A 44-Year-Old Japanese Female with Recurrent Pleuritis

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\textbf{Clinical Presentation – Case Report}

A 44-year-old Japanese female with left chest pain and high fever visited her community hospital. She was initially diagnosed with bacterial pneumonia and pleuritis because of her symptoms and a left pleural effusion on chest radiography. She received a course of antibiotics, and then, symptoms and pleural effusion diminished for 3 days. However, she had a repeated attack after a month and was referred to our institution. Her past medical and surgical history was unremarkable, with no history of travel, occupational or environmental exposure. She had no abdominal symptoms and no history of endometriosis, and her menstrual periods were not related to these episodes.

On physical examination, her temperature was 38.0°C, blood pressure 116/78 mm Hg, pulse 85 beats/min, respiratory rate 16 breaths/min, and oxygen saturation 98% while breathing room air. On auscultation, respiratory sounds were normal but weak over her left lower back. Cardiovascular examination was normal, and no murmurs, rubs or gallops were detected. Abdominal and neurological examinations were unremarkable, and she had no rash, articular swelling or edema.

Laboratory tests showed a slightly increased white blood cell count (8,800/mm\textsuperscript{3}) and increased C-reactive protein (11.13 mg/dl). Other blood tests including liver enzymes and renal function were within normal ranges. The urine was negative for \textit{Legionella pneumophila} and \textit{Streptococcus pneumoniae} antigen tests. Further laboratory investigation, including immunoglobulin levels, rheumatoid factor, antinuclear antibodies and antineutrophilic cytoplasmic antibodies were within normal ranges.

Chest radiography showed a left pleural effusion (fig. 1). A CT scan of the chest revealed a small left pleural effusion and passive atelectasis of the left lower lobe (fig. 2). The left pleural effusion was not large enough to perform a diagnostic thoracentesis.

\textit{What is your diagnosis?}
Fig. 1. Chest radiography on admission shows a left pleural effusion.

Fig. 2. Chest CT on admission shows a small left pleural effusion and passive atelectasis of the left lower lobe.

Fig. 3. MEFV gene analysis in the present case shows an ATG→ATA mutation in codon 694 of exon 10. This transition converts methionine (Met) to isoleucine (Ile) at codon 694. WT = Wild type.
Diagnosis: Familial Mediterranean Fever

At first, the relapse of bacterial pneumonia and pleuritis were considered as a differential diagnosis, and the patient was treated with antibiotics. As her symptoms recurred, bronchoscopy with broncholavage of the left lower lobe was also performed to obtain a sample for culture. However, there were no abnormal findings, and no bacteria were cultured from the bronchial lavage fluid. Polymerase chain reaction testing for Mycobacterium tuberculosis, M. avium and M. intracellulare and cytologic examination were also negative. The high fever, left chest pain and left pleural effusion improved within 3 days, and she was discharged from our hospital. However, recurrent pleuritis was observed after a month, and she was readmitted to our hospital. Since periodic symptoms were suspected, she was observed without any medication, including antibiotics. Her symptoms resolved within 3 days, and the left pleural effusion diminished in about 2 weeks.

Considering that her father had a past history of fever and peritonitis of unknown origin, we suspected that the most likely diagnosis was familial Mediterranean fever (FMF). After obtaining informed consent, genomic DNA was extracted from the patient’s peripheral lymphocytes to analyze MEFV gene mutations by genomic sequencing, as previously described [1]. Although her parents were not consanguineous, there was homozygosity for a mutation, ATG→ATA in codon 694 of exon 10, of the MEFV gene (fig. 3), leading to a diagnosis of FMF. Treatment with colchicine was started at a dose of 1 mg per day, and she has not had symptoms such as fever or chest pain since. Chest CT performed 4 months after starting treatment showed no pleural effusion and no abnormal findings, except for mild postinflammatory change.

FMF is characterized by periodic fever and serositis, such as arthritis, peritonitis, pleuritis and pericarditis, and is inherited in an autosomal recessive pattern [2]; most cases experience an initial attack as teenagers, with abdominal symptoms. Some cases have amyloidosis, resulting in renal failure [2]. Cases with a first attack in middle age present with pleuritis as the sole manifestation, as in the present case, are reported to be relatively rare [3, 4].

Although FMF is prevalent in the Mediterranean region, this disease is considered quite rare in Japan. However, several case reports and clinical studies have recently been reported in the Japanese population [1, 5–8]. Some differences in clinical presentation or in patterns of the MEFV genotypes have been suggested between FMF cases in the Mediterranean region and those in Japan; Japanese cases tend to present with pleuritis more frequently than Mediterranean cases [8].

In conclusion, the present report described a Japanese FMF case with a first attack in adulthood with pleuritis as the sole manifestation of FMF. FMF should be considered in the differential diagnosis of patients with fever and recurrent pleuritis even in Japanese patients, and taking an adequate family history is considered useful when suspecting this disease. It is important to make an early diagnosis to reduce the risk of renal failure and improve prognosis.

Key Words
Familial Mediterranean fever • Recurrent pleuritis • Japanese

References