



A CASE STUDY ON LEPTOSPIROSIS AND HEPATITIS: THE CO-INFECTION PRESENTED WITH FEVER WITH JAUNDICE IN EASTERN PART OF INDIA

General Medicine

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ABSTRACT

The present case report was presenting Leptospirosis and Hepatitis as per the co-infection presented with fever with jaundice in 42-years old female from Eastern part of India. She also had history of non-bilious vomiting, bloody diarrhoea (4-5 episodes per day), pain in abdomen, myalgia. About 2-3 days after admission, she develops yellowish discoloration of both eyes and urine. There was no history of burning micturition, haematuria, rash, addiction, chronic medication and no travel and swimming history. Abdominal ultrasound was performed, indicating hepatomegaly, 'starry sky' appearance of hepatic parenchyma and hepatitis. The serological tests revealed Leptospira IgM positive ELISA, HAV IGM positive ELISA. The present case indicated Leptospirosis and Hepatitis as per the co-infection presented with fever with jaundice in a female patient of eastern India without the history of travel and swimming, but this coinfection was diagnosed and treated.

KEYWORDS

Co-infection, Fever, Hepatitis, Jaundice, Leptospirosis

INTRODUCTION

The pathogenic spirochetes of the genus *Leptospira*¹ are the cause of leptospirosis, a zoonotic disease found worldwide. It is a very underreported illness, especially in tropical climates.¹ The most common zoonotic illness may be indicated by efforts to implement surveillance programs.¹ *Leptospira interrogans*, an aerobic, Gram-negative bacteria,² is the primary pathogenic *Leptospira* species for humans. *Leptospira* species exhibit helical shape, curved ends, and movement in scanning electron micrographs due to two axial flagella beneath the membrane sheath, which are inserted at opposite ends of the cell and extend towards the center region.²

Leptospirosis is endemic throughout the world. Although outbreaks may follow every period of excess rainfall, the peak incidence occurs in the rainy season in tropical regions and the late summer to early fall in temperate regions.³ Leptospirosis is maintained in nature by chronic renal infection of carrier animals.³ The most important reservoirs are rodents and other small mammals, but livestock and companion animals are also significant sources of human infection.^{1,2,3}

Throughout the world, leptospirosis is an endemic disease.⁴ Despite the fact that epidemics can follow every time there is excessive rainfall, the peak incidence is in the rainy season in tropical areas and the late summer to early fall in temperate regions.³ The persistent kidney infection of carrier animals is how leptospirosis is maintained in nature.⁴ Although livestock and companion animals are also major vectors of human infection,^{1,2,3} rodents and other small mammals are the most important reservoirs.

The clinical scale ranges from an asymptomatic or self-limiting, afebrile condition to severe symptoms such Weil's disease along with jaundice, renal failure, haemorrhage, and severe pulmonary haemorrhagic syndrome.^{1,2,3} The risk of getting the illness is increased by socioeconomic status.⁵⁻⁸ Urban slums' proximity to trash and sewage, low socioeconomic position, lower educational level, and inadequate access to safe drinking water and sanitation services all contribute to the risk of infection.⁵⁻¹⁰

Leptospirosis is an occupational disease linked to occupations like mining, sewage maintenance, animal husbandry, and slaughtering.^{9,10,11} Slum life, recreational water immersion, and job exposure in agricultural operations are some of the main causes of many illnesses in affluent nations.^{12,13,14} The likelihood of contracting leptospirosis is increased by outdoor jobs, poverty, proximity to pig farms, and inadequate health education.^{12,13,14}

Participants in a variety of outdoor sports and activities, such as triathletes,¹⁵ kayakers and canoers,^{16,17} rowers,¹⁸ and wild swimmers¹⁹ have also been reported to have leptospirosis.

In this regard, the present case report was presenting Leptospirosis and Hepatitis as per the co-infection presented with fever with jaundice in Eastern part of India.

CASE STUDY

A 42-years old female presented with high grade fever (102°F) for 5 days associated with mild cough and cold for same duration, treated with oral amoxycillin self-medication. She also had history of non-bilious vomiting, bloody diarrhoea (4-5 episodes per day), pain in abdomen, myalgia. About 2-3 days after admission, she develops yellowish discoloration of both eyes and urine. There was no history of burning micturition, haematuria, rash. No history of addiction, chronic medication was there as well as no travel history. No pet exposure. No history of swimming recent past. No menstrual irregularities. Her vitals assessment revealed fever (102°F), tachycardia (120/minute), low blood pressure (116/72 mm Hg), and normal oxygen saturation on room air (SpO₂ 97%, FiO₂ 21%). Other systemic examination was normal.

On examination mild pallor+, icterus+, per abdomen mild tenderness at right hypochondriac region. The neurological examination was normal without any focal neurological deficits. Initial laboratory tests revealed haemoglobin (9.2 gm%), Total Leukocyte count (16400/μL), mildly reduced platelet 1.20 Lakh/cumm- (9.2/16400/1.2), normal count of red blood cells (Figs 1-3).

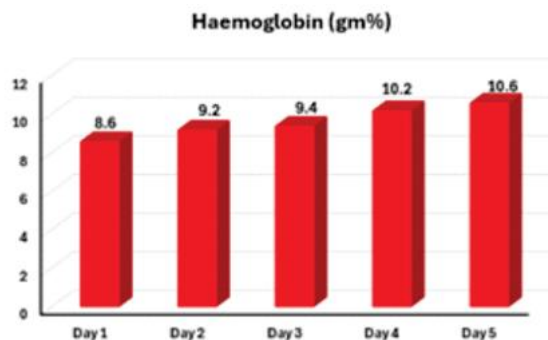


Fig 1: Haemoglobin level

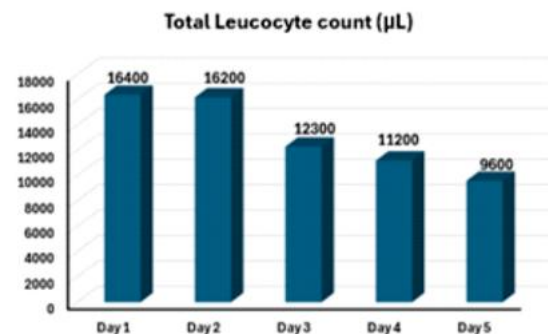


Fig 2: Total Leukocyte count

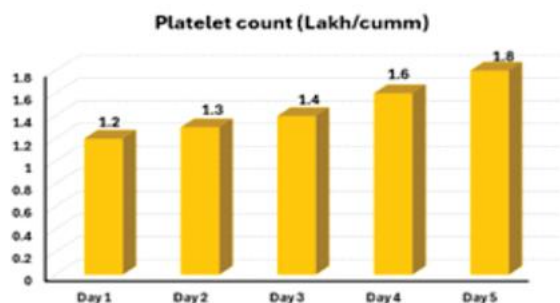


Fig 3: Platelet count

Liver function test (LFT) was extremely deranged as total bilirubin 5.2 mg/dL, and direct bilirubin 3.0 mg/dL, indirect bilirubin 2.2 mg/dL, alkaline phosphatase or ALP 260 U/L, gamma-glutamyl transferase or GGT 72 U/L, aspartate aminotransferase or AST 321 U/L, alanine aminotransferase or ALT 475 U/L. Her creatinine level was normal (0.6 mg/dL). Her C-reactive protein was 70 mg/dL (Normal less than 6) (Figs 4-10).

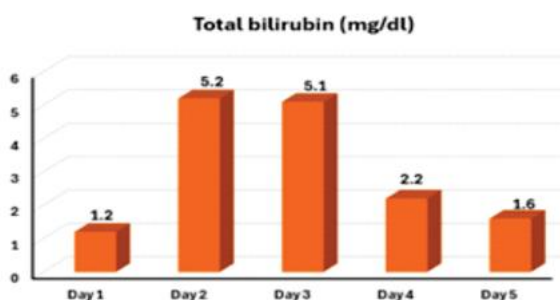


Fig 4: Total bilirubin level

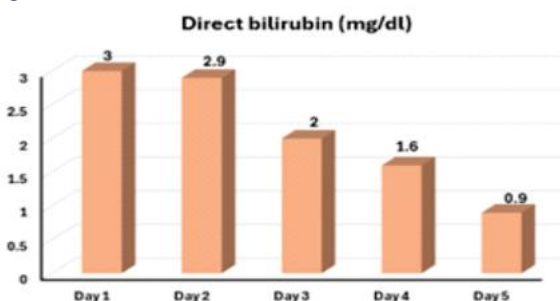


Fig 5: Direct bilirubin level

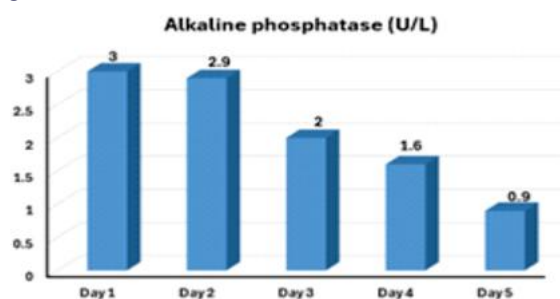
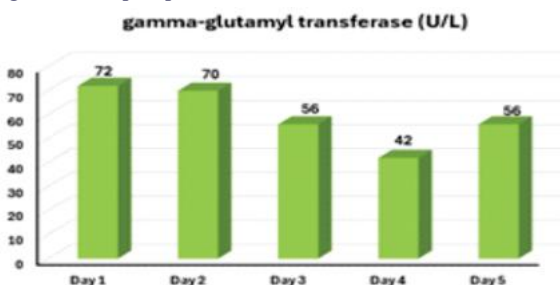


Fig 6: Alkaline phosphatase level



Aspartate aminotransferase (U/L)

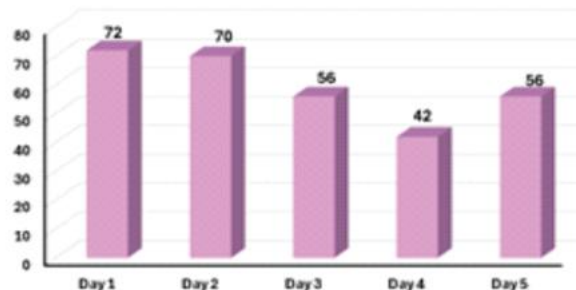


Fig 8: Aspartate aminotransferase level

Alanine aminotransferase (U/L)

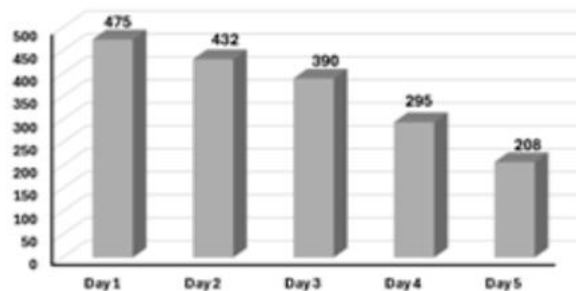


Fig 9: Alanine aminotransferase level

C-Reactive protein (mg/dl)

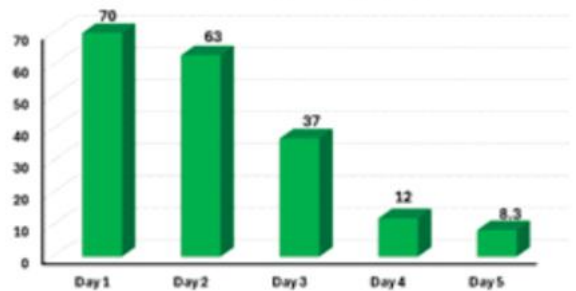


Fig 10: C-reactive protein level

Abdominal ultrasound was performed, indicating hepatomegaly, 'starry sky' appearance of hepatic parenchyma and hepatitis (Fig 11).



Fig 11: Image of USG diagnosis

Blood and urine C/s (Culture and sensitivity) were negative. Stool r/e m/e c/s was not significant. Comprehensive stool panel was negative for all pathogenic bacteria or parasites or viruses, which can cause bloody diarrhoea. Screening for Hepatitis B Virus, Hepatitis C Virus, Hepatitis E virus, Human Immunodeficiency Virus, Malaria, Dengue Cytomegalovirus, and Epstein-Barr virus were all negative.

The serological tests revealed Leptospira IgM positive ELISA, HAV IGM positive ELISA (IgG antibodies negative).

After 21 days of treatment the patient was recovered and discharged from the hospital.

DISCUSSION

Coinfections caused by zoonotic or fecal-orally transmitted diseases are also common in tropical and subtropical regions.^{20,23} However, we report a rare clinical case of an immunocompetent old lady without travel and swimming history but had history of non-bilious vomiting, bloody diarrhoea (4-5 episodes per day), pain in abdomen, myalgia. About 2-3 days after admission, she develops yellowish discoloration of both eyes and urine, who diagnosed co-infection caused by leptospirosis and hepatitis-A from non-endemic site, which has not been reported in the literature.

Abdominal ultrasound was performed, indicating hepatomegaly, 'starry sky' appearance of hepatic parenchyma and hepatitis, which conformed the disease.

Some studies reported that five to ten percent of patients with the moderate anicteric variant of leptospirosis will get a severe icteric form that progresses quickly. It is common for leptospirosis to be misidentified as meningitis or hepatitis.^{13,24} The incubation period ranges from three to twenty-five days. The consensus is that leptospirosis has two phases.⁴ The first symptom is an abrupt start of sickness, the acute leptospiremic phase, also known as anicteric leptospirosis. Those who have it experience flu-like symptoms such fever, chills, headache, and myalgia. They last for around a week. Conjunctivitis is frequently mentioned as a symptom, but it is actually only present in one-third of cases.²⁴

Leptospirosis co-infections in clinical cases have been described in a few published papers. In a case report, Varga et al. described a young man who contracted a triple illness of *Leptospira*, Epstein-Barr virus, and HAV. The onset of symptoms occurred two weeks after the patient spent a holiday in rural Romania.²⁰ With no other known medical condition, the 23-year-old patient exhibited a five-day history of jaundice, cervical adenopathy, high fever, headache, myalgia, and impaired clinical condition.²⁰ The laboratory tests showed a significant case of hepatic cytolysis syndrome.²¹ Due to continuing symptoms despite the initial intravenous (IV) antibiotic therapy with amoxicillin/clavulanic acid following the positive laboratory findings, the medication was changed to ceftriaxone, which resulted in considerable clinical improvement.²⁰ Another uncommon instance of a 48-year-old woman from a rural part of India being infected with leptospirosis and hepatitis B, with high levels of *Salmonella* paratyphi A and scrub typhus, was reported by Damodar et al.²¹ Physical examination revealed that she had been suffering from a high-grade fever with chills, epigastric pain, and cough for two weeks, along with jaundice, conjunctival suffusion, pedal oedema, and facial puffiness.²¹

CONCLUSION

The present case indicated Leptospirosis and Hepatitis as per the coinfection presented with fever with jaundice in a female patient of eastern India without the history of travel and swimming, but this coinfection was diagnosed and treated.

Conflict of interest

None.

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