

Original Article

CONSIDERATION OF IMPROVEMENT MEASURES FROM LIMITATIONS
OF IMMUNOLOGICAL TESTS—INCLUDING INTERFERON- γ RELEASE
AND ANTIBODY-BASED DETECTION ASSAYS—FOR
MYCOBACTERIUM TUBERCULOSIS INFECTION

¹Ryoji MAEKURA, ²Seigo KITADA, ³Yoshitaka TATEISHI, ²Keisuke MIKI,
²Mari MIKI, ²Kenji YOSHIMURA, ²Kenya FUJIKAWA, and ³Sohkichi MATSUMOTO

Abstract [Purpose] *Mycobacterium tuberculosis* (MTB) infection should be detected in all patients before progressing to active tuberculosis (TB); however, interferon- γ release assays (IGRAs) and serological assays cannot accurately detect TB infection in all patients. Therefore, we conducted a prospective study to determine whether TB infections in patients with active pulmonary TB could be reliably detected by combined use of both tests. [Methods] We consecutively enrolled 186 patients suspected of having pulmonary TB referred to our institute between October 2008 and March 2010 in this study. All patients underwent IGRA and serological assays at first visit and subjected for differential diagnoses. [Results] MTB infections could be detected in 49 of 50 patients with active pulmonary TB using tests of humoral and cellular immune responses. However, false-positive serological tests and IGRAs using TB-specific antigens were observed in patients with nontuberculous *Mycobacterium* (NTM), old TB, or other respiratory diseases. [Conclusion] MTB infections were detected in nearly all patients with active pulmonary TB using tests of humoral and cellular immune responses. However, these assays need to be improved in order to differentiate the active MTB infection from latent MTB infection or NTM infection using combined other separate antigens.

Key words: *Mycobacterium tuberculosis* infection, Interferon- γ release assay, Serological assay, Tuberculous glycolipid, Lipoarabinomannan polysaccharide

— Case Report —

A CASE OF *MYCOBACTERIUM AVIUM* PLEURISY
WITH A LOT OF LANGHANS' GIANT CELLS AND HIGH LEVEL IL-6
IN PLEURAL EFFUSIONS

Terumi TAKIKURA, Masaki HANIBUCHI, Yuko TOYODA, Mayo KONDO,
Hiroyuki KOZAI, Asami FUKUYA, and Yasuhiko NISHIOKA

Abstract A 76-year-old man was referred to our hospital for further examination of infiltrative shadow in the right lower lung field, bilateral pleural effusion and he got a follow-up examination. One-year after the first admission, he emergently admitted to our hospital for dyspnea. Massive pleural effusion with the left side predominance was observed on chest X-ray. Left pleural effusion was exudative with lymphocyte predominance and high adenosine deaminase level, but acid-fast bacteria were negative. Bacteriological examination and cytology of left pleural effusion were also negative. As transbronchial lung biopsy of infiltrative shadow in the right inferior lobe did not yield the definitive diagnosis, we performed left lung and pleural biopsy via video-assisted thoracic surgery. Histopathological examination showed pleural hypertrophy and inflammatory cell infiltration, but Langhans' giant cells were found in pleural effusion. Although acid-fast bacteria culture of pleural effusion was negative, the culture of the sputum and the bronchoalveolar lavage fluid were positive for *M. avium*. Taken together, the diagnosis of pleurisy due to *M. avium* was made. After treatment with clarithromycin + rifampicin + ethambutol, left pleural effusion was decreased. Past studies showed that

several cytokines induced multinucleated giant cells *in vitro*. This case showed the elevated level of IL-6 in pleural effusion, indicating the involvement in the giant cell formation. While the frequency of pleurisy in patients with nontuberculous mycobacteriosis (NTM) is much rarer than those with pulmonary tuberculosis, we should consider NTM as the putative cause of pleurisy. The appearance of Langhans' giant cells in pleural effusion would assist the diagnosis of pleurisy due to NTM.

Key words: *Mycobacterium avium* infection, Pleurisy, Langhans' giant cells, IL-6

Department of Respiratory Medicine and Rheumatology,
Institute of Biomedical Sciences, Tokushima University
Graduate School.

Correspondence to: Yasuhiko Nishioka, Department of
Respiratory Medicine and Rheumatology, Institute of Bio-
medical Sciences, Tokushima University Graduate School,
3-18-15, Kuramoto-cho, Tokushima-shi, Tokushima 770-
8503 Japan. (E-mail: yasuhiko@tokushima-u.ac.jp)

A CASE OF REFRACTORY PULMONARY *MYCOBACTERIUM FORTUITUM* INFECTION WITH LIPOID PNEUMONIA DUE TO SESAME OIL

^{1,3}Ayumi MITSUNE, ¹Junko SUZUKI, ¹Kimihiko MASUDA, ¹Hirotohi MATSUI,
¹Hideaki NAGAI, ¹Yuuta INOUE, ¹Takeshi FUKAMI, ²Masashi KITANI,
and ²Akira HEBISAWA

Abstract A 49-year-old woman with refractory pulmonary *Mycobacterium fortuitum* infection was referred to our hospital. Bronchoscopy was reexamined in suspect of other diseases, because the disease was progressive and resistant to multidrug antibiotic therapy. However, no new findings were obtained which suggested malignancy or other infections. Since it was difficult to control by medical treatment, pneumonectomy was performed. On the other hand, it turned out that she regularly performed gargling of sesame oil prior to admission. In addition, there were a large number of lipid droplets in the resected lung. We finally reached the diagnosis of *M. fortuitum* infection associated with lipoid pneumonia. In case of intractable nontuberculous mycobacterial infection, it is necessary to suspect the possibility of concomitant

lipoid pneumonia.

Key words: *Mycobacterium fortuitum*, Nontuberculous mycobacterial infection, lipoid pneumonia

¹Center for Respiratory Diseases, ²Department of Pathology, National Hospital Organization Tokyo National Hospital; ³Department of Respiratory Medicine, Tohoku University Graduate School of Medicine

Correspondence to: Ayumi Mitsune, Department of Respiratory Medicine, Tohoku University Graduate School of Medicine, 1-1, Seiryō-machi, Aoba-ku, Sendai-shi, Miyagi 980-8574 Japan. (E-mail: mitsune@rm.med.tohoku.ac.jp)