Case report: acute viral (Parvovirus B-19) myocarditis in a young adult with recovery of left ventricular dysfunction

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Introduction: Viral myocarditis is an inflammation of the heart muscle often caused by viral infections. Parvovirus B19 is one of the most common viruses associated with myocarditis, especially in adults. It can lead to symptoms such as chest pain, fatigue, arrhythmias, and even heart failure in severe cases. Diagnosis is usually confirmed through blood tests, cardiac imaging, and sometimes biopsy, while treatment focuses on symptom management and heart support.[1]

Case report: 23-year-old female patient was referred to the Intensive Cardiac Care unit by the Emergency Department due to chest pain and new-onset shortness of breath. Her prior medical history was unremarkable, and she lives an active lifestyle, regularly exercising without experiencing any pain or dyspnea from exertion. Five days prior to hospitalization, she had a fever and complained of a sore throat. At admission initially, vital signs were significant for a high temperature of 39°C. The electrocardiogram showed sinus tachycardia with diffuse ST elevation. The initial highly sensitive troponin I (hsTnI) was severely elevated to 5604ng/l, N-terminal pro-brain natriuretic peptide (NT-proBNP) to 6658ng/l and C-reactive protein (CRP) to 277 mg/l. Echocardiogram showed an asymmetric left ventricular hypertrophy (posterior wall of 15mm), left ventricular ejection fraction (LVEF) of 43% with hypokinesia of posterior and lateral walls and a reduced global longitudinal strain of -12.6%. A coronary angiography was performed and revealed normal coronary arteries. The patient was initiated on a low dose of bisoprolol, ramipril, eplerenone, empagliflozin and parenteral antibiotic therapy (levofloxacin and ceftriaxone). The respiratory pathogen panel test, blood culture tests and urine culture were negative. Computed tomography of the thorax and abdomen without contrast was unremarkable in evaluating the source of infection. Serum Parvo B-19 IgM and IgG antibodies were positive as well as anti-EBV VCA IgG, anti-EBV EBNA IgG, anti-HSV-1 IgG and anti-HSV-2 IgG antibodies. A repeated echocardiogram showed improvement of LVEF to 60%. On day 9, a cardiac MRI was performed and showed acute myocardial edema of the inferior, lateral and posterior walls with late gadolinium enhancement (LGE), which was suggestive of acute inflammatory myocarditis (**Figure 1**). LVEF was 65%. The patient had resolution of symptoms and was stable for hospital discharge after two weeks. hsTnI and CRP were within normal and NT-proBNP was 2397ng/l. After being discharged, the patient followed up closely with her cardiologist. She had greatly improved symptoms since she was

FIGURE 1. Late gadolinium enhancement (red arrows).

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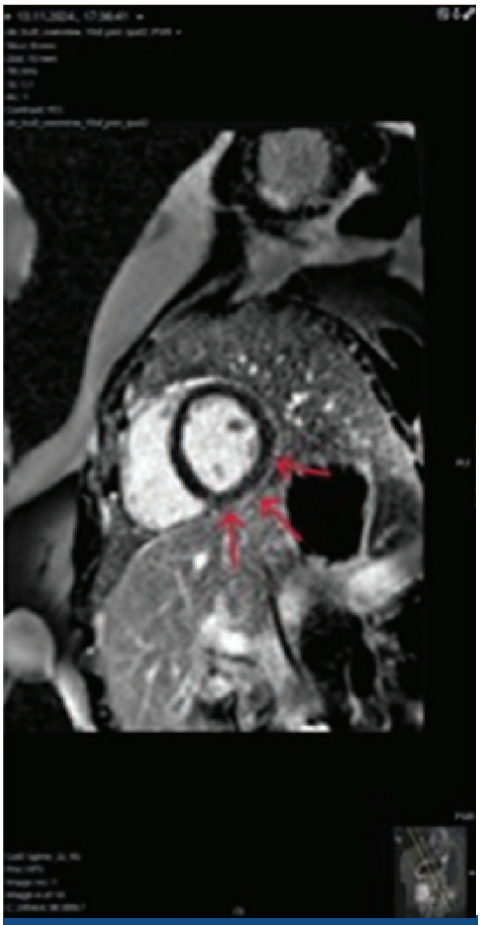

FIGURE 2. Residual zone of late gadolinium enhancement (red arrows).

at the hospital with a reported six-month follow-up cardiac MRI showing LVEF of 66%, normal wall thickness and biventricular volumes with small residual zone of LGE of the basal segment of posterior wall (**Figure 2**).

Conclusion: Viral myocarditis, often associated with Parvovirus B19, can lead to serious cardiac complications, including heart failure and arrhythmias. Early diagnosis and proper management are essential to prevent long-term damage and improve patient outcomes.

LITERATURE

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