CASE REPORT

Severe Pulmonary Tuberculosis With Organizing Pneumonia: A Diagnostic Ambiguity

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ABSTRACT

Pulmonary TB may present insidiously and ambiguously, leaving clinicians with a diagnostic dilemma. A 30-year-old lady with underlying spinocerebellar ataxia presented with progressive shortness of breath, prolonged cough with whitish sputum, loss of appetite and weight loss of 1-year duration. Physical examination showed a cachectic, tachypnoeic female with finger clubbing and coarse crepitations on lung auscultation. Chest radiograph showed bilateral air space opacities relatively sparing the upper zone. Contrast-enhanced CT thorax revealed bilateral cavitary necrotising consolidations, multiple scattered lung nodules with surrounding ground-glass opacities. After exclusion of alternative diagnoses, cryptogenic organizing pneumonia diagnosis was made. She had a rapid clinic improvement once steroid was started. TB polymerase chain reaction (PCR) from bronchoscopic bronchial washing eventually was positive. Anti-TB treatment was started, and oral steroid was slowly tapered down. Organizing pneumonia (OP) may complicate pulmonary TB. Diagnosing OP without lung biopsy requires a multi-disciplinary approach, taking into consideration all available evidences. Early steroid therapy is lifesaving and should be considered after thorough exclusion of alternative diseases.

Keywords: Pulmonary tuberculosis, Pulmonary TB, Organizing pneumonia

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INTRODUCTION

Tuberculosis (TB) is an infectious disease with a myriad of clinical presentations. Diagnosis becomes challenging with ambiguous clinical presentation and mixed radiological findings. Investigation of airway and tissue samples proves to help clinician in diagnosing this disease. We present a case of severe pulmonary tuberculosis with organizing pneumonia.

CASE REPORT

A 30-year-old lady with underlying spinocerebellar ataxia (SCA) since the age of 17 presented with a complaint of progressive dyspnoea on exertion for almost a year. Previously she was able to ambulate out of her home with her walking stick. However, 2 months prior to admission she was home bound due to her breathlessness.

She also complained of productive cough with whitish sputum, loss of appetite and weight loss of 10kg within 1 year. She had no history of fever or night sweats. There was no history of TB contact. She was not on any regular medications or taking any traditional medications. She did not seek any medical attention prior to admission as she thought the symptoms were due to the SCA.

On examination, she was cachectic and tachypnoeic with respiratory rate of 30 breaths/minute. Pulse oximeter was 90% under room air. Her blood pressure was 104/56 mmHg while the pulse rate was 80 beats/minute. She was afebrile. Clinical examination revealed finger clubbing and coarse crackles over bilateral lung predominantly over the lower zone. There were no palpable lymph nodes. The rest of the systems were unremarkable.

Arterial blood gas showed features of type 1 respiratory failure. White cells count (7 x 10^9/L), C-reactive protein (CRP) level (negative) and erythrocyte sedimentation rate (ESR) (10 mm/hour) were normal. Renal and liver functions were normal. Connective tissue disease screening was done in view of CT thorax findings

showed features which were suggestive of organising pneumonia (Fig 1, Fig 2a). Anti-nuclear antibody (ANA) and extractable nuclear antigen (ENA) were negative. Retroviral screening and Mantoux test were both negative. Blood glucose was normal.

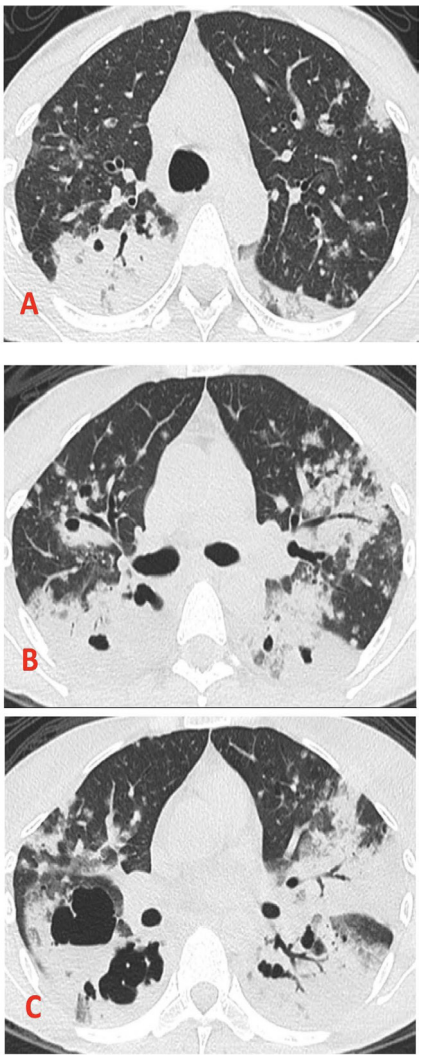

Figure 1: CT Thorax (lung window) showing bilateral consolidations (with air bronchogram), peripheral and peribronchovascular distribution (A and B), interspersed with air-filled cavitation (C). Noted multiple scattered nodules with surrounding ground-glass densities (B and C). These are suggestive of organizing pneumonia (OP).

No respiratory pathogen isolated in serial sputum samples. Blood culture and sensitivity (C&S) samples showed no growth. Serial sputum acid fast bacilli (AFB) samples were negative.

Chest radiograph (Fig. 3) showed bilateral air space opacities relatively sparing the upper zone. Contrast enhanced CT of thorax (Fig. 1, Fig. 2) revealed bilateral cavitary necrotising consolidation with peripheral, peribronchovascular and perilobular distribution, multiple scattered lung nodules with surrounding ground-glass opacities.

She was started on broad spectrum antibiotics

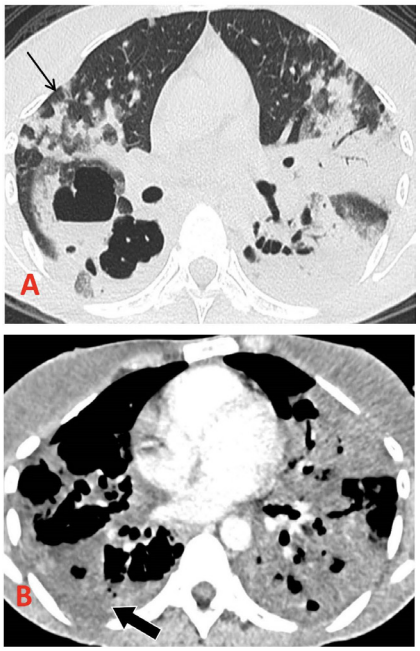

Figure 2: (A) CT Thorax scan (lung window) showing subpleural perilobular consolidation (thin arrow), suggestive of organizing pneumonia (OP). (B) Contrast enhanced CT Thorax (mediastinal window) showing patchy area of decreased parenchyma enhancement within consolidations (thick arrow) represent ischaemic involvement. These features are suggestive of pulmonary tuberculosis.

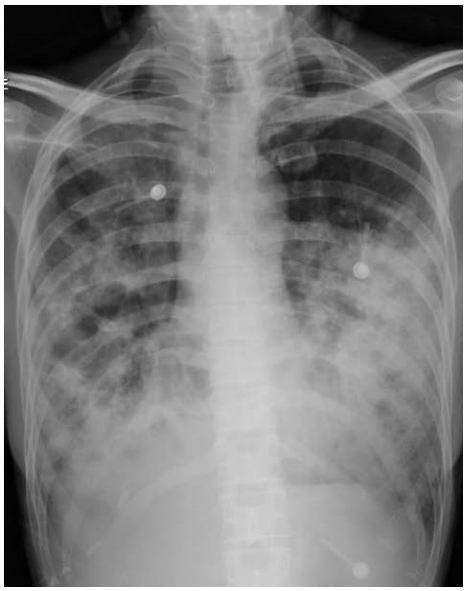

Figure 3: Chest radiograph showed bilateral air space opacities relatively sparing the upper zone

(piperacillin-tazobactam and meropenem) for 7 days but the symptoms did not improve. A multidisciplinary team discussion decided on the diagnosis of cryptogenic organizing pneumonia based upon polymorphic typical radiology features as well as lack of evidence of active pneumonia, pulmonary TB and autoimmune diseases. Intravenous hydrocortisone 100mg three times a day was started.

The patient had a rapid improvement shortly after steroid

commencement. She was less breathless and was able to ambulate to the nearby toilet. There was also significant improvement of her oxygen requirement from high flow to Venturi mask within three days. She was discharged well 2 weeks later with oral prednisolone 40mg OD (1mg/kg/day). Bronchoscopy up to the segmental bronchi showed no abnormalities. Bronchial washing samples were sent for Mycobacterium tuberculosis polymerase chain reaction (PCR) test which was positive whereas the acid-fast bacilli (AFB) staining was negative. Cytology report showed only occasional alveolar macrophages. Subsequently, she was started on anti-TB treatment (ethambutol, pyrazinamide, rifampicin and isoniazid) and oral prednisolone was gradually tapered down. Lung biopsy was considered but the patient was not keen.

DISCUSSION

Organizing pneumonia (OP) is an inflammatory response to lung injury. Common pathogens related to OP include bacteria and viruses. Mycobacterium tuberculosis has also been reported until recently as the cause of organizing pneumonia (1–3). OP computed tomography (CT) findings are often polymorphic. The commonest and specific signs are peribronchovascular and perilobular consolidation containing air bronchogram, subpleural distribution, reverse halo sign as well as migratory lesion over time. Blood results in OP typically show neutrophilia, elevated ESR and CRP. Bronchoalveolar lavage (BAL) results usually shows lymphocytic cell profile. Diagnosis of organizing pneumonia requires histological evidence from lung biopsy (trans-bronchial lung biopsy or surgical lung biopsy) as well corelating clinical and radiological evidence. However, lung biopsy can be difficult or inconclusive in some patients. Thus, clinical judgement and experience is necessary in such cases. Treatment of COP with prednisolone or methylprednisolone usually result in rapid clinical improvement. For secondary OP, treatment of the underlying disease (infection, malignancy, autoimmune) or avoidance of precipitating factors (drugs, chemicals) are also necessary.

Our case report showed an atypical feature of pulmonary TB and organizing pneumonia. The imaging findings of our patient were mixture of both diseases. Multiple cavitary lesions with patchy parenchymal enhancement would suggest necrotising entity which are commonly associated with pulmonary tuberculosis (Fig. 2B). Whereas other features such as peribronchovascular and perilobular consolidation predominantly at the lung bases and peripheral would suggest OP (Fig.1, Fig. 2A). Radiologic findings of previous reported cases of secondary organizing pneumonia due to TB were consolidations and ground glass opacities.

The rapid response to steroid in our patient was likely due to the secondary OP responding to the treatment, a similar finding found in other previously reported cases (1–3). Despite not proven with biopsy, we were confident with the diagnosis of OP in retrospect as evidenced by the clinical improvement and suggestive radiology features. Our case was almost similar to a case from China whereby, despite atypical radiological features and inconclusive multiple lung biopsies, OP was diagnosed using clinical judgement and was successfully treated with steroids (4). Although steroids have been found to improve symptoms of pulmonary TB such as fever resolution, appetite recovery and weight gain, improvement of dyspnoea has never been documented or studied (5).

CONCLUSION

Our case report highlights the importance of suspecting pulmonary TB in patients from high-burden countries with symptoms and radiographic evidence typical of the disease despite the absence of supportive laboratory investigations. Bronchoscopy should be considered in unsatisfactory or inconclusive sputum samples. Although uncommon, TB may be complicated with OP. Clinicians should be aware of the fatal consequence of delayed TB and OP treatment. Therefore, empirical treatment should be given if the clinical, epidemiological and laboratory findings are compatible despite the absence of pathological evidence.

ACKNOWLEDGEMENTS

We would like to thank the Director of Hospital Universiti Sains Malaysia for his permission to publish this case report.

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