The diagnostic challenge of identifying miliary tuberculosis with chest radiography

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CASE DESCRIPTION

A 37-year-old Indonesian man was referred to our hospital with a 30-day history of fever, chills and dry cough. He also reported night sweats and weight loss. Chest radiography at the previous hospital 2 weeks prior revealed no abnormalities (Fig. 1a). His vital signs at presentation were unremarkable with no fever. Chest auscultation revealed late inspiratory fine crackles in the basal area of the lungs. Repeated chest radiography revealed diffuse, bilateral and small lung nodules (Fig. 1b). High-resolution computed tomography (HRCT) of the chest revealed innumerable miliary nodules in both lungs. A sputum acid-fast bacilli (AFB) smear and the QuantiFERON-TB Gold (QFT) were negative. Subsequent two sputum AFB smears were also negative. Twelve days after presentation, Mycobacterium tuberculosis complex was identified from one of the sputum samples, and the patient was diagnosed with miliary tuberculosis (TB). He was initiated on isoniazid, rifampin, pyrazinamide and ethambutol.

Miliary TB typically shows bilateral diffuse reticulonodular lung lesions on chest radiography. However, those findings can be delayed or subtle, and normal chest radiography may be observed in up to one-third of cases [1]. Additionally, the reported sensitivity of QFT is 46–97% [2], which is insufficient for ruling out miliary TB, especially in patients from countries with a high prevalence of TB such as Southeast Asia [3]. In this case, the presence of infection was confirmed by sputum culture before repeating the test.

This case illustrates the challenge of detecting miliary TB with chest radiography, and the importance of considering HRCT or chest computed tomography with contrast, that may reveal typical miliary patterns, even when the chest radiography appears normal [4]. Furthermore, this case highlights the limitation of QFT, especially in high-risk patients.

Figure 1. (a) Chest radiography performed 2 weeks prior to presentation. (b) Chest radiography on presentation.
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CONFLICT OF INTEREST STATEMENT
None declared.

ETHICS APPROVAL
The case is exempt from ethical approval in this institution.

CONSENT
Written informed consent was obtained from the patient for the publication of this case report.

GUARANTOR
Yoji Hoshina is the guarantor of this article.

REFERENCES