

Case Report

AN UNUSUAL COURSE OF LEGIONNAIRE'S DISEASE WITH MYOCARDITIS AND THROMBOEMBOLIC COMPLICATIONS

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T. Özdemir, M.D. / M. Artvinli, M.D.***

* Professor, Department of Chest Diseases, Faculty of Medicine, Akdeniz University, Antalya, Turkey.

** Assistant Professor, Department of Chest Diseases, Faculty of Medicine, Akdeniz University, Antalya, Turkey.

ABSTRACT

Pneumonia is the most common clinical feature of Legionnaire's disease. Its mostly seen complications are pericarditis, myocarditis, and endocarditis. A 27-year-old man with Legionella pneumonia, was treated and discharged from our hospital without any problem. However, on the 16th day of erythromycin treatment, myocarditis and then a thrombus in the left ventricle developed. The patient died due to cerebral emboli.

Key Words: Legionellosis, pneumonia, myocarditis, thromboembolism

INTRODUCTION

The syndrome of Legionnaires' disease was first recognized at the 1976 American Legion Convention in Philadelphia in which 221 American Legionnaires contracted pneumonia and 34 of them died. The risk factors were reported as: smoking, chronic obstructive pulmonary disease, and age. Surgery was a major predisposing factor in nosocomial infection. Transplant recipients, receiving kidney, liver, heart, lung and bone marrow, appeared to be at the highest risk(1).

Although many case reports about legionellosis were published previously, there has been very few from Turkey. We had three patients who were diagnosed by direct fluorescent antibody method from sputum and lung biopsy specimens. The first patient was a renal transplant recipient, and the second one was a patient with chronic bronchitis. Both of them were treated with erythromycin 4 g/day for 3 weeks, and no recurrence occurred. The third case, which is discussed below, was a 27 -year-old male patient with Legionnaire's disease, who died due to multiple cerebral and peripheral emboli. We could not find any similar case in the literature.

CASE REPORT

A 27-year-old man admitted to our hospital because of mildly increased body temperature, non-productive cough and breathlessness going on for 20 days. He had a history of bronchial asthma for 2 years.

On physical examination, blood pressure and pulse rate were normal, the temperature was 37.5° C, and respiratory rate 20/min. Bilateral widespread rhonchic and crackles were heard at the left hemithorax. There was hepatomegaly. On the X-ray examination of the chest, bilateral patchy infiltrations were seen at the superior and mid zones.

Laboratory findings were: hemoglobin 16 g/dl and WBC 14,800/mm³. Liver transaminases were normal. On the microscopic examination of sputum, there were rare leukocytes. Sputum culture was negative. Acid fast bacilli were negative for 3 times. Cold agglutination, Mycoplasma pneumoniae antibody and HIV were negative. Blood culture was negative. There were no parasites in stool. Sputum direct fluorescent antibody for Legionella pneumophila was found positive twice by using monoclonal antibody assay (Monoflou Kit Legionella Pneumophila, Diagnostics Pasteur, France). This test has a sensitivity in a range of 25 to 75% and a specificity greater than 99.9% (2). The test procedure was as follows: A viscous portion of sputum was selected and spread over the slide wells. The smear was air dried and fixed with flame. The slides were covered with 10% formalin in saline and placed into a moisture chamber at room temperature for 10 minutes. Formalin then was drained off and the slides were dipped into distilled water for 2 minutes. The air dried slides were then stained according to the recommendations of the manufacturer and the examination was performed by an experienced observer.

Abdominal sonographic examination revealed diffuse hepatomegaly. The echogenicity of the liver was normal.

On the 2nd day of hospitalization, the diagnosis of Legionella pneumonia was confirmed and erythromycin 4 g/day was given orally, in addition to inhaler forms of bronchodilator and corticosteroid.

On the 9th day of hospitalization, although he was complaining about mild non-productive cough, physical examination and the X ray of the chest were normal. Then he was discharged on erythromycin treatment.

After a week, while he was under erythromycin treatment, he complained about worsened non-productive cough and breathlessness, especially when he was in bed, and after minimal effort. On physical examination, blood pressure was 100/60 mmHg, pulse rate 120/min and temperature 37° C. He had neck vein distention. On cardiac auscultation, a systolic murmur at the apex and S3 gallop were heard. Bilateral fine rales were heard at the bases of the lungs. The liver was palpable.

Laboratory findings were: hemoglobin 14 g/dl and WBC 14,100/mm³. Liver transaminases were mildly increased. X-ray examination of chest revealed cardiac and hilar enlargement and pulmonary edema appearance. Electrocardiogram showed sinus tachycardia and nonspecific ST abnormalities. Echocardiography displayed left ventricular

dysfunction, and mild mitral regurgitation. Myocarditis and heart failure, as a complication of Legionella pneumonia, was suspected and the patient was hospitalized again.

The patient was given digitalis and diuretics. On the 3rd day of the treatment, his complaints about the cough improved and claimed to have a better effort capacity. On physical examination, cardiac auscultation was normal, and rales were heard in a small area. X-ray of the chest revealed persistent heart enlargement, but pulmonary edema was not as significant as it was before.

On the 4th day of hospitalization, sudden total aphasia and right hemiplegia developed suggesting cerebral emboli. Computed tomography of the brain showed left parietal infarction; and, intravenous therapy with heparin, and corticosteroid was started. Arterial blood gas measurements were: PO₂, 77.6 mmHg; PCO₂, 38.7 mmHg. Repeated echocardiography showed that, ejection fraction of left ventricle was 35%, and a thrombus in the left ventricle was seen (Fig.1).

On the 7th day of hospitalization, diffuse ecchymotic lesions developed on both of the lower extremities which were palpated to be cold. Pulses of both femoral arteries could not be palpated. Acute arterial occlusion was suspected and embolectomy was performed to the both extremities. Next day, both pupils were dilated, decerebration developed, and the patient died.



Fig. 1:

An unusual course of Legionnaire's Disease with myocarditis and thromboembolic complications

DISCUSSION

Pneumonia is the predominant clinical feature in Legionnaire's disease, although extrapulmonary manifestations including heart, gastrointestinal tract, central nervous system can be seen (1,3-6). During Legionella infection, pericarditis, myocarditis and endocarditis may develop (5,7-9). Although myocarditis was generally seen during the dissemination of the infection to the extrathoracic organs and systems (1), in our patient, it was seen after recovering from pneumonia and under erythromycin treatment. Although the patient was under specific treatment for Legionella pneumonia and the disease seemed to be under control, the development of myocarditis and heart failure suggested that the prognosis was unfavorable. In spite of the fact that special treatments for these complications were started immediately, the patient died due to multiple thromboemboli arising from a thrombus in the left ventricle.

To the best of our knowledge, this case is the first reported Legionella pneumonia case with myocarditis and fatal thromboembolic complications.

In conclusion, during the management of Legionella pneumophila pneumonia, more attention should be paid against its unusual but mortal complications such as myocarditis and thromboembolic phenomenon.

REFERENCES

1. Nguyen MH, Stout JE, Yu VL. Legionellosis. *Infect Dis Clin North Am* 1991;5:561-584.
2. Edelstein PH, Meyer RD, Finegold SM. Laboratory diagnosis of Legionnaires' disease. *Am Rev Respir Dis* 1980;121:317-327.
3. Zamottev IP, Sokolova IV, Kamnev IUV, Bormotova MS. A case of successful antibiotic therapy of Legionnaires' disease with lesions of the lungs and heart. *Antibiot Khimioter* 1990;35:43-45.
4. Ruf B, Schurmann D, Horbach I, Fehrenbach FJ, Pohle HD. Incidence and clinical features of community-acquired legionellosis in hospitalized patients. *Eur Respir J* 1989;2:257-262.
5. Pelson DP, Rensimer ER, Burke CM, Raffin TA. Cardiac Legionellosis. *Chest* 1984;86:807-808.
6. Pokrovskii VI, Fokin MA, Belenskii SN, Gruzman GB, Aleshkin N. Nervous system involvement in Legionellosis (Legionnaires' Disease). *Zh Nevropatol Psikhiatr* 1991;91:38-41.
7. Devriendt J, Staroukine M, Schils E, et al. Legionellosis and 'torsades de pointes'. *Acta Cardiol* 1990;45:329-333.
8. Armengol S, Domingo C, Mesalles E. Myocarditis: a rare complication during Legionella infection. *Int J Cardiol* 1992;37:418-420.
9. de Lassence A, Matsiota Bernard P, Valtier B, et al. A case of myocarditis associated with Legionnaires' disease(letter). *Clin Infect Dis* 1994;18:120-121.