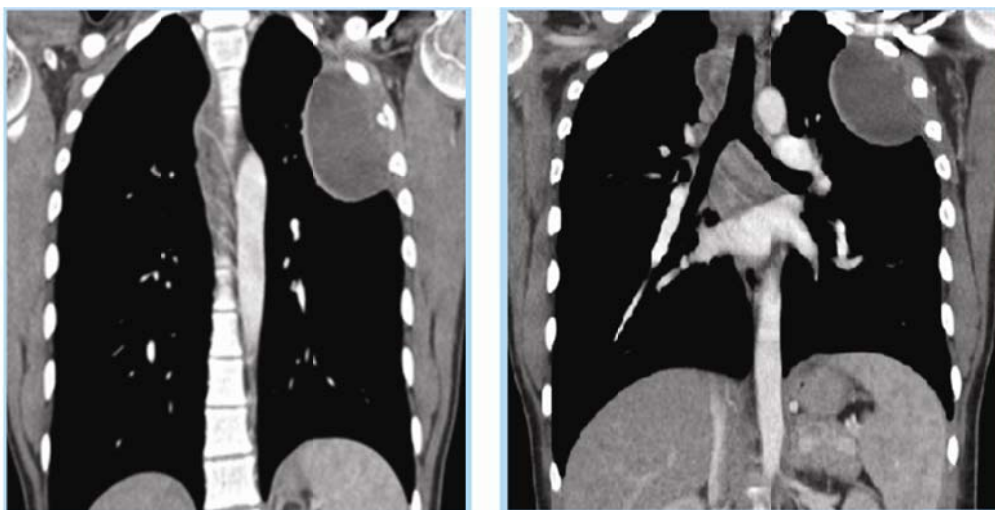
Patient with tuberculosis may present with atypical, unusual or complex features. The reported case is of a 27-years-old, non-smoker, Asian male who is normally fit and healthy, presented with ten days' history of left sided pleuritic chest pain. He denied experiencing cough or haemoptysis, also he had no history of dyspnoea, orthopnoea or paroxysmal nocturnal dyspnoea. Add to that, there was no history of night sweat neither loss of weight or pyrexia. No previous history of tuberculosis or cardiopulmonary disease and the patient denied being on any regular medications. There was nothing significant on the clinical examination and the routine laboratory investigations were also unremarkable. However, the initial radiographs showed left upper zone pleural based mass measuring 75 mm × 56 mm. There were no pleural effusions

and the radiographs also did not show any lobar collapse or consolidation. There was associated right Para-tracheal stripe widening (see Figure 1).



**Figure 1.** Initial radiographs show left upper zone pleural based mass measuring 75 mm × 56 mm. no pleural effusions and no lobar collapse or consolidation. There is associated right Para-tracheal stripe widening

Subsequently a contrast CT scan was performed as the radiographs were not conclusive. The CT scan showed several low density necrotic lymph nodes in the bilateral upper Para-tracheal regions. A right Para-tracheal lymph node demonstrated cavitations with air within. Further low density in pleural-based lesion at the right Para-vertebral level and large left upper zone pleural based low attenuation collection associated with pleural thickening measuring 87 mm × 53 mm × 67 mm with adjacent third rib destruction (see Figure 2). There was also a separate abnormal left chest wall lymph node measuring 12 mm × 8 mm. there was no separate lung parenchyma or endobronchial lesions. Due to arterial phase there was limited interpretation to liver and spleen.



**Figure 2.** Chest CT show bilateral low density necrotic lymph nodes in the upper para-tracheal regions. large left upper zone pleural based low attenuation collection associated with pleural thickening measuring 87 mm × 53 mm × 67 mm with adjacent third rib destruction

Having thought about numerous, necrotic and cystic higher intra-thoracic Para-tracheal lymph nodes with pleural-based collections and rib destruction, neoplasm and tuberculous lymphadenitis had the priority to be ruled out. A fine needle aspiration of a pleural based collection was sent for both cytology and microbiology. Acid Fast Bacilli was eventually detected in the pleural fluid samples. The treating physicians did not perform a Tuberculin test as the microbiology results

were conclusive. Anti-tuberculous medications were started immediately and as per protocol<sup>[1]</sup> in the initial phase which is the first two months, the patient was given; isoniazid, rifampicin, pyrazinamide and ethambutol. This was followed by a continuation phase in which patient was given Rifinah (Rifampicin and Isoniazid). The Patient was followed up regularly in the respiratory out-patient clinic and over a period of six months the patient fully recovered (see Figure 3).



**Figure 3.** Chest radiograph six months later shows successful treatment

### 3 Discussion

Tuberculosis embraces an enormously extensive disease spectrum affecting multiple organs and body systems mostly caused by the organism *Mycobacterium tuberculosis*. A tiny percentage can also be caused *Mycobacterium Bovis*.

Despite the many major developments in identifying the disease, the diagnosis of tuberculosis can still be very challenging, especially when it is faced by unusual pictures. So delay in diagnosis is very common which leads to increase in number of cases of extra-pulmonary tuberculosis. In recent reports in the UK, 7,892 cases of tuberculosis were reported, a ratio of 12.3 cases per 100,000 population. The percentage of tuberculosis in the UK has stayed high and reasonably steady over the last ten years. Recently, there has been a slight drop in the numbers and rates, with a reduction in rates of 2.5% in 2012 and 10.4% in 2013<sup>[2]</sup>.

Typically, Primary tuberculosis can manifest radiologically with parenchymal disease, lymphadenopathy or pleural effusion. Atelectasis can be either lobar or segmental and it is frequently seen in children less than 2 years of age. Rarely, primary TB may progress to a miliary disease and that mainly affects elderly, infants and immuno-compromised patients.

The most common radiographic findings in primary pulmonary TB by recent infection in formerly healthy individuals include; upper lung lesions, which were thought to be radiographic findings of reactivation pulmonary TB by remote infection<sup>[3]</sup>. Radiographs may also show pre-hilar cavitory lesions which appear as lucencies within the lung parenchyma. Sometimes these lucencies can be associated with irregular margins which may possibly be enclosed by an area of airspace consolidation or infiltrates, or by nodular or reticular densities and could be both. The walls adjacent to these lucent areas could be thin or dense. Also, Calcification can be present around these pre-hilar cavitations<sup>[4]</sup>.

Consolidation, which is an opacification of airspaces within the lung parenchyma, can appear as dense or patchy and might have variable, unclear or blurred borders<sup>[5,6]</sup>. With primary TB the observer may find some nodules (Tuberculomas) on the radiographs which commonly appear with indistinct margins within the lung parenchyma. Pleural effusion can be also diagnosed when the costo-phrenic angles are obliterated by the presence of a considerable amount of fluid within the pleural space. One-fourth of the patients develops pleural effusion and it is usually unilateral<sup>[4,7]</sup>. Lymphadenopathy may

take place in the hilae or inside the mediastinum and may represent one of the findings. Lymphadenopathy can occur with or without an associated Atelectasis or consolidation.

Having some these signs on initial radiographs focuses the light on what the possible pathologies are. The differential diagnosis brings in: sarcoidosis, silicosis, Wagner's granulomatosis, lymphoma, neoplasms, actinomycosis, histoplasmosis and TB.

Wallace *et al.* [8] reported seven patients with TB presented with mass-like densities which were felt to be a lung cancer. Majority were in locations unusual for tuberculosis; anterior segment of the upper lobe, lingula, and middle lobe, and lower lobe. They suggested that, these lesions may represent another manifestation of primary tuberculosis.

Jones *et al.* [9] studied the radiographic patterns in patients with recently or remotely acquired tuberculosis. They concluded that the radiographic findings were comparable regardless of the presumed timing of infection. However, other researchers believe that this study has some limitations that could have had a significant influence on the final results [10].

In our case, chest radiographs show a well-defined large and rounded mass-like opacity in the left upper zone which resembled a tumour. The pseudo-tumours of tuberculosis are uncommon manifestation of the disease and they have mostly been reported in gastrointestinal system, mediastinum and brain [11-14].

Usually, pulmonary tumours are located in lungs, possess obtuse angles with the lateral chest wall with tapered margins, and surround or displace the pulmonary vasculature. Furthermore, they alter location based on which phase during the respiratory cycle [15]. Pleural tumours can have a wide-ranging imaging spectrum, may be calcified or non-calcified, unilateral or bilateral and focal or diffuse.

To differentiate pleural from extra-pleural origin we need to remember that extra-pleural tumours may arise from intercostal muscles, ribs, extra-pleural fat, and neurovascular bundle, while typical pleural tumours do not cause erosion of ribs. Add to that pleural tumours displace the extra-pleural fat outward, while extra-pleural displace the extra-pleural fat inward.

## 4 Conclusion

Thus, tuberculosis can have a varied presentation, clinical features and radiological pictures. In view of the recent resurgence of pulmonary TB and the high values of chest radiographs in its diagnosis and management, all rare radiographic patterns need to be taken into account in order to manage patients properly at earlier stages and to avoid any residual complication. Tuberculosis should be thought about for every mass lesion of the chest especially in patients with benign pulmonary cytology. We think this case is of a great value especially for doctors in countries where there is no rapid access to CT scanning or FNAs and countries where TB is considered as a history or a very uncommon entity.

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