



# Weil's disease, the most severe form of leptospirosis: a rare case report

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## Introduction

Leptospirosis is a zoonosis of worldwide distribution caused by infection with *Leptospira interrogans*, a pathogenic spirochete. Human leptospiral infection results primarily from exposure to the water, soil, and food contaminated with the urine of infected rats or other mammals (1,2). While the majority of patients manifest a very mild, anicteric febrile illness, %5-10 of patients develop a severe form called Weil's disease. (1-3). Weil's disease is characterized by multisystem dysfunction and can present with high fever, significant jaundice, renal failure, hepatic necrosis, and hemorrhagic diathesis. (3). The diagnosis requires a high degree of clinical suspicion because the disease's numerous manifestations can mimic other infections or nonspecific febrile illnesses. Antibiotics should administered be as soon as the diagnosis is suspected. In our case report, we aimed to discuss a case of Weil's disease who presented to the emergency department with diarrhea and had a benign course due to early diagnosis and treatment.

## Case presentation

A 56-year-old male patient with no known disease and no history of regularly used drugs was admitted to the emergency department with diarrhea for two days in addition to complaints of fatigue, malaise and loss of appetite for one week. The patient stated that the color of her urine was dark on the morning of admission and he noticed icterus of his skin and eyes. In the detailed anamnesis, it was learned that the patient had not consumed suspiciously contaminated food recently, had no travel history or hospitalization, but the slum where he lived flooded 10 days ago, the sewage overflowed and he stayed in that water for a period of time. On physical examination, his general condition was moderate-good, conscious and cooperation level were normal, the vital signs were; fever 37.6 °C, pulse 80 beats/min, blood pressure 110/80 mmHg, and respiratory rate 20/min. The patient, whose skin and sclera were icteric, had tenderness in the right upper quadrant. Other system examinations of the patient, who had normal stool contamination in the rectal touch examination, were normal as well. While the digital rectal examination revealed no signs of gastrointestinal bleeding, the patient's other system examinations were also normal. Laboratory findings are summarized in Table 1. While bilirubinuria and hematuria were detected in the urinalysis of the patient, hepatomegaly was observed in the abdominal ultrasonography.

Table 1. Laboratory Parameters

	Value	Units	Reference Interval
Complete Blood Count (CBC)			
Leukocyte	15.64	10 <sup>3</sup> /uL	4.00-10.00
Neutrophil%	84	%	40.00-80.00
Hemoglobin	14	g/dL	12.00-16.00
Hematocrit	40.1	%	40.00-54.00
Thrombocyte	58.00	10 <sup>3</sup> /uL	100.00-400.00
C-reactive protein (CRP)	203	mg/dL	0-5
Creatinine	4.84	mg/dL	0.7-1.2
Blood urea nitrogen (BUN)	217	mg/dL	15.0-40.0
Aspartate aminotransferase (AST)	100	IU/L	5.0-34.0
Alanine aminotransferase (ALT)	71	IU/L	0-41
Total bilirubin	16.56	mg/dl	0-1.2
Direct bilirubin	14.4	mg/dl	0-0.3
HBsAg	0.45	S/CO	<10: negative, ≥10: positive
Anti-HAV IgM	0.04	S/CO	0-0.99: negative
Anti-HCV	0.06	S/CO	0-0.90: negative
Anti-HIV	0.16	S/CO	0-0.99: negative

Weil's disease was considered when the patient's history, physical examination findings and laboratory tests were evaluated together with acute renal failure, thrombocytopenia, jaundice and impaired liver function tests and a preliminary diagnosis of leptospirosis. After hospitalization, blood culture was taken and the patient was started on parenteral Ampicillin sulbactam (4x 2gr) with fluid support. Blood culture sets were negative. Furthermore, the patient, whose clinical and laboratory findings improved completely in the third week of hospitalization, was discharged with full recovery.

## Discussion

Leptospirosis has been an emerging global public health problem because of its increasing incidence in both developing and undeveloped countries. It is a zoonotic disease caused by spirochetes belonging to different pathogenic species of the genus *Leptospira*. Human infection manifests from accidental contact with carrier animals or environment contaminated with leptospire. In a study evaluating 13 cases of leptospirosis in our country, the rate of contamination through the wastewater system was found to be 23% (4). Several hours of exposure to sewage water in the anamnesis of our case suggests that the source is contaminated water.

Although most of the cases are mild, anicteric, and recover without diagnosis (5), it also may progress to Weil's disease with multiple organ failure which case-fatality rate was reported over 30% (6). Weil's disease progresses with liver dysfunction, acute renal failure, hemorrhage and fever; and may cause mortality when left untreated. Since our case was diagnosed in the early period and has not developed sepsis and multi-organ dysfunction yet, the patient had benign course and recovered after three weeks of hospitalization.

In fulminant leptospirosis empirical treatment should be considered as soon as the diagnosis of leptospirosis is suspected. Therapy for patients with fulminant leptospirosis involves parenteral antibiotherapy such as penicillin (1.5 million units IV every 6 h), ampicillin (0.5–1 g IV qid), ceftriaxone (1 g IV daily), or cefotaxime (1 g IV qid) (2,7)

## Conclusion

Weil's disease should be considered in the differential diagnosis of cases with leukocytosis, thrombocytopenia, and especially multiorgan involvement with hepatorenal insufficiency, which may be accompanied by prodromal symptoms such as fever, widespread muscle pain, and diarrhea, as in our case, which are rarely reported in the literature. Antibiotic and supportive treatment should be started as early as possible.

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For detailed information

