A case of pulmonary tuberculosis masquerading as lung carcinoma

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SUMMARY

Tuberculosis is a nimble chameleon. It can manifest itself in various ways with atypical clinical and radiographic findings. In this report we discuss the importance of radiographic findings (nodular or mass-like forms) requiring a correlation with microbiological and histopathological results to differentiate lung cancer from TB.

INTRODUCTION

Globally, Tuberculosis (TB) contributes to ill health and deaths.[1] In 2017, an estimated 82% of TB deaths among non-HIV patients were in the South-East Asia and African region.[1] Over many decades, TB remains endemic in Malaysia.[1] In 2015, the eastern state of Sabah in Borneo reported the highest TB incidences,130 per 100,000 populations.[2] TB patients in Sabah commonly present with advanced disease at diagnosis TB,[2] and often the disease manifest itself in atypical ways. Here, we present a case of TB masquerading itself as lung cancer in Sabah.

CASE PRESENTATION

A 67-year-old Bajau, male farmer with no known medical illness presented with a two-month history of chronic productive cough associated with constitutional symptoms, intermittent haemoptysis, night sweats, dyspnoea on exertion and low-grade pyrexia. The symptoms did not resolve with a course of antibiotics from the district hospital. He was an active smoker with an estimated 50 pack year. He denied any family history of malignancy. On examination, the vital signs were stable. He was not in respiratory distress with respiratory rate of 18 breath-per-minute. On lung examination, the chest expansion reduced, the percussion note was dull over the right lower zone. On auscultation at this zone, there was reduced breath sound without any additional sound. The initial laboratory investigations showed mild anaemia (Hb10.0g/dL). The chest radiograph (Figure 1) and chest computer tomography (CT) (Figure 2) raised a suspicion of lung cancer. The provisional diagnosis of lung malignancy was made, and the patient was the subjected to bronchoscopy. The flexible bronchoscope revealed normal findings. The histopathologic analysis of transbronchial lung biopsy taken from right lower lobe revealed caseating granulomatous inflammation with no malignant cells. The patient was diagnosed as pulmonary TB and anti-tuberculous treatment was then initiated. Two months later, the sputum culture returned positive for Mycobacterium tuberculosis complex, sensitive to Isoniazid, Rifampicin, Ethambutol and Pyrazinamide. The CXR performed upon the completion of six-month therapy showed a complete resolution of the lung mass. The patient recovered completely.

DISCUSSION

We highlight that in cases where there is uncertainty to differentiate TB or lung malignancy, an extensive workout is required including sputum smear microscopy, molecular methods, mycobacterial culture, radiological images and histopathological tissue sampling. Initially, the treating clinicians were swayed away towards the diagnosis of lung malignancy till the histopathological tissue proved TB diagnosis. The classical manifestations of pulmonary TB are chronic cough, haemoptysis, constitutional symptoms and nocturnal sweating. The clinical presentation and radiological manifestation of TB may resemble lung cancer even though the incidences are relatively infrequent.[3] The common pitfalls of misdiagnosing TB cases as lung cancer are the atypical radiographic images, limited access to TB molecular tests and long duration of TB culturing. In places where TB is prevalent, the cases can be misdiagnosed as lung malignancy whose smear, GeneXpert and culture negative on sputum and when CT is highly suggestive of cancer.

Up to one-third of TB cases in adult population, it is common to have atypical CXR or CT for PTB.[4] Tuberculoma, a TB-related solitary lung nodule may have smooth and round margin in CT, with or without calcification and cavitation in the centre. However, in the background of chronic lung disease with fibrosis or emphysema, tuberculomas may appear spiculated. Thus, making the evaluation of TB-related pulmonary mass found on CT is challenging. In comparison with smear, molecular method is recognised to be superior in detecting early TB, minimising empirical therapy, shortening time to diagnosis and reducing duration to treatment initiation. In lower-middle income countries (LMIC) with constrained access to molecular diagnostic tools, TB culture and biopsy (in selected countries) are considered cost-effective and widely practised.[5] In Malaysia (high middle-income country), TB molecular tests widely available. Nevertheless, in this case, TB molecular diagnostic test was not performed as the suspicion of TB was low initially.

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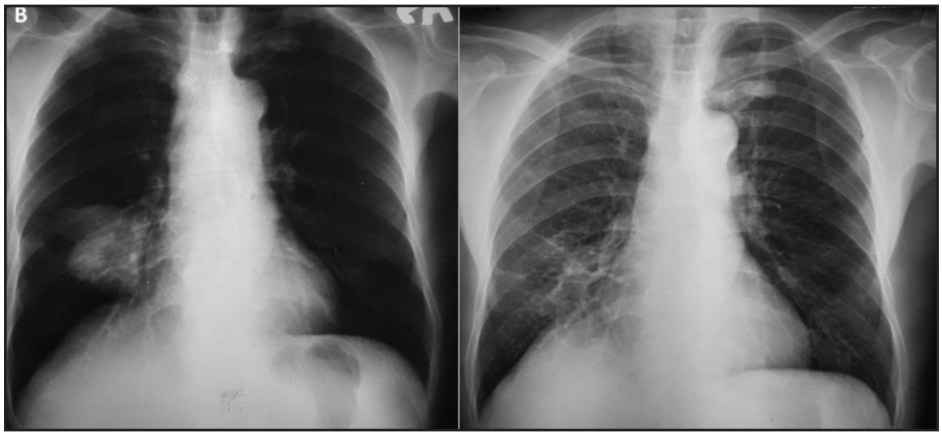

Fig. 1: A) A CXR in posterior-anterior erect view demonstrated a mass-like lesion at right basal zone; B) A repeated CXR obtained at the end of anti-tuberculous therapy, showed the resolution of previous pulmonary mass and post-TB scar.

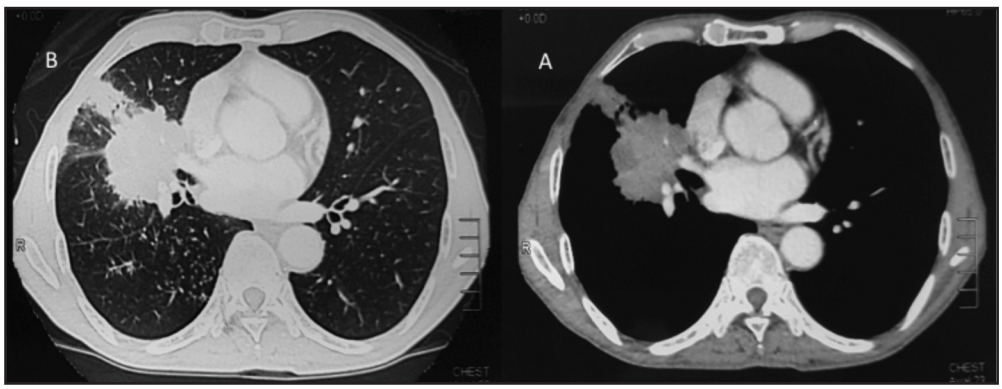

Fig. 2: A) A chest CT in lung window axial view showed speculated, mass-like lesion near at right lower lobe. There was neither grass-ground opacities nor lung parenchymal consolidation; B) The CT in mediastinal window axial view showed similar findings as in figure 2A.

When a series of AFB smear results are unrevealing, MTB culture sputum plays an important role to diagnose smear negative TB. The average time of TB detection is two weeks for mycobacterial culture on liquid media and up to six weeks for solid culture. Tissue biopsy requires one to two weeks for interpretation. Thus, HPE is considered in this case to differentiate TB from lung cancer. The tissue biopsy renders in diagnosing TB within a week after bronchoscopy. The histologic feature of caseating granuloma in tissue biopsy favours with chronic granulomatous disease and offers strong evidence of active TB. In this case, anti-tuberculous treatment was initiated promptly after revealing the histopathological findings and he responded to the treatment.

CONCLUSION

In TB endemic areas where lung cancer can be confused with TB on clinical and radiological grounds, clinicians should have a high index of suspicion on TB. The radiographic imaging should not be relied solely to distinguish lung cancer and TB. In patients with atypical presentation, microbiological and histopathological investigations are paramount to establish the diagnosis of TB.

CONFLICT OF INTEREST

none declared.

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