Case Report

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Wandering Pace Maker in Dengue Fever

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Abstract

Dengue is one of the most important emerging viral diseases globally. The majority of infections follow a relatively benign disease course. However, a small proportion of patients develop severe clinical manifestations, including bleeding, organ impairment, and endothelial dysfunction, eventually cardiovascular collapse. Evidence is increasing that dengue can also cause myocardial impairment, arrhythmias and, occasionally, fulminant myocarditis. We report a case of ayoung male patient who presented as a prototype case of dengue myocarditis, except for an extremely rare occurrence of a wandering pacemaker which was detected on a routine ECG. This case emphasizes the importance to keep a trained & vigilant eye, even in the face of what appears routine.

Keywords: Wandering Pace Maker; Dengue; Dengue Haemorrhagic Fever; Dengue Shock Syndrome.

Introduction

Dengue, an arboviral disease caused by a flavivirus is transmitted by the *Aëdesaegypti* mosquito [1]. Dengue virus has four antigenically distinct serotypes (DEN 1, DEN 2, DEN 3, and DEN 4). Dengue may remain asymptomatic or manifest as undifferentiated fever (or viral syndromes), dengue fever, dengue shock syndrome (DSS), or dengue hemorrhagic fever (DHF). An increasing number of cases of dengue are being reported with atypical presentations as frequent epidemics are occurring. As awareness of this disease is increasing, rare manifestations are also being reported.

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Case Report

A 24 year-old previously healthy male presented to the Emergency Department with the history of fever with chills, diffuse abdominal pain since 5 days and of haematuria since 1 day. He had a axillary temperature of 100 F, blood pressure of 86/60 mmHg,

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respiratory rate of 20 / min and Pulse rate of 46 / min. Central nervous system, Respiratory and Cardiovascular system examination was normal. Abdominal examination revealed diffuse tenderness. There was mild free fluid in the abdominal cavity. Laboratory investigation like hemogram revealed anHemoglobin of 12 gm%, TLC 8400 / mm 3 and platelet count 9,000 / mm 3. His urea was 30mg / dl and creatinine of 1.03 mg / dL, serum Sodium was 138mmol / L, and liver function tests were normal. In view of recent outbreak of dengue and leptospirosis in our area, serology for dengue, leptospira and malaria was sent. His Dengue serology for IgM and IgG turned out to be positive but serology for leptospira and malaria were negative. Ultrasound of the abdomen revealed minimal pleural effusion and minimal ascites and distended gall bladder. ECG was taken it showed wandering pacemaker. Echocardiography was done it showed no regional wall motion abnormality with normal ventricular function.

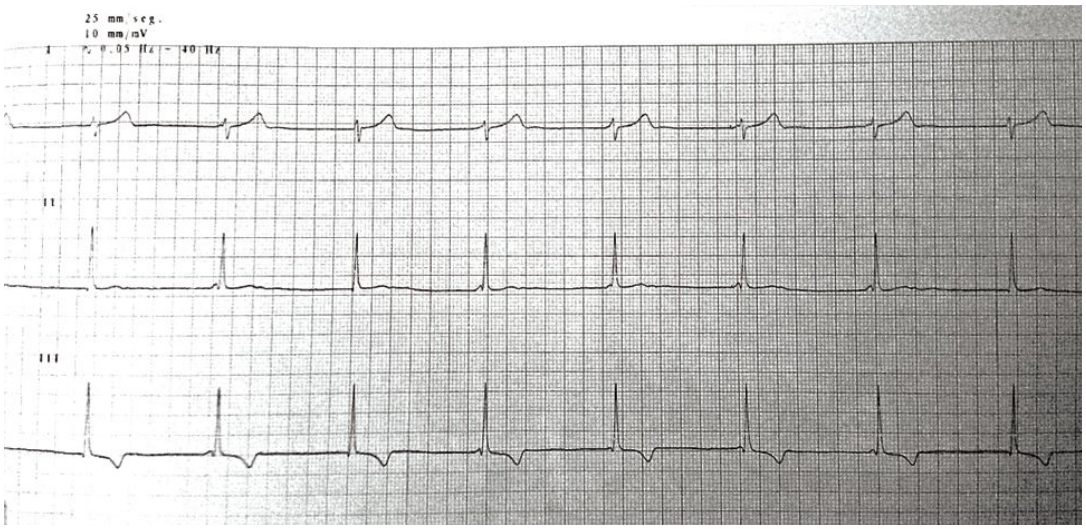

Fig. 1: ECG showing wandering pace maker with changing P wave morphology

The patient was fluid resuscitated and shifted to intensive care unit where he was symptomatically managed with IV fluids, antiemetics, platelet transfusion and close monitoring. There were no bleeding episodes, he maintained good urine output during the hospital stay. In view of significant thrombocytopenia, he received total of 6 units of platelet rich plasma (PRP). His general condition gradually improved with improvement of platelet count. ECG was repeated daily, on the 4th day ECG was reverted to normal sinus rhythm with heart rate of 70 and blood pressure of 120 / 70 mm of Hg. Patient got discharged after one week of admission.

Discussion

Dengue infections are caused by a flavivirus which has four serotypes (DEN 1-4). It is the commonest arbovirus and a common cause of haemorrhagic fever in the world.

The clinical presentation of the disease ranges from simple undifferentiated viral fever to Dengue Haemorrhagic fever and Dengue Shock Syndrome.

The clinical manifestations of cardiac complications in dengue illness vary considerably. At one end of the clinical spectrum, patients are asymptomatic or have mild cardiac symptoms despite relative bradycardia, transient atrioventricular block, and / or ventricular arrhythmia [2,3,4]. At the other severe end, patients may experience acute pulmonary edema and / or cardiogenic shock due to severe myocardial cell damage with left ventricular failure.

A wandering atrial pacemaker, (WAP), is an atrial arrhythmia that occurs when the natural cardiac pacemaker site shifts between the sinoatrial node (SA node), the atria, and / or the atrioventricular node (AV node). This shifting of the pacemaker from the SA node to adjacent tissues is identifiable on ECG Lead II by morphological changes in the P-wave; sinus beats have smooth upright P waves, while atrial beats have flattened, notched, or diphasic P-waves. It is often seen in the very young, very old, in athletes and rarely causes symptoms or requires treatment. Wandering pacemaker is usually caused by varying vagal tone. With increased vagal tone the SA Node slows, allowing a pacemaker in the atria or AV Nodal area, which may briefly become slightly

faster. After vagal tone decreases, the SA Node assumes its natural pace.

Wandering atrial pacemaker in dengue fever not clearly understood. Dengue fever may result either from direct DEN invasion of the cardiac muscles or a cytokine-mediated immunological response, or both. The upsurge in serum tumor necrosis factor-a, interleukins 6, 13 and 18, and cytotoxic factors in patients with dengue illness lead to increased vascular permeability and shock leading to increased vagal tone leading toshifting of the pacemaker from the SA node to adjacent tissues [5,6].

Here we report a rare case of wandering pace maker in as a rare confounding association in dengue infection mimicking dengue shock syndrome (DSS).

Conclusion

Our case report shows that cardiac complications are not uncommon in dengue illness. Although it was a self-limiting presentation in our patient, we report a rare case of wandering pace maker as an extremely rare confounding association in dengue infection.

Referneces

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