A case of anicteric leptospirosis presenting with rectal bleeding and hyperpyrexia

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Abstract
Leptospirosis is a globally widespread zoonotic infection caused by Leptospira. In humans, the infection generally occurs by way of direct or indirect contact with infected animal urine. The main clinical symptoms are fever, septicemia, headache, fatigue, and myalgia. The disease usually begins with a high fever. The largest risk factor for leptospirosis is occupational and it includes farmers, ranchers, military personnel, and sewer workers. There is also a risk through recreational exposure such as freshwater swimming and kayaking. This report describes a case of leptospirosis following a course with hyperpyrexia, for the first time in the medical literature.

Introduction
Leptospirosis is a globally widespread anthropozoonotic infection caused by spirochaetes, Leptospira interrogans. In humans, the infection generally occurs by way of direct or indirect contact with infected animal urine. L. interrogans enters the host’s body either by penetration through mucous membranes or through the skin that is broken or macerated due to prolonged immersion in water. The largest risk factor for leptospirosis is occupational and it includes farmers, ranchers, military personnel, and sewer workers. There is also a risk through recreational exposure such as freshwater swimming and kayaking (1,2).

Leptospirosis may cause two clinical syndromes – Anicteric and icteric leptospirosis. The incubation period of leptospirosis is 2-20 days (3). The main clinical symptoms and findings are fever, septicemia, fatigue, myalgia, and jaundice especially in the icteric form of leptospirosis (Weil’s disease). The disease begins with a high fever. During this period, the Leptospira is present in the blood. In the subsequent period, they settle in the kidneys and liver.

Although higher fever is the first symptom in most cases, to the best our knowledge, hyperpyrexia (body temperature >41.5°C) related to leptospirosis has not been described enough in the literature before. This report describes a case of anicteric leptospirosis following a course with hyperpyrexia.

Case Report
A 21-year-old male patient presented with the complaint of recent anal bleeding in the form of drops following defecation. He was hospitalized by the Department of General Surgery. His medical history revealed that he had laparotomy and sigmoid colostomy 13 years ago due to a traffic accident. The colostomy had been closed 1 year later and that neither partial nor total colectomy had been performed. He had been working in the sewage industry as a sewer worker for the past 6 months.

There were no pathological findings except anal fissure at physical examination. The anastomosis line was normal under rectosigmoidoscopy. Ceftriaxone as 1 g twice daily was initiated after a detection of mild fever
after the hospitalization of the patient. On the 2nd day of admission, the patient’s fever reached 43°C at various times of the day (confirmed several times using different thermometers). He had frontal-periorbital throbbing headache and was too weak to stand. Complete blood count was normal except neutrophilia (86%) and mild thrombocytopenia (121,000/mm³). Mild proteinuria was determined in urinalysis. In routine biochemical tests levels of aspartate aminotransferase: 64 IU/L (normal range: 8-40), creatine phosphokinase: 1936 IU/L (normal range: 0-170), lactate dehydrogenase: 462 IU/L (normal range: 220-450) and creatinine: 1.4 mg/dl (normal range: 0.6-1.2) were determined, other values being normal. Apart from neutrophilia, no pathological finding was determined from a peripheral smear. There was no yielding in several hemocultures. Hepatitis B (HB) surface antigen, anti HBC-immunoglobulin M (IgM), anti-hepatitis A virus IgM, anti-hepatitis C virus, Anti HIV, Epstein-Barr virus IgM, cytomegalovirus IgM, Brucella, and Gruber-Widal-group agglutination tests were negative. No abnormality was determined at stool microscopy. Chest X-ray and abdominal ultrasonography were reported to be a normal. Due to the patient’s routine laboratory results, the fact that he was employed as a sewage worker, and the presence of fever accompanying multiorgan deficiency, leptospirosis was suspected. Ceftriaxone was initiated empirically before the suspicion of leptospirosis and then increased body shaking and hyperpyrexia (43°C) was detected. Cold, wet towels were drapes over the patient’s body, and isopropyl alcohol was poured on the distal limbs in an attempt to decrease core body temperature. His fever began to decline on the 3rd day of anti-biotherapy, and there was no fever as of the 4th day. His complaints of headache, widespread myalgia, and weakness were also decreased. Antibiotherapy was completed in 7 days. No spirochetes were observed at leptospirosis dark field examination in a blood sample taken on the 8th day, although the leptospirosis ELISA-IgM and microagglutination tests (in 1/200 titer) were positive.

Discussion

Leptospirosis can be described as a febrile hepatonephritic disease with protean manifestations. Leptospirosis is presented with an anicteric and icteric form in 90% and 10% of cases, respectively (4-6). High fever is a common finding of the leptospirosis. However, fever is usually around the 39-40°C. Hyperpyrexia is defined as an axillary temperature greater than or equal to 41.5°C (7). Hyperpyrexia as well as a 43°C is an outstanding finding for leptospirosis and other infectious diseases in humans.

The status of the patient may be speculated as “hyperthermia” due to leptospirosis. “Hyperthermia” is an elevation of core temperature without elevation of the hypothalamic set point, while fever is that with an elevation of the hypothalamic set point. We differentiated extremely high body temperature in this patient from “hyperthermia syndrome” induced by other possible causes such as drugs, heat stroke, hereditary diseases, and endocrinopathy by history and physical findings. The reason of the hyperpyrexia in this patient was defined as Jarisch-Herxheimer reaction (JHR) due to killing of leptospires by an antibiotic, ceftriaxone in this case. The pathophysiology of the JHR is probably similar to that proposed for other bacterial diseases. It is hypothesized that the release of an endotoxin-like substance from a lysed cell wall of bacteria mediates the release of tumor necrosis factor and interleukins and other cytokines, thus producing the manifestations of sepsis. No therapeutic modality other than supportive care has been proven beneficial for patients who have JHR (8).

This case report describes a case of leptospirosis following a course with significant hyperpyrexia as well as 43°C, possibly due to JHR, for the first time in a human in the literature.

Conclusion

In cases that follow a course with hyperpyrexia, leptospirosis must be considered as an infectious disease, particularly in patients working in damp environments, living in regions with high rainfall, and with low hygienic conditions.

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