

(CASE REPORT)



A concomitant infection of leptospirosis and filariasis

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Abstract

Leptospirosis is a bacterial zoonosis & filariasis is a tropical disease. The causative agent of leptospirosis can be detected in blood, CSF, and urine depending upon the disease progression, while microfilariae are detected in peripheral blood, generally collected during the night. Both diseases are of significant concern as they can lead to serious conditions if untreated at the right time. Here we reported a case of a patient with leptospirosis & filariasis.

Keywords: Leptospirosis; Zoonotic infections; Filariasis; Lymphadenitis

1 Introduction

Leptospirosis, an infectious disease that occurs worldwide and is prevalent mainly in tropical and subtropical regions, is caused by *Leptospira*. The incubation period is short (5-14days) and is an important cause of acute febrile illness. Dark ground microscopy for detecting the spirochete & IgM ELISA for specific antibody detection are the main Laboratory diagnostic techniques used chiefly for their detection. Filarial worms cause filariasis, a neglected tropical disease occurring worldwide. *Wuchereria bancrofti* is the common causative agent accounting for most cases. The adults live in the lymphatics & release microfilariae into the blood circulation of the vertebrate host. Blood & other body fluids are examined microscopically, either directly or for greater sensitivity after the concentration of the parasites. The following is an interesting case of co-infection in a patient with *Leptospira* & filariasis.

2 Case Report

A 39-year-old Male, a known alcoholic and agriculturist by profession, complained of fever for two days and myalgia, jaundice, and abdominal distension for 15 days. Abdominal Pain was insidious in progression, with yellowish discoloration of Urine and a history of bleeding tendencies. The patient has a previous history of hydrocele, the cause of which was found to be filariasis, for which the patient was on regular treatment. On examination, icterus was present. Systemic examination showed Hepatomegaly with mild swelling and abrasions on the right limb; other system examinations were found to be normal.

3 Results

Hematology Reports revealed that his Total Leukocyte count of 14400/ μ l was high, with 70% Neutrophil Left Shift (+). Biochemistry report revealed Hyperbilirubinemia with Total bilirubin 20.3 mg/dl & Bilirubin 15.8mg/dl. Aspartate Amino Transferase (AST) was 202IU/l, Alanine Transaminase (ALT) was 107.0IU/l, Alkaline Phosphatase (ALP) was 109U/l. Creatinine Phosphokinase (CPK) was 4424U/l. Lab reports revealed Leukocytosis and severe thrombocytopenia, deranged LFT, and RFT. CPK was high. In the suspicion of leptospirosis, the patient was started on Piperacillin-tazobactam injection, and four units of Platelets were transfused. Weil felix tube agglutination test was

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negative. Antibodies to *Orientia tsutsugamushi* (Scrub Typhus) IgM ELISA were negative, but Antibodies to *Leptospira* IgM by ELISA were positive. After the patient improved, he was discharged with the required medication advice.

4 Discussion

Leptospirosis and filariasis are two most neglected tropical diseases of significant medical importance. Leptospirosis manifests in two clinical syndromic forms, mild anicteric febrile illness & Weil's disease. The most common presentations of Lymphatic filariasis are asymptomatic microfilaremia, acute lymphangitis, and the chronic lymphatic disease called elephantiasis. In literature, the co-infections of *Leptospira* with Dengue (1,2,3), Scrub Typhus(4,5), and Hantavirus(6) have been reported, while with filariasis co-infections with malaria (7,8), Malaria & Dengue(9) are some of the cases that have been reported previously. In the present case, we have reported a co-infection of filariasis with leptospirosis in a patient. Clinical diagnosis is challenging for physicians when the clinical picture is confusing, especially when the patient suffers from multiple infectious etiologies. Accurate diagnosis plays a vital role in properly managing these patients. Recent studies show that filarial worms, apart from being associated with infections in the immunocompromised host, have well-defined mechanisms to invade a healthy host and establish within.

Due to this, newer biochemical and molecular tools have increasingly been applied for their identification in blood or lymphatic samples. The pathogenic effect of this organism is mainly because of swelling of the extremities, hydroceles, and testicular masses. The mosquito deposits larvae into the bloodstream. They take up residence in the lymph nodes and grow into adult worms. The larvae have a predilection for depositing in femoral lymph nodes. With the proliferation of adult worms, the lymphatics become occluded, which disrupts the lymphatic drainage and increases the susceptibility to repeated infections - most notably streptococcal and fungal infections. However, we have not found any case of commitment leptospira in patients with filariasis. Infection by pathogenic strains of *Leptospira* commonly occurs through direct contact with infected animal urine or indirectly through contaminated water. Rats are the primary carriers in most human leptospirosis, excreting high concentrations of leptospire. *Leptospira* enters the body via cuts or abrasions in the skin or through mucous membranes of the eyes, nose, or throat. Our patient had previous H/O filariasis, mild swelling, and abrasions on the limbs. The possibility of leptospira entering through limbs through contact with contaminated water cannot be ruled out.

5 Conclusion

Leptospirosis is self-limiting and often clinically inapparent in most cases; while most patients with filariasis appear clinically asymptomatic, virtually all have subclinical disease. The emergence of dual infection complicates the situation of the patient. Therefore increased awareness of the ability to diagnose concomitant infection early is essential to start appropriate treatment and supportive measures that can help to reduce morbidity and mortality.

Compliance with ethical standards

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Disclosure of conflict of interest

Authors declare no Conflict of Interest.

Statement of informed consent

Informed consent have not been taken as data was compiled retrospectively

References

- [1] BAGS Concomitant infection of leptospirosis with dengue at a tertiary care hospital in Chennai. Journal of Evolution of Medical and Dental Sciences. 2014;3(8):1823-1827.
- [2] Sethi S, Ratho R, Mishra B, Singhal L. Leptospirosis coexistent with dengue fever: A diagnostic dilemma. Journal of Global Infectious Diseases. 2013;5(3):121.

- [3] Chopdekar KA, Patil SS, Lilani SP, Joshi AA and Chowdhary A. Concomitant leptospirosis and dengue infections. *JIM* 2014;15(3-4):258-259.
- [4] Biswas D, Borkakoty B, Jakharia A, Mahanta J. Co-infection of scrub typhus and leptospirosis in patients with pyrexia of unknown origin in Longding district of Arunachal Pradesh in 2013. *Indian Journal of Medical Microbiology*. 2016;34(1):88.
- [5] Mahajan S, Babu NM S, Singh D, Kanga A, Kaushal S. Scrub typhus and leptospirosis co-infection in Himalayan region. *Tropical Doctor*. 2012;42(3):176-177.
- [6] SUNIL-CHANDRA N, CLEMENT J, MAES P, DE SILVA H, VAN ESBROECK M, VAN RANST M. Concomitant leptospirosis-hantavirus co-infection in acute patients hospitalized in Sri Lanka: implications for a potentially worldwide underestimated problem. *Epidemiology and Infection*. 2015;143(10):2081-2093.
- [7] Al-Riyami A, Al-Khabori M. Concomitant microfilaria and malaria infection. *Blood*. 2013;121(22):4437-4437.
- [8] Sujatha R, Pal N. Concomitant of Malaria and Filariasis in Peripheral Blood Smear Incidentally. *Rama Univ. J. Med Sci* 2015;1(1):52-53.
- [9] Rawat V, Khalil M, Satyawali V, Pandey S. Triple co-infection of malaria, filaria, and dengue: A rare entity. *Journal of Laboratory Physicians*. 2014;6(2):136.