

## Spontaneous Resolution of Junctional Rhythm in a Child with Dengue Fever

Amar Taksande,  
Kirti Suwarnakar

Department of Pediatrics, Jawaharlal  
Nehru Medical College, Sawangi Meghe,  
Wardha, Maharashtra -442102, India

### Abstract

Atypical manifestations of dengue fever are rising but they may be under reported. In dengue hemorrhagic fever (DHF), cardiac rhythm abnormalities observed were ventricular arrhythmia, atrial fibrillation and atrioventricular block. Here we report an 11 year old boy who presented with dengue fever and developed bradycardia and hypotension. His electrocardiogram (ECG), during the bradycardia, showed a junctional rhythm. The spontaneous resolution of junctional rhythm occurred after 7 days of admission.

**Keywords:** Junctional rhythm; Dengue fever; Rhythm abnormality

**Corresponding Author:** Amar Taksande

✉ [amar.taksande@gmail.com](mailto:amar.taksande@gmail.com)

Fellow in Pediatric Cardiology, Professor,  
Department of Pediatrics, Jawaharlal  
Nehru Medical College, Sawangi Meghe, Wardha,  
Maharashtra -442102, India.

**Received:** August 25, 2015; **Accepted:** December 10, 2015; **Published:** December 17, 2015

### Introduction

Dengue, the mosquito-borne viral disease affecting humans and threatens the health of more than 2.5 billion people of the tropics and subtropics. Dengue viral infections, caused by any of the four dengue serotypes (DEN 1, DEN 2, DEN 3, and DEN 4), are amongst the leading causes of hospitalization and death amongst children in several tropical countries [1, 2]. Dengue is transmitted by bites of *Aedes aegypti* mosquito. It is characterized by fever, myalgia, arthralgia, rash, leucopaenia and thrombocytopaenia [1]. Cardiac manifestations of dengue are uncommon but cardiac rhythm abnormalities such as atrioventricular blocks, atrial fibrillation, sinus node dysfunction and ectopic ventricular beats have been reported. Most of the cases are asymptomatic and have a benign self-limiting course with resolution of infection [3-6]. Here, we report a case of dengue fever in a child with junctional rhythm which was spontaneously resolved.

### Case Report

An 11 year old male child admitted in pediatric ward at AVBRH Hospital, Sawangi with complaints of fever and vomiting since 4 days. Fever was high grade not associated with chills and rigors. Vomiting was non bilious, non projectile, 3-4 episodes not containing blood. There was no history of myalgia and bone or joint pains palpitation, syncopal attack, seizure, rash, cyanosis, nor was there a history of rash or bleeding from any site. There was no past history of arrhythmia or cardiac disease. The urine output was adequate. On examination, the patient was febrile, but not dehydrated. The vital signs were stable at admission; his heart rate was regular at 50/min, respiratory rate at 24/min and blood pressure (BP) at 110/60 mmHg. The Hess test (tourniquet test) for capillary fragility was negative. No pedal

edema, cyanosis or clubbing. Jugular venous pressure was within normal limit. Cardiac auscultation revealed an S3 gallop without a significant murmur. Other systemic examination did not reveal any abnormality.

On investigation, a complete blood count [CBC] revealed the following: white blood cell count 7,900/mm<sup>3</sup> [with 82% neutrophils, 14% lymphocytes, and 4% monocytes]; hemoglobin 8.3 g/dl; hematocrit 44%; platelets 60,000/mm<sup>3</sup>. Her slowest heart rate was 50 beats/minute in a junctional rhythm seen on 12-lead electrocardiography (**Figure 1**). Dengue serology was reactive for immunoglobulin G (IgG) and immunoglobulin M (IgM), suggesting acute primary infection. The liver enzymes and renal profile, including serum electrolytes, were normal. The calcium level was found to be normal. USG abdomen was suggestive of ascites with normal liver echotexture. Chest radiography was normal, with a regular heart size. A two dimensional echocardiogram showed normal cardiac structures, no valvular regurgitation, and normal left ventricular (LV) systolic function) ejection fraction 60%. The patient's heart rate during the hospital stay remained at 46-54/min, but the BP and other hemodynamic parameters were normal. The patient was asymptomatic, and his vital signs were closely monitored for the development of any complications. He was discharged after ten days, with a heart rate of 72/min and a normal BP, and the ECG showed a normal heart rate. ECG reverted to a normal sinus rhythm.

### Discussion

Dengue fever is an acute mosquito-transmitted disease caused by dengue virus and characterized by headache, myalgia, rash, and hemorrhagic manifestations. When associated with thrombocytopenia, evidence of plasma leakage, bleeding



## References

- 1 Miranda CH, Borges CM, Matsuno AK, Vilar FC, Gali LG, et al. (2013) Evaluation of cardiac involvement during dengue viral infection. *Clin Infect Dis* 57: 812–819.
- 2 Prevention and Control of Dengue and Dengue Haemorrhagic Fever (1999) Comprehensive guidelines. WHO SEARO, New Delhi 23 : 10-15.
- 3 Chuah SK (1987) Transient ventricular arrhythmia as a cardiac manifestation in dengue hemorrhagic fever: A Case Report. *Singapore Med J* 28: 569–572.
- 4 Khongphatthallayothin A, Chotivitayatarakorn P, Somchit S, Mitprasart A, Sakolsattayadorn S, et al. (2000) Mobitz Type I second degree AV block during recovery from dengue hemorrhagic fever. *Southeast Asian J Trop Med Public Health* 31: 642-645.
- 5 Veloso HH, Ferreira JA, Braga de Paiva JM, Honório JF, Bellei JNC, et al. (2003) Acute atrial fibrillation during dengue hemorrhagic fever. *Braz J Infect Dis* 7: 418-422.
- 6 Promphan W, Sopontammarak S, Pruekprasert P, Kajornwattanakul W, Kongpattanayothin A (2004) Dengue Myocarditis. *Southeast Asian J Trop Med Public Health* 35:611-613.
- 7 Yusoff K, Roslawati J, Sinniah M, Khalid B (1993) Electrocardiographic and Echocardiographic changes during the acute phase of dengue infection in adults. *J HK Coll Cardiol* 1: 93-96.
- 8 Wali JP, Biswas A, Chandra S, Malhotra A, Aggarwal P, et al. (1998) Cardiac involvement in Dengue Haemorrhagic Fever. *Int J Cardiol* 64: 31-36.
- 9 Satarasinghe RL, Arulnithy K, Amerasena NL, Bulugahapitiya U, Sahayam UV (2007) Asymptomatic myocardial involvement in acute dengue virus infection in a cohort of adult Sri Lankans admitted to a tertiary referral centre. *Br J Cardiol* 14: 171–173.
- 10 Kularatne SA, Pathirage MM, Kumarasiri PV, Gunasena S, Mahindawanse SI (2007) Cardiac complications of a dengue fever outbreak in Sri Lanka. *Trans Royal Soc Trop Med & Hyg* 101: 804-808.
- 11 Kabra JK, Juneya R, Madhulika J et al. (1998) Myocardial dysfunction in children with dengue haemorrhagic fever. *Natl Med J India* 11: 59-61.
- 12 Gupta VK, Gadpayle AK (2010) Subclinical Cardiac Involvement in Dengue Haemorrhagic Fever. *JACM* 11: 107-111.
- 13 Kirawittaya T, Yoon IK, Wichit S, Green S, Ennis FA, et al. (2015) Evaluation of Cardiac Involvement in Children with Dengue by Serial Echocardiographic Studies. *PLoS Negl Trop Dis* 9: e0003943.
- 14 Kawamura K, Kitaura Y, Morita H, Deguchi H, Kotaka M (1985) Viral and idiopathic myocarditis in Japan: a questionnaire survey. *Heart Vessels Suppl* 1: 18-22.