Answer to Photo Quiz: Pulmonary Tuberculosis

(See page 1065 in this issue [doi:10.1128/JCM.01198-12] for photo quiz case presentation.)

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The unstained structures in the Gram stain are so-called ghost mycobacteria. The cell wall of mycobacteria is strongly hydrophobic, owing to its mycolic acids, preventing the hydrophilic Gram stain reagents from entering the cell (1, 2). Therefore, mycobacteria are Gram neutral and can appear as unstained structures or Gram-positive beaded structures in the Gram stain (1–3). This feature of mycobacteria is often not appreciated. Subsequent Ziehl-Neelsen (ZN) staining of the same slide clearly revealed acid-fast bacilli in the spots of Gram neutrality (see the supplemental material). The chest radiograph revealed dense airspace opacities in the lingula and cavity formation in the left upper lobe and was supportive of the diagnosis of pulmonary tuberculosis. Sputum and bronchoalveolar lavage fluid grew *Mycobacterium tuberculosis*. The patient was successfully treated with standard short-course chemotherapy.

Tuberculosis should always be considered for patients with symptoms of longstanding cough, malaise, and weight loss, especially from patients from areas of endemicity, such as Thailand; the estimated incidence of tuberculosis in Thailand is 137 cases per 100,000 population per year (4). Although not its intended use, the Gram stain can prove helpful in diagnosis of pulmonary tuberculosis.

REFERENCES


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