Dengue fever (DF) is endemic in India and causes dengue fever, its severe form dengue haemorrhagic fever (DHF) and dengue shock syndrome (DSS). Hypotension due to intravascular depletion due to capillary leak is common in DHF and DSS. However, myocardial dysfunction is also seen with DHF/DSS and could be responsible for hypotension and shock. Cardiac involvement in the form of decreased left ventricular performance and arrhythmias are known. However, isolated myocarditis has rarely been seen with dengue virus. We report an 11-year-old boy who presented with viral myocarditis due to dengue infection, with complete recovery within three months.

Case report

An eleven-year-old boy born of non-consanguineous marriage presented with vomiting since two days and fever since day one. He had no skin rash or bleeding from any site. On examination, he had tachycardia (heart rate = 110/min) with hypotension (BP = 85/50 mm of Hg) with prolonged capillary refill and bilateral basal crepitations. There were no signs of dehydration. Other systemic examination was normal. He was immediately treated with Dobutamine and IV fluids. He was suspected to have viral myocarditis with cardiogenic shock. His investigations showed lymphopenia with thrombocytopenia (haemoglobin = 12.9 gm/dl, WBC = 7200/cumm, absolute lymphocyte count = 720/cumm, platelet count = 1 27 000/cumm) with absent C-reactive protein and no growth on blood culture. His serum CPK levels were elevated (344 IU/L) and CPK-MB fraction was also elevated {71 units/L (normal = upto 25 units/L)}. Serum LDH was also elevated (972 IU/L). His renal function tests, liver function tests and blood sugar were normal. Echocardiography showed left ventricular dilatation with systolic dysfunction and fractional shortening of 22%. His dengue IgM by ELISA was positive {0.95 AI (Positive = > 0.9 AI)} and leptospira IgM and peripheral smear for malaria were negative. He was thus diagnosed as a case of dengue myocarditis. Intravenous immunoglobulin (2 gm/kg) was given following which his left ventricular functions improved with fractional shortening of 31% and ejection fraction of 62%. He was gradually tapered off the ionotropic support and discharged. On follow up after three months, he was asymptomatic and a repeat echocardiography showed normal left ventricular dimensions and functions with fractional shortening of 37% and ejection fraction of 74%.

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Discussion

Viral myocarditis may lead to cardiogenic shock due to fulminant cardiac failure, recurrent wheezy episodes (mistaken as bronchial asthma), bronchiolitis and rhythm disturbance.[5] Serum enzymes such as SGOT, CPK, LDH are elevated and echocardiography shows left ventricular dilatation with global dyskinesia.[5] Our patient also presented with cardiogenic shock due to cardiac failure, had elevated CPK and LDH, and echocardiography showed left ventricular dilatation with systolic dysfunction confirming the diagnosis of myocarditis. Viral myocarditis is known to occur commonly with Coxsackie virus B1 and B4 and rarely with dengue virus[5,6]. Our patient had a positive dengue IgM test, confirming the diagnosis of dengue myocarditis. Cardiac dysfunction in the form of reduced ejection fraction and decreased end-diastolic volume are noted in patients with dengue.[2] Similar echocardiographic findings were noted in our patient. Viral myocarditis may respond favourably to routine anti-failure measures, steroid therapy and intravenous immunoglobulins (IVIG), with complete reversal of echocardiographic findings within months.[5] Similarly, our patient had a favourable response to IVIG and anti-failure measures and had complete recovery after three months of the onset of symptoms.

In conclusion, viral myocarditis may be a manifestation of dengue, though relatively uncommon as an isolated feature, and its response to therapy is favourable.

References


