CASE REPORT

A FATAL CASE OF *LEPTOSPIRA AUTUMNALIS* INFECTION IN LAO PDR

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Leptospirosis is a common and important illness that causes unknown fever in Thailand and in Indo-China region. *Leptospira autumnalis* is one of the causative agents, commonly seen in Thailand (Sundharagiati, *et al,* 1966 a,b; Bunnag *et al,* 1983) and Vietnam (Berman *et al,* 1973). There has been no report on leptospirosis in Lao PDR in the last 2 decades.

This is a case report on a pregnant woman who died of severe jaundice caused by serologically confirmed leptospirosis by *Leptospira autumnalis.* This, to our knowledge, is the first proven case in Lao PDR.

A 18-year-old Lao pregnant woman who lived in Ban Pao, located 56 km from the center of Vientiane city, had a fever of unknown origin on 25 July 1995. Then 3 days later, she had a fever at 39.8°C with a rash, headache, sore throat, and muscle pains in her calves. Blood pressure was 90/50 mmHg. She was hospitalized at Sethathilath Hospital in the same city on July 31, 1995.

Physical examination on the first day of admission revealed a temperature 36.6°C, pulse rate 85/minute, blood pressure 140/60 mmHg and body weight 46.8 kg. She was in a paralyzed condition and slowly developed conjunctivitis after admission. On the second day, she showed diarrhea 10 stools per day. Body temperature was 38.5°C at 19:20. The third day, her fever was 39.5°C and she had severe abdominal pain at 23:30. The death of her 8 months fetus was confirmed by echography and it was induced still born at 16:24 on the 4th day. She could not eat by herself and the body temperature was still 39.0°C on the 6th day. On the following morning, the body temperature and blood pressure was 37.5°C and 50/30, respectively, and she was clinically diagnosed hepatitis because of her icterus. She was cyanotic with persistent icterus and in severe collapsed condition on the 8th morning; she was admitted to ICU ward at the same hospital. After the 9th day, her body temperature ranged between 39.0° and 39.5°C and her icterus became more serious with confusion until the 12th day; she left the hospital in a serious condition.

Laboratory data on the first day showed a white cell count of 10,200/mm^3, with 75% neutrophils, 25% lymphocytes; the hematocrit was 40%. Urinary examination showed the presence of albumin, pH 6.0 with no sugar, and ketone and blood cells were detected on the first day of admission. Biochemical examination on the 8th day after onset showed transaminase GOT 50, GPT 22, bilirubin T 9.76 and D 4.88, hematocrit 26%. The hematocrit tested 10 days later was 30%.

Blood culture for *Leptospira* was tried on the 10th day of the admission (culture method: 5 ml of blood was added to 50ml of heart infusion broth with rabbit serum). No causative bacteria were found after 13 days of culture. The same day of the culture, 2 ml of the patient's serum was prepared for serodiagnosis of viral hepatitis and leptospirosis. Hbs antigen was negative an EIA test. Serodiagnosis of leptospirosis was also performed retrospectively.

During this hospital confinement, the patient received intravenous ampicillin, intramuscular gentamicin, tetracycline with supportive treatment. However, she was discharged on days 12 and died at her home 14 days after the admission.

Leptospira was not isolated by direct culture of the blood specimen, but a blood specimen collected on the same day was examined by microscopic agglutination test (MAT) titer with antigens. The following antigens were used : *L. icterohaemorrhagiae* (Weil), *L. autumnalis* (Akiyami A), *L. hebdomadis* (Akiyami B) and *L. australis* (Akiyami

C). Results indicated that the serum reacted 1:1,204 or more against *L. autumnalis* (Table 1). The test was performed at the Department of Bacteriology, National Institute of Health, Tokyo, Japan.

Table 1

The results of serodiagnosis on leptospirosis.

Leptospira serogroup	Titer
Icterohaemorrhagiae	64
L. autumnalis	1,024<
L. hebdomadis	256
L. australis	256

This patient was at first suspected to have viral hepatitis although, transaminase levels were not grossly elevated (Berman *et al,* 1973). No leptospira were isolated from the blood culture in this case, but isolation of the organisms from blood culture is not always high, 20% in Vietnam (Berman *et al,* 1973) and 26% in Thailand (Sundharagiati *et al,* 1966b). Serological studies revealed that the patient's serum was highly reactive to Akiyami A antigen (*L. autamnalis*) even after the 16th day of the onset. Berman *et al* (1973) also pointed out that the appearance of antibody is associated with disappearance of leptospira. Therefore, leptospirosis was also taken into consideration by authors.

The patient was a farmer. She was working at paddy field just before the onset. *Leptospira* is a zoonotic disease in which transmission to man takes place by direct contact with water contaminated by rodent urine. Rice fields in her village might harbor leptospiral infection because of stagnant water and muddy soils which are easily contaminated by urine from infected rats. *Bandicota indica,* a common rat in rice fields in Thailand, is an important reservoir host there (Sundharagiati *et al,* 1966 a). An ecological condition similar to Thailand which propagates the rodent population, may give rise to such sporadic cases in Lao PDR. Her possible contact with contaminated water and/or soil is thought to be responsible for the infection.

Generally, *L. autumnalis* is classified as a benign form of illness without death, but the present case pursued an unusual course in which severe icterus might have been enhanced by the extraction of the stillborn fetus.

In Lao PDR, people have a custom that a death outside of the home place cannot be regarded as a proper death in the rural area. This case also followed this custom and the woman died at her home. In addition, the villagers do not automatically assume that pregnant women, febrile jaundiced are free from sudden death. From the public health point of view, it is important to clarify the causative organism in hospital diagnosis, and to explain the results for the villagers through the health education system. Apart from the problems of medical resources in Lao PDR, people's belief in the traditional customs and their approach to illness are strong factors to be considered in case management.

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