

Dilated Cardiomyopathy in a child with COVID-19

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Short Report

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Abstract

The coronavirus disease (COVID-19) though primarily causes respiratory tract infection, various extra-pulmonary complications have also been reported. We hereby report dilated cardiomyopathy in a one-year old pre-morbidly healthy boy with COVID-19 infection who had a poor outcome.

Main Text

The coronavirus disease (COVID-19) is though primarily a respiratory tract infection, various extra-pulmonary complications have also been reported. We hereby report dilated cardiomyopathy (DCM) in a one-year old pre-morbidly healthy boy.

A one-year old boy presented with low-grade fever for two days, followed by generalized swelling all over body and tachypnea for one week. Past and family history were not contributory. He was admitted in an outside hospital for five days with diagnosis of congestive cardiac failure (CCF). Investigations done there revealed cardiomegaly on chest X ray (CXR), iron deficiency anemia (Hb 6.3 gm/dl, microcytic hypochromic smear, ferritin 3.4 ug/L), deranged liver function tests (total bilirubin 1.55mg/dL, indirect 1.13mg/dL, AST 245U/L, ALT 280U/L, ALP 278 U/L) and normal CRP (0.7mg/L). Rest of the investigations were normal. Echo revealed dilated ventricles with global hypokinesia with left ventricular ejection fraction of 12% and normal coronaries. Child was managed symptomatically and referred for specialized care.

At presentation to our hospital he had tachycardia, tachypnea (heart rate 170/min, respiratory rate 36/min) and SaO₂ of 97% in room air. He was still in CCF with basal crepitations and hepatomegaly of 4cm. Investigations in ED showed cardiomegaly on CXR, Hb 8.7g/dL, TLC 12,200 with 50% neutrophils, 43% lymphocytes and platelet count of 74,000/mm³. The electrocardiogram (ECG) did not show any abnormality. In view of severe left ventricular dysfunction and CCF, furosemide and dobutamine infusion was started. His rRT-PCR for the SAR-CoV-2 ORF 1ab gene done by a commercial kit (BGI Genomics Co. Ltd., China) on nasopharyngeal swab was positive. He was admitted in isolation ward while inotropes and diuretics were continued. However, his CCF persisted and inotropes were hiked. He suffered a sudden cardiac arrest 33 hours after admission from which he could not be revived.

Viral infection in a known secondary cause of DCM [1]. CCF has been reported in 23% of COVID-19 patients [2]. Arentz et al reported cardiomyopathy in 33% of critically sick COVID-19 patients [3]. Viral myocarditis may also present acutely with CCF and ventricular dilation but has a milder course while fulminant myocarditis has normal cardiac chamber sizes [4]. Our patient had normal ECG and inflammatory markers. He had recent onset cardiomyopathy, as he was pre-morbidly normal, did not have pneumonia, metabolic abnormality, or fluid overload, ruling out secondary myocardial dysfunction or stress cardiomyopathy. DCM was possibly due to coronavirus infection though the etiological role of the virus could not be proved.

Declarations

Authors credit: RK involved in management of patient and manuscript writing, will act as guarantor for the manuscript, AC and ABX involved in lab diagnosis, LD involved in lab diagnosis and review of manuscript, RKA involved in clinical care and reviewed manuscript, AS involved in clinical care and reviewed manuscript, SKK involved in review of manuscript.

Conflict of interest: None

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