

Leptospirosis Case

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ABSTRACT

Leptospirosis is a zoonotic infection that is more commonly found in tropical regions. This spirochete is motile, aerobic, and spiral-shaped with two species: *Leptospira interrogans* and *Leptospira biflexa*. The type that causes infection in humans is *L. interrogans*. The main entry points for infection in humans are the skin and mucosa (cuts and abrasions on the skin and conjunctiva). Animals spread the infection through urine, which is why water pollution plays a significant role in transmission. These bacteria can survive in water for several weeks. Drinking water plays little role in transmission. The incubation period is 2-25 days. After the incubation period, the bacteria spread through the bloodstream and attach to parenchymatous organs, particularly kidneys and liver, causing a rise in temperature.

Keywords: Leptospirosis, Weil's disease, jaundice, renal failure

INTRODUCTION

Leptospirosis is a zoonotic infection that is more commonly found in tropical regions [1-5]. This spirochete is motile, aerobic, and spiral-shaped with two species: *Leptospira interrogans* and *Leptospira biflexa*. The type that causes infection in humans is *L. interrogans* [6]. The main entry points for infection in humans are skin and mucosa (cuts and abrasions on the skin and conjunctiva). Animals spread the infection through urine, which is why water pollution plays a significant role in transmission. These bacteria can survive in water for several weeks. Drinking water plays little role in transmission. The incubation period is 2-25 days. After the incubation period, the bacteria spread through the bloodstream and attach to parenchymatous organs, particularly kidneys and liver, causing a rise in temperature.

Non-icteric forms are observed in 90% of patients with leptospirosis, while Weil's disease, which is characterized by fever, jaundice, bleeding tendency, acute liver and renal failure, is observed in 5-10% of cases. The mortality rate for this disease, which is accompanied by severe jaundice and hepatorenal failure, is very high [2].

Routine laboratory tests are not specific for diagnosing leptospirosis. Diagnosis is made on the basis of the doctor's request and clinical examination, and blood and urine culture and serological tests. Early initiation of antibiotic therapy

plays an important role in controlling infection and reducing mortality [3].

CASE PRESENTATION

A 27-year-old patient with complaints of headache, nausea, fever and gradually increasing jaundice was admitted to the intensive care unit of our hospital. After admission, jaundice, encephalopathy, high fever, and acute renal failure were detected.

The temperature was 37.4 °C, pulse was 140-142 (sinus tachycardia), A/T 90-50, and complete blood count revealed high neutrophil count, and biochemical analysis showed high levels of jaundice and renal failure (Table 1).

DISCUSSION

Weil's disease is a severe clinical form of *Leptospira* infection. In these individuals, the disease can rapidly progress over 5-10 days and can lead to clinical conditions such as jaundice, kidney and liver failure, hypotension, and even coma.

This patient presented with jaundice, bleeding from the mouth and nose, fever, thrombocytopenia, and liver and kidney failure. The presence of hyperbilirubinemia and partially liver failure necessitated further investigation, such as ultrasound examination, to identify any pathology that could



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Table 1. Levels of jaundice and renal failure

	1 day	3 day	7 day	7 day
Hemoglobin (g/dL)	8.8	10.9	8.9	9.5
Leukocyte (mm ³)	24.54	25.79	23.36	11.96
Platelet (mm ³)	104	122	188	450
SGPT (U/L)	25	62	27.0	25.1
SGOT (U/L)	71.7	78	26.1	24.3
Total bilirubin (mg/dL)	53.5	42.3	27.3	14.6
Direct bilirubin (mg/dL)	39.6	32.9	-	-
Na (mmol/L)	136	139	137	140
K (mmol/L)	3.0	3.5	3.8	4.1
Creatinine (mg/dL)	8.2	5.35	2.67	1.88
CRP (mg/dL)	9.4	3.0	1.9	0.9
Procalcitonin (ng/mL)	7.9	6.4	1.51	0.27

SGPT: Serum glutamic oxaloacetic transaminase, SGOT: Serum glutamate pyruvate transaminase, CRP: C-reactive protein

cause jaundice. However, no pathology that could lead to jaundice in the liver or urinary tract was detected during this examination. Although the clinical picture was similar to toxic and viral hepatitis, no virus or toxic substance was identified in the laboratory tests. Toxic and viral hepatitis were excluded. Until the diagnosis was confirmed by laboratory tests, the patient was given penicillin and tetracycline antibiotics, and treatment was continued to maintain electrolyte balance.

Considering the patient's lifestyle, sanitation conditions, and clinical condition, the physician investigated leptospirosis infection at the request of the clinical specialist. *Leptospira* IgM was detected as a positive in the initial examination [4].

One of the main reasons for the high mortality rate in Weil's disease is the development of kidney failure. Hypovolemia, vasoconstriction after endotoxin secretion, ischemia, acute tubular necrosis, and other processes lead to kidney failure.

Despite being a rare infection, the unique aspect of this case was the rapid change in the patient's clinical condition and laboratory parameters (note Table 1, the direct bilirubin increased to 39.6 mg/dL, which is a rare occurrence).

After an accurate diagnosis was made, the patient's clinical condition improved with proper treatment, and this was also reflected in the laboratory tests. The patient was discharged on the condition of following the recommendations.

Ethics

Informed Consent: Informed consent was obtained from the patient.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: U.Z.N., G.R., Concept: U.Z.N., G.R., Design: U.Z.N., G.R., Data Collection or Processing: U.Z.N., G.R., Analysis or Interpretation: U.Z.N., G.R., Literature Search: U.Z.N., G.R., Writing: U.Z.N., G.R.

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