



Case Report

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**Atrial fibrillation and symmetrical peripheral gangrene:
As a rare presentation in case of Leptospirosis**

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Abstract

60 year old non smoker, non-diabetic, normotensive male patient presented with 10 days history of fever and myalgia. On presentation patient had Atrial fibrillation with haemodynamic instability. On investigation he had thrombocytopenia with hepatic and renal dysfunction. 2D-Echo was within normal limits. He did not have any known cardiac risk factors except for age and sex. His IgM leptospira was positive. Patient was managed conservatively with Inj. Ceftriaxone and other supportive care. During hospital stay patient developed gangrene of lower extremities which was controlled with steroids and analgesics. With treatment his hepatic and renal impairment also improved in 25 days. Patient was discharged in satisfactory condition.

Keywords: Atrial fibrillation, gangrene, leptospira.

Introduction

Leptospirosis is an important zoonotic disease with varied clinical manifestations in a biphasic manner and is endemic in many parts of India. Common manifestations are hepato-renal involvement & thrombocytopenia. In untreated cases, multisystemic complications are common.

Cardiac arrhythmia is very rare in leptospirosis. This case is presented due to rare occurrence of atrial fibrillation and vasculitis leading to peripheral gangrene in a 60 year male with leptospirosis, having no other risk factors for cardiac illness.

Case Report

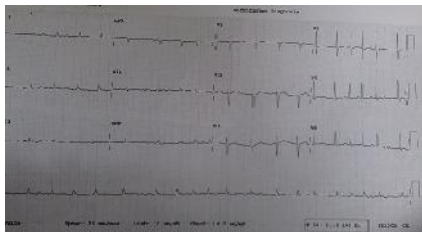
A 60 year old non smoker, non alcoholic moderately built male presented with history of episodic high grade fever with chills and rigors of 10 days duration associated with myalgia and abdominal discomfort. There was history of breathlessness. He had high colored urine with reduced urine output since two days prior to admission. There was no history of hypertension, diabetes or cardiac disease in the past.

At the time of admission his vitals were: Pulse rate 112/min, irregularly irregular. BP-110/70 mm Hg, Respiratory rate -22/min, Temp-101°F . There was no hepatosplenomegaly or free fluid in abdomen. Chest examination shows normal vesicular sounds with equal air entry and fine inspiratory crepitations on both lung fields. There was no murmur. His nervous system was unremarkable.

His atrial fibrillation was treated with DC shock. Serial monitoring reveals improvement in hepatic and renal dysfunction and thrombocytopenia. On 15th day, patient developed gangrene of lower extremities.

His initial investigations are as follows:

Hb -13.6 gm%, TLC-8800 / cumm, Platelet-60000/cumm, Blood urea nitrogen-65mg/dl, S.creatinine - 2.77 mg/dl, Total bilirubin-5.7 mg/dl, direct bilirubin-4.44 mg/dl, SGOT-144 U/L, SGPT-91 U/L, Sodium-130 mmol/L, potassium-4.1 mmol/L. Test for malaria, typhoid and dengue were negative. Troprnin I <0.005 ng/ml, CPK-MB-13.9 ng/ml. 2D-Echo was WNL. ECG showed atrial fibrillation with fast ventricular rate. Because of poor response to treatment and further deterioration leptospirosis was kept as possibility and evaluated. Investigation revealed IgM antibody for leptospira positive.



Differential diagnosis

Short duration of fever, myalgia, icterus, thrombocytopenia, and azotemia are very typical features of leptospirosis. Positive leptospira serological test (IgM antibody positive), high CPK, hyperbilirubinemia with normal liver enzymes and azotemia helped us to confirm leptospirosis, and initiate early appropriate therapy. Similar clinical picture may appear in malaria & dengue fever also. In malaria, splenomegaly is a common feature. In this patient, peripheral smear was negative for malaria parasite & dengue serology was negative. Paroxysmal

atrial fibrillation in OLD aged male is commonly due to Ischemic heart disease, Hypertension or RHD. Apart from structural heart disease, AF can occur in various situations of fever, alcohol intake, and disorders of electrolytes or hemodynamic changes. In this case of confirmed leptospirosis, in spite of patient being non-smoker, non-diabetic, normotensive, normal left atrial size & no evidence of LVH, RWMA or valvular lesion by echocardiography, the paroxysms of atrial fibrillation may be a coincidence or may be considered as an unusual association of leptospirosis.



Treatment

He was treated with IV INJ. Ceftriaxone, paracetamol, IV fluids and other supportive medications. Stringent monitoring of BP, urine output and for bleeding or any complications was done.

Discussion

Leptospirosis is a globally important zoonotic disease, caused by spirochaetes of leptospira species with several serotypes like *L. icterohaemorrhagiae*, *L. canicola*, *L. pomona*, *L. grippityphosa*, *L. bratislava*. The infection is commonly transmitted to humans either through direct contact with urine of infected animals or through contact with water, soil, or food contaminated with the urine of infected animals. The bacteria can enter the body either through intact and abraded skin or through mucous membranes of eyes, nose, or mouth. It is a major health problem in developing countries.^[1]

Leptospirosis is a biphasic illness, begins with fever, chills, myalgia and intense headache. The first phase resolves and the patient is briefly asymptomatic until the second phase begins. This is characterized by hepatic and renal involvement and sometimes as meningitis. The severe form of the disease with hepato-renal damage is known as Weil's disease. Common complications are thrombocytopenia, DIC, acute tubular necrosis and ARDS. Cardiac complications such as chest pain, arrhythmias, pulmonary oedema and refractory shock have been reported in patients with severe disease.^[2]

The presence of transient ECG abnormalities such as sinus tachycardia, non-specific ventricular repolarisation disturbances, bundle branch block or ventricular conduction disturbances and atrial fibrillation are rarely reported and possibly are caused by the direct effect of leptospira or febrile disease with a combination of metabolic and electrolyte abnormalities.^[3]

Poor prognostic factors in leptospirosis are advanced age, clinically evident pulmonary involvement, oliguria, impaired renal functions & thrombocytopenia.^[1]

Cardiac involvement demonstrated electrocardiographically or clinically, tends to predict poor outcome. No specific therapies are available to prevent or treat cardiac involvement in leptospirosis; current management of complications is based on correction of deranged homeostasis and supportive therapy.^[2]

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