CASE REPORT

Leptospirosis in a male patient with systemic lupus erythematosus: A case report

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Abstract

Leptospirosis is an under-reported infection occurring in individuals associated with the agricultural industry. However, its co-existence with Systemic Lupus Erythematosus (SLE) is rare, with only two reported cases present in medical literature. We present the case of a male patient who came with the complaint of fever, right upper quadrant pain, and shortness of breath in an outpatient clinic of Jinnah Hospital, Lahore. Physical examination revealed an erythematous facial rash that worsened on exposure to sunlight. Laboratory findings included impaired renal function tests, pancytopenia, positive ANA and anti-dsDNA antibodies. Imaging revealed lesions in the liver as well as pleural and pericardial effusion. The patient was treated with a combination of antibiotics for leptospirosis infection and corticosteroids for the management of SLE. This case is significant because it highlights the importance of keeping in mind autoimmune conditions as a differential diagnosis when dealing with symptoms of multisystem involvement.

MeSH Keywords: Leptospirosis, Systemic lupus erythematosus, Agricultural workers' diseases, Weil disease, Developing countries.

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Introduction

Leptospirosis is a zoonotic disease caused by a bacterium named Leptospira and is common in middle- and low-income countries.[1] It usually occurs when the human skin comes in contact with water and/or soil contaminated with infected animal urine.[2] Risk factors that predispose an individual to the infection include working in fields and farms, having an open water source, swimming in rivers and walking barefoot, especially in countries that are largely agricultural in nature.[3] Classified as a 'Neglected Tropical Disease', it is under-reported and poorly understood.[4]

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The disease has a significantly high proportion (15%-40%) of infections of a subclinical and asymptomatic nature, with only 10 percent of the patients presenting to hospitals with general symptoms of malaise, myalgia, and fever, while pulmonary haemorrhage is deemed as the most fatal complication of the infection.[5] Systemic Lupus Erythematosus (SLE) is an autoimmune disorder involving multiple systems that predominantly affects women.[6] The data on co-existing SLE and leptospirosis is limited and only two cases have been reported.[7,8] It was a new diagnosis of leptospirosis and SLE in the current patient. This case is of importance because it signifies the need of including autoimmune diseases as differential diagnosis when dealing with symptoms of an unknown aetiology, especially in male patients.

The patient's consent was taken for the publication of the report.

Case Summary

A 30-year-old male farmer presented in outpatient clinic of Jinnah Hospital, Lahore in January 2024, with a six-month history of fever, complaint of right hypochondrial pain for two months, and shortness of breath for one month. The patient also reported other symptoms such as chest pain, loss of appetite due to pain, belching, and constipation. He had noticed a weight loss of 5kg in the preceding five months. The co-morbidities included hypertension which was diagnosed a year ago, though no significant history for any other long-term illness was present.

Ultrasound performed earlier had shown multiple hyperechoic nodules in all segments of the liver, a characteristic highly suspicious for malignancy. Additionally, there was mild ascites and left-sided pleural effusion.

Further workup revealed negative serology for Hepatitis B and C and lesions in the liver similar to prior ultrasound with the largest one measuring 1.8cm in the right lobe. His renal function tests were deranged [creatinine=2.5 mg/dl (normal=0.6-1.2 mg/dl)], transaminases were raised with pancytopenia on complete blood count. His test for Leptospira IgM antibodies was positive. CT scan of the abdomen confirmed the presence of multiple nodules in the liver with pleural effusion (Figure 1) and pericardial

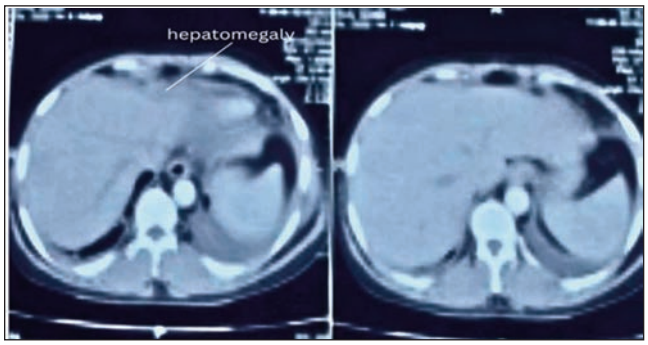

Figure-1: CT scan with contrast showing hepatomegaly and pleural effusion.

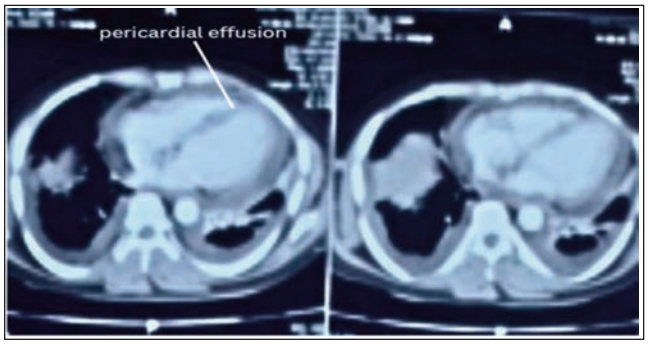

Figure-2: CT scan showing pericardial effusion

effusion (Figure 2). Large volume pericardial effusion was confirmed on echocardiography.

The patient's history was positive for an erythematous facial rash which exacerbated on exposure to sunlight, hinting towards suspected SLE. No other signs of SLE were noted. On testing, a homogenous pattern of ANA antibodies was reported. The patient's C3 levels were noted to be low [65 mg/dl (normal= 75-175 mg/dl)]. His anti-dsDNA antibodies were also raised, with a value of 150 IU/ml (normal= 0 to 25 IU/ml), confirming the diagnosis of SLE and also explaining the impaired renal function, which may have been exacerbated by the superimposed leptospirosis infection. Additional findings supporting the diagnosis included fever, pleural effusion, pericardial effusion, leukopenia, thrombocytopenia, and the characteristic "butterfly rash".

The patient was managed by a multidisciplinary team comprising an internist, nephrologist, rheumatologist, and infectious disease consultant. A combination of antibiotics including Metronidazole, Ceftriaxone, and Doxycycline was started for seven days. Additionally, Prednisolone was advised for the management of SLE for one month with gradual tapering of dose on follow-up. He was discharged when his symptoms settled.

On follow-up after one month, the patient was noted to be compliant with medications for SLE, while no symptoms pertinent to leptospirosis were reported.

Discussion

Leptospirosis has rarely been described in patients of systemic lupus erythematosus which in itself is unusual in the male gender. Only two similar cases have been described in literature[7,8] and both had presented with deranged liver function tests and a positive travel history. A history of shortness of breath, with findings of pleural and pericardial effusion were present in one of these cases,[7] similar to the patient under study. Additionally, signs of SLE including, but not limited to, a diffuse scaly rash, ascites, alopecia, and facial swelling were present in both the cases. In both the cases, the patients were treated with antibiotics like Doxycycline and Piperacillin and immunosuppressive agents.[7,8]

It has been postulated that patients with SLE are more likely to develop infectious diseases due to altered and defective pathways of immunologic defence. Therefore, it is important to identify the presence of a concurrent infection prior to initiation of immunosuppressive therapy, so as to prevent aggravation of the infection.[9] The most important laboratory findings, posing a high degree of reliability in distinguishing SLE flares from infectious causes, are C-reactive protein and leukocyte count, both of which remain unchanged in flares, and rise in infections.[10]

Conclusion

This reported case has highlighted the need to suspect unusual infections with undiagnosed underlying autoimmune disease in a patient presenting with multisystem clinical manifestations. The case demonstrates that in regions with high prevalence of tropical diseases like leptospirosis, clinicians should suspect other underlying diagnoses in multisystem involvement, e.g. autoimmune disease like SLE.

The diagnostic process can be complicated in immune mediated diseases like SLE, especially with superadded infection due to overlapping symptoms and atypical presentations. High degree of suspicion can lead to early diagnosis and prompt treatment in such situation which can facilitate an uneventful recovery, thus avoiding high morbidity and mortality associated with such complex clinical scenarios as in this case.

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