



## A Case Study on Weils Disease

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### ABSTRACT

Weils disease is a form of a bacterial infection known as leptospirosis that is carried by animals, most commonly in rats & cattle. It can be caught by humans through contact with rat or cattle urine, most commonly occurring through contaminated fresh water. A 53yrs old man presented to the hospital with fever & general weakness, cold, cough, sepsis with acute pyelonephritis. His general tests are normal except the heart rate. Eventually, an ELISA test confirmed presence of leptospira immunoglobulin M. The patient subsequently recovered after a Course of Intravenous Antibiotics. The case of leptospirosis presented to give a note to the general public & health care providers to the clinical importance to the severe disease.

### Key words:

Leptospirosis,  
Zoonosis.

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### INTRODUCTION

Weils disease is a secondary phase of a bacterial infection known as Leptospirosis. Leptospirosis can infect almost any animal but most commonly it is found in rats & cattle, and spread by their urine. Where it is most common in tropical & subtropical environments. Those who work in or near water are at higher risk than others as it is most commonly passes to humans through water contaminated by cattle urine<sup>1</sup>.

### CASE REPORT

A 53yrs old man of Indian descent with no medical history presented in mid-January to our hospital with chief complaints of fever (101 degrees F), general weakness, cold, cough since 3 days. He owned a cattle feed & take care of them & A Farmer by occupation. Vital signs in the department were notable for a temperature of 101, pulse 94 beats/min and blood pressure of 180/100mm hg. The patient was not responding on day-1 properly. He is drowsy, restless, uncomfortable, tachypnea (38/min), tachycardia (150/min).

### CLINICAL FINDINGS, DIAGNOSTIC ASSESSMENT AND TREATMENT

Initial laboratory study results were notable for a creatinine of 1.7mg/dl, platelets of 1lakh/cumm, red blood cells of 6.8mcl few bacteria are seen/ high power field, total leukocyte count of 15,600 cells/cumm, aspartate aminotransferase (AST) of 50 U/L, serum bilirubin of 1.3 mg/dl, indirect bilirubin of 1.0mg/dl, packed cell volume(PCV) of 32%. The urine analysis showed moderate hematuria but no proteinuria. The ultrasonography reports showed that of fatty liver & mild splenomegaly.

The patient was admitted to the intensive care unit on day 2 for sepsis and multiorgan dysfunction. Fluid management is suggested along with intravenous Piptas and Mevitain SBP >150 with inotropes, intravenous Levoflex were advised to take. The patient was advised for intubation as he has urosepsis with aspiration pneumonia. Patient was with

non invasive ventilation support and intravenous Midazolam was given. Patient is intubated with 7.5cm depth endotracheal tube and fixed at 21cm. The fraction of inspired oxygen is 100%, ventricular tachycardia (VT) is 460ml, positive end expiratory pressure (PEEP) of 4cm water. ELISA test revealed that the leptospira immunoglobulin M in the blood. This shows that the patient was suffering from Weils disease. So, the patient was given with intravenous doxycycline.

**Table no: 01 Day1-5 Treatment History**

DAY	TREATMENT	CARE
Day 1 to day 7	Central line.	Hand hygiene, perineal care, fixation of catheter, position of urban, empty the bag every shift, assessment for early removal.
Day 1 to day 5	Ventilation associated pneumonia infiltration bundle.	Hand hygiene, head end elevation, ET cuff pressure, oral curve, sedation.

The following day patient was found with septic shock with acute kidney injury. Patient is on mechanical ventilator. Fraction of inspired oxygen 80%, ventricular tachycardia of 520ml, blood pressure of 100/80mmhg. The patient's clinical findings are getting normal day by day. As there is a general prescription of drugs like Intravenous Hydrocortisone 10 mg, intravenous doxycycline 100mg, intravenous clarithromycin 500mg were given during hospital treatment. The final clinical findings are almost too normal & his chief complaints were improved and the patient was subsequently discharged. The discharged medications were given with tablet Cepedem 200mg & Tablet Doxycycline 100mg, Cap vibact-DS, Tab Asomex 2.5mg.

## CASE DISCUSSION

Leptospirosis is a zoonosis of worldwide distribution caused by infection with *L. interrogans*, a pathogenic spirochete. The organism infects a variety of animals, especially rodents and animals associated with farming. Human infection usually through work-related contact through skin or mucous membranes with urine from an infected animal or via drinking of or bathing in contaminated water.

It comprises of two distinct clinical phases: septicemic and immune. Humans typically become ill seven to 12 days after exposure to leptospire. The first stage is called the septicemic phase (leptospiremic phase) because the bacteria may be isolated from blood cultures and cerebrospinal fluid (CSF). This phase is characterized by a nonspecific flulike illness with sudden onset of high fever, headache, myalgias and conjunctival suffusion. The second stage is called the immune phase (leptospiruric phase) when circulating antibodies can be detected and the bacteria can be isolated from the urine. This stage occurs as a result of the body's immunologic response by producing immunoglobulin M antibodies and can last longer than one month. During this stage, specific organ damage can be observed. Renal symptoms, such as uremia, azotemia, pyuria and hematuria, may occur. Pulmonary manifestations, although usually benign, can be potentially life threatening and range from chest pain, cough and dyspnea to pulmonary hemorrhage or acute respiratory distress syndrome. An increase in liver enzymes can also occur. Weil's disease is the most severe form of leptospirosis. Patients can present with high fever (>40°C), significant jaundice, renal failure, hepatic necrosis, pulmonary involvement, cardiovascular collapse, neurologic changes and hemorrhagic diathesis, with a variable clinical course. Weil's disease can occur at the end of the first stage and peaks during the second stage but can occur at any time during acute leptospirosis as a single, progressive illness.

Acute renal failure is one of the most common complications of severe leptospirosis. A particularly serious type of lung involvement called severe pulmonary hemorrhagic syndrome is considered to be a major cause of death in patients with Weil's disease in developing countries, with profuse lung hemorrhage dominating the clinical picture. Hepatic dysfunction is usually mild and reversible. Liver dysfunction in severe leptospirosis can be seen as conjugated serum bilirubin levels may increase to above 80 mg/dL, accompanied by modest elevations in transaminases, which rarely exceed 200 U/L.

The current choices of treatment for mild leptospirosis include oral doxycycline and amoxicillin. Parenteral high-dose penicillin G has long been considered the treatment of choice of fulminant leptospirosis. Recent trials have demonstrated that the broad-spectrum third generation cephalosporins cefotaxime and ceftriaxone are also acceptable agents for patients with severe leptospirosis.

## CONCLUSION

In conclusion, leptospirosis has recently come to international attention as a globally important reemerging infectious disease in not only developing countries but in industrialized nations as well. Public health measures to prevent and reduce leptospirosis include identification of contaminated water sources, rodent control, and prohibition of swimming in waters where risk of infection is high and informing persons of the risk involved in recreational water activities.

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