

## Original Article

STUDY OF DIRECT TB-LAMP USING NON-CENTRIFUGAL SPUTUMS  
ABOUT EFFICIENCY FOR RAPID DIAGNOSIS OF TUBERCULOSIS

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**Abstract** [Objective] To evaluate the efficiency of the direct tuberculosis–loop-mediated isothermal amplification (TB-LAMP) assay by using non-centrifuged sputum samples.

[Study Period and Methods] The study was conducted between June 2013 and February 2014. We collected 111 sputum samples from patients who had been radiographically diagnosed with tuberculosis and had not received any treatments for longer than 5 days. In the direct TB-LAMP assay, a loop-mediated isothermal amplification kit and 60- $\mu$ L sputum samples were used. A direct smear microscopy test was used as the smear test. Then, the same sputum samples were processed with a CCE pretreatment reagent, and 100  $\mu$ L of the solution samples were cultured by using the mycobacterial growth indicator tube (MGIT) culture method.

[Results] Forty-six of the 111 samples were positive in the smear microscopy tests. All the smear-positive samples were positive in both the MGIT and direct TB-LAMP assay (100%). The mean positive detection time with the direct TB-LAMP assay was 13 minutes 55 seconds. Of 56 smear-negative and MGIT positive samples, 44 (78.6%) were judged to be positive

using the direct TB-LAMP assay, with a mean positive detection time of 15 minutes 59 seconds.

[Discussion] The direct TB-LAMP assay using non-centrifuged sputum samples was demonstrated to have a high detection rate and thus may be considered useful for rapid and effective tuberculosis diagnosis.

**Key words:** Smear negative, MGIT positive, Rapid diagnosis of tuberculosis, Molecular-based diagnostic test, Direct TB-LAMP

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## Case Report

# A CASE OF NON-TUBERCULOUS MYCOBACTERIOSIS WITH PLEURAL EFFUSION AND THICKENING IN A PATIENT WITH AN OCCUPATIONAL HISTORY OF ASBESTOS EXPOSURE

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**Abstract** We report a case of a 75-year-old man with pleural effusion and an occupational history of asbestos exposure. Fluorodeoxyglucose positron emission tomography-computed tomography (FDG-PET/CT) examination revealed FDG uptakes along his pleura, leading to an initial suspicion of pleural mesothelioma. Pathological findings of a diagnostic video-associated pleural biopsy showed epithelioid cell granuloma. Repeated sputum cultures were positive for *Mycobacterium intracellulare*. The patient was diagnosed with pleuritis caused by non-tuberculous mycobacteria (NTM). NTM should be

considered a potential cause of pleuritis.

**Key words** : Non-tuberculous mycobacteriosis, Pleuritis, Asbestos exposure, FDG-PET/CT

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**Report and Information**

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**TUBERCULOSIS ANNUAL REPORT 2013****— (2) Tuberculosis in Pediatric and Elderly Patients —**

Tuberculosis Surveillance Center (TSC), RIT, JATA

**Abstract** In 2013, 66 patients with pediatric tuberculosis (TB; age range: 0–14 years) were newly notified in Japan, corresponding to a notification rate of 0.40 per 100,000 population. Since 2006, the annual number of notified patients with pediatric TB has been less than 100. Among the 66 patients with pediatric TB who were notified in 2013, 27 (40.9%) were aged 0–4 years, 14 (21.2%) were aged 5–9 years, and 25 (37.9%) were aged 10–14 years. The largest proportion of pediatric TB patients was aged 0–4 years.

In 2013, two cases of TB meningitis and no cases of miliary TB were reported in children. Case detection occurred at rates similar to previous years, with 20 patients (30.3%) identified at medical institutions and 33 (50%) via household contact investigations.

Since 2000, the number of all elderly patients (aged 65 years or older) with TB had decreased rapidly and remained stable until recently. However, the number of such patients has declined gradually since 2012. The proportion of TB patients aged 65 years or older has consistently increased to as high as 64.5% in 2013; notably, the proportion of TB patients aged 80 years or older has also increased to 36.1%. Since 1999, the TB notification rates in Japan have been consistently higher among patients aged 85 years or older than among those aged 65–84 years. The rate of notification for TB patients aged 65 years or older decreased by 0.6% from 2012 (13,307 patients) to 2013 (13,227 patients).

The proportion of bacteriologically positive TB patients among the general population of pulmonary TB (PTB) patients was higher among those aged 65 years or older than among

those aged 15–64 years. Among all symptomatic patients, the proportion of PTB patients with only non-respiratory symptoms increased with age to 30.3% among those aged 85 years or older. The proportion of TB patients with a patient delay of two months or longer was lower among patients aged 65 years or older than among those aged 15–64 years (14.2% vs. 25.6%), whereas the proportion of TB patients with a doctor delay of one month or longer was slightly higher among patients aged 65 years or older than among those aged 15–64 years (23.0% vs. 20.3%).

Among TB patients aged 65 years or older who were newly notified in 2012, 32.2% died within one year after the initiation of TB treatment; of these patients, 19.2% died within three months. Among patients aged 65 years or older, the proportion of deaths within three months after the initiation of TB treatment increased substantially with age from 7.8% of those aged 65–69 years to 37.7% of those aged 90 years or older.

**Key words:** Tuberculosis, Notification rate, Pediatric tuberculosis, Tuberculosis in the elderly, Annual trend

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