



## Classical Dengue Fever with Transient 2<sup>nd</sup> Degree Mobitz Type 1 Heart Block-Case Report

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### Abstract

Dengue fever is one of the most important emerging viral diseases globally. Cardiovascular manifestations are more common in Dengue Shock Syndrome (DSS) and Dengue Hemorrhagic Fever (DHF) than in classical Dengue fever. Here we present a case of classical Dengue fever with transient reversible cardiac conduction disturbance in the form of 2nd degree Mobitz type 1 heart block (Wenckebach phenomenon) which is extremely rare. This case also highlights the importance of monitoring the pulse of the patient which can detect early abnormalities in cardiac rhythm.

### Introduction

Dengue fever is the most prevalent mosquito-borne viral disease. Symptomatic dengue virus infections can present with a wide range of clinical manifestations, from a mild febrile illness to a life-threatening shock syndrome or organ dysfunction. The most common cardiac manifestation of Dengue viral infection is myocarditis. Abnormalities of cardiac rhythm are a recognized complication of myocarditis and have been reported in association with Dengue cardiac involvement. A-V blocks are, however, a rare complication of Dengue myocarditis. Cardiac dysfunction associated with the acute phase of Dengue fever has been under diagnosed in clinical practice.

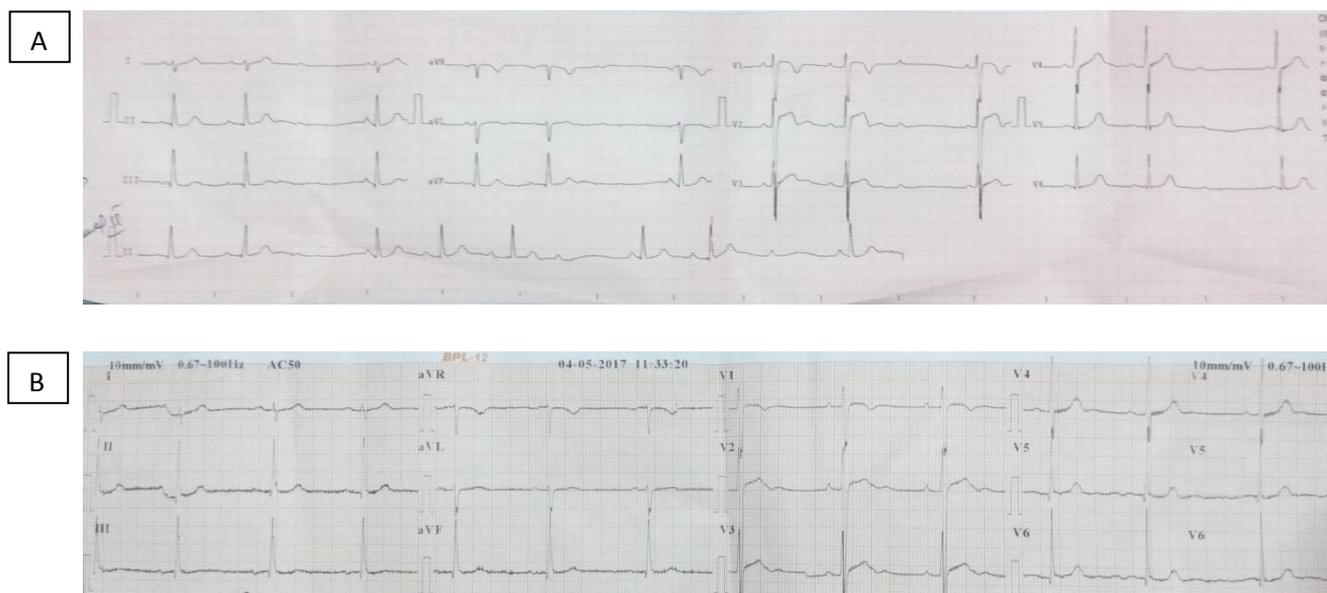
### Case Report

A 16 years old male patient presented with 2 days history of fever and sore throat. No significant history in the past. On examination, there is facial hyperemia with eye congestion and throat congestion. No regional lymphadenopathy or hemorrhagic tendency. Vital signs: Pulse-60 bpm with occasional ectopics, BP-120/70 mm of Hg, Respiratory rate-16/minute, Temperature-102<sup>o</sup>F. Systemic examinations were found to be normal. Clinically, we suspected the possibility of viral fever (probable Dengue) and was investigated. Routine blood examination: Hb-15.5, PCV-47.2, TC-3800, DC-P68 L20 Mx12, Platelet-27000, ESR-15, LFT, RFT, Serum Electrolytes, RBS, TFT, Lipid profile and URE were normal. X ray

chest normal. ECG taken was suggestive of 2<sup>nd</sup> degree Mobitz type 1 heart block (Wenckebach phenomenon). Repeat ECG after 24 hours was normal. Subsequent ECGs were normal. Follow up ECG after 2 weeks was also normal. S.CPK-MB, Troponin-I, HS-CRP and Myoglobin were normal. Dengue NS1 antigen-Positive. Dengue Ig M antibody on 4<sup>th</sup> day showing a high titre.USG Abdomen-Normal. In view of the clinical findings and investigations (Dengue NS1 antigen-Positive and Dengue Ig M

antibody-Positive), a diagnosis of classical Dengue fever was considered with cardiac involvement in the form of transient reversible conduction disturbance.

In our patient, there is no evidence of hemorrhagic tendency or DSS with transient reversible cardiac conduction disturbance in the form of 2<sup>nd</sup> degree Mobitz type 1 heart block (Wenckebach phenomenon) in the absence of elevated cardiac biomarkers which is extremely rare.



**Fig.1** A, 2<sup>nd</sup> degree Mobitz type 1 heart block (Wenckebach phenomenon) in a patient with Dengue fever. B, Normal rhythm after 24 hours.

### Discussion

Dengue fever is one of the most important emerging viral diseases globally. The majority of symptomatic infections result in a relatively benign disease course. A small proportion of patients develop severe clinical manifestations including bleeding, organ impairment and endothelial dysfunction with increased capillary permeability causing hypovolemic shock that can lead to cardiovascular collapse. Various studies have shown that incidence of cardiovascular manifestations was more common in DSS(50-55%), common in patients with DHF(30-35%) and less common in classical Dengue fever. Although, cardiac manifestations specific to Dengue are rare, depression of myocardial

function is frequent in DHF and DSS. Although shock in DHF and DSS has been attributed largely to decreased intravascular volume due to capillary leakage of plasma into the interstitial space, a few recent studies have reported that it may be due to cardiac involvement. Among the cardiac conduction disturbances, most of the studies are showing sinus bradycardia, sinus tachycardia, Nonspecific ST-T changes, first degree AV block and RBBB. Most of the patients are showing a raised CPK-MB and Troponin-I. Subsequent ECG (usually within 7 days) showed a normal rhythm and heart rate in all the patients. In our patient there is no clinical evidence of hemorrhagic tendency or DSS and ECG taken on first day of admission showing a 2<sup>nd</sup> degree Mobitz type 1

heart block (Wenckebach phenomenon) which was reverted back to normal within 24 hours raised the possibility of reversible subclinical myocarditis.

### **Conclusions**

Rhythm disturbances are rare but potentially fatal cardiac manifestation of Dengue fever. Cardiovascular manifestations are more common in DSS and DHF and less common in classical Dengue fever. There can be transient rhythm abnormality in patients with Dengue fever. Transient reversible cardiac conduction disturbance in the form of 2<sup>nd</sup> degree Mobitz type 1 heart block (Wenckebach phenomenon) is a rare finding in classical Dengue fever.

Any changes in vital signs especially the pulse, should prompt the clinicians to look for possible underlying cause because this may be the early indication of cardiac arrhythmia which occurs in Dengue.