



# Two Leptospirosis Cases Presented with Fever, Anemia, and Hepatosplenomegaly

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## ÖZET

### *Ateş, anemi ve hepatosplenomegali ile başvuran iki leptospirozis olgusu*

Leptospirozis, özellikle ılıman ve tropik iklimlerde olmak üzere, hem kentsel hem de kırsal alanlarda ortaya çıkabilmektedir. Leptospira türlerinin neden olduğu hastalık, subklinik enfeksiyondan yüksek mortalite ile seyreden ciddi, çoklu organ enfeksiyona kadar değişik klinik tablolarla seyredebilmektedir. Ancak, enfeksiyonların büyük bir çoğunluğunun subklinik ya da çok hafif hastalık tablosuyla karakterize olması nedeniyle, hastaların çoğu hekime başvurmamaktadır. Bu yazıda açıklanamayan ateş, anemi ve hepatosplenomegali nedeniyle hastanede izlenen iki leptospirozis olgusu sunulmuştur.

**Anahtar kelimeler:** Leptospirozis, ateş, anemi, hepatosplenomegali

## ABSTRACT

### *Two leptospirosis cases presented with fever, anemia, and hepatosplenomegaly*

Leptospirosis affects humans in both urban and rural areas, and in temperate and tropical climates. The spectrum of human disease caused by leptospires is extremely wide, ranging from subclinical infection to a severe syndrome of multiorgan infection with high mortality. However, the great majority of the infection has either subclinical or very mild illness; hereby, most patients do not seek medical attention. We herein present two patients with leptospirosis hospitalized due to unexplained fever, anemia, and hepatosplenomegaly.

**Key words:** Leptospirosis, fever, anemia, hepatosplenomegaly

Bakırköy Tıp Dergisi 2017;13:107-109

## INTRODUCTION

Leptospirosis is a zoonosis of ubiquitous distribution, caused by infection with pathogenic *Leptospira* species. The spectrum of human disease caused by leptospires is extremely wide, ranging from subclinical infection to a severe syndrome of multiorgan infection with high mortality (1,2). We herein present two patients with leptospirosis hospitalized due to unexplained fever, anemia, and hepatosplenomegaly.

## CASE REPORT

### CASE 1

A 13-year-old boy was admitted to a local hospital with a 1-month history of fever, weakness, fatigue, and decreased appetite with mildly weight loss. He reported that he received nonspecific antibiotherapy with the diagnosis of urinary infection for 10 days. After completing this therapy he had no benefits and was referred to our clinic. His medical and family histories were unremarkable. The patient appeared pale. The temperature was 39°C, the pulse was 100/min. Abdominal examination revealed hepatomegaly palpating 2 cm below the right costal margin, and splenomegaly palpating 3 cm below the left costal margin. Remainder of the examination was within normal limits.

Laboratory findings were: Hematocrit 24.5%; hemoglobin 8.6 g/dL; leukocyte 11.800/mm<sup>3</sup> with 79%

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Geliş tarihi / Date of receipt: 26 Eylül 2013 / September 26, 2013

Kabul tarihi / Date of acceptance: 18 Aralık 2013 / December 18, 2013

neutrophils; erythrocyte sedimentation rate 130 mm/h; serum iron level 25 µg/dL (low); serum total iron-binding capacity 122 µg/dL (low) and serum ferritin level 282 ng/mL (normal). Blood and urine cultures were sterile. Hepatitis A, B and C markers were negative; Rubella IgM and CMV IgM antibodies were negative; Gruber-Widal and Wright serologies were negative. PPD was negative. Leishmania IgG was negative; formol jel was negative. Coombs tests were found to be negative, and there were no findings consistent with hemolysis. The bone marrow smear was normocellular with eritroid hyperplasia, and negative for leishmanias; peripheral blood smear for plasmodiums was negative. Leptospira latex agglutination (LA) test was positive. Blood dark-field examination (DFE) was positive for leptospira; however, urine DFE was negative. Blood and urine cultures were negative for leptospira.

The diagnosis of leptospirosis was made and the patient was started on crystalline penicillin (intravenously 50.000 IU/kg/day for 10 days). In two weeks the fever decreased into normal range and hepatosplenomegaly disappeared. He was very well on his control after one, two and six months of his discharging from our clinic.

## Case 2

A 4-year-old girl was admitted to a local hospital with a 2-month history of fever, decreased appetite, and abdominal pain. After found Wright agglutination test positive she was started on trimethoprim-sulfamethoxazole and gentamycin therapy with the diagnosis of brucellosis. Despite this therapy her complaints did not disappear and she was referred to our clinic. Her medical and family histories were unremarkable. The patient appeared pale. The temperature was 38.5°C, the pulse was 170/min. Abdominal examination revealed hepatomegaly palpating 3 cm below the right costal margin, and splenomegaly palpating 3 cm below the left costal margin. Remainder of the examination was within normal limits.

Laboratory findings were as hematocrit 26.2%; hemoglobin 8.3 g/dL; leukocyte 19.500 /mm<sup>3</sup> with 82% neutrophils; erythrocyte sedimentation rate 102 mm/h; serum iron level 4 µg/dL (low); serum total iron-binding capacity 258 µg/dL (normal) and serum ferritin level 302 ng/mL (normal). Blood and urine cultures were sterile.

Hepatitis A, B and C markers were negative; Rubella IgM and CMV IgM antibodies were negative; Gruber-Widal and Wright serologies were negative. PPD was negative. Direct and indirect Coombs tests were negative. Bone marrow smear was normocellular with eritroid hyperplasia, and negative for leishmanias; the culture on Novy-Nicolle-McNeal (NNN) medium was negative for leishmanias; peripheral blood smear for plasmodiums was negative. DFE and leptospira IgM were positive for leptospira, and blood cultures were negative for 5 consecutive times.

The diagnosis of leptospirosis was made and the patient was started on crystalline penicillin (intravenously 50.000 IU/kg/day for 10 days). In two weeks her complaints recovered; fever decreased into normal range and hepatosplenomegaly disappeared. He was very well on his control after one and three months of his discharging from our clinic.

## DISCUSSION

Leptospirosis affects humans in both urban and rural areas, and in temperate and tropical climates. Indirect contact with water or soil contaminated with infected urine of animals is more common transmission route of human infection (1,2). This infection can emerge with outbreaks in some areas, such as in Latin America, Brazil, India and the United States (3-6). Although leptospirosis has various clinical manifestations and its presentation ranges from the asymptomatic or the milder anicteric form characterized by flu-like symptoms to severe illness with jaundice, the great majority of the infection has either subclinical or very mild illness; hereby, most patients do not seek medical attention (1,2). A smaller proportion of leptospirosis, but the overwhelming majority of the recognized cases, presents with a febrile illness of sudden onset. Other symptoms include chills, headache, myalgia, abdominal pain, conjunctival suffusion, and less often a skin rash (1,2,7,8).

More than 90% of patients with leptospirosis have clinically mild illness that resolves without treatment (7,8). Therefore, this infection cannot be correctly diagnosed in many cases. This may have been because of lack of awareness, its variable clinical manifestations or non-availability of the laboratory test.

It is reported that leptospirosis accounts for almost 30% of cases with fever of unknown origin, and that

hepatomegaly is uncommon in anicteric leptospirosis, but splenomegaly is found in 15-25% of the cases with leptospirosis (7,9). Both of our cases had fever, anemia, and hepatosplenomegaly. However, the patients had not been evaluated with respect to leptospirosis in these hospitals despite of these findings; so the correct diagnosis could not be established.

Anemia can be observed in the course of the disease, hemolytic anemia (both Coombs positive and negative), and anemia due to erythroid hypoplasia has been reported in patients with leptospirosis (10-12). Our patients had severe anemia; however, they did not have hemolysis or iron deficiency, and the bone marrow aspiration performed in both cases did not show any signs of erythroid hypoplasia. With all these findings, the anemia in our patients was most probably due to chronic disease.

A study from this country in 2004 by Polat et al. found positive in 128 sera (65%) by DFE, 112 (57%) by LA

and 102 (51.8%) in a total 197 investigated specimens (13). 102 sera (51.8%) of all specimens cultured became positive. Turan et al. in 2006 leptospirosis diagnosed and treated 22 patients of hospitalized 35 cases in infection clinic of Military Academia (14). An another study from this country by Polat et al. found positive in 57.4% by DFE, 50.3% by culture, 45.4% by LA, 29% by the microscobic agglutination test (MAT) in a total 183 investigated samples. According to this study when culture is accepted as "a gold standard," the sensitivity of MAT was low although this test was accepted highly sensitive by mostly authors (15). These studies from this country have emphasized that leptospirosis is not uncommon in this country.

In conclusion, our two patients show us that the diagnosis of leptospirosis should be considered in a patient with unexplained fever, anemia and/or hepatosplenomegaly, and leptospirosis should be thought in the differential diagnosis of these patients.

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