



Acute Pleuro-Pericarditis due to Parvovirus B19: A Case Report of A 17-Year-Old Boy

Parvovirus B19'a Bağlı Akut Pleuro-Perikardit: 17 Yaşındaki Bir Erkek Çocuğun Olgusu

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ABSTRACT

We report on a seventeen-year-old boy with acute pleuro-pericarditis with human parvovirus B19 (PVB19) infection. He presented with chest pain, fever and shortness of breath. On physical examination, he had orthopnea, increased temperature (38,4 °C), tachycardia and hepatomegaly. Echocardiography showed a pericardial effusion of 12 mm. Thoracic ultrasound revealed left pleural effusion of 10 mm. Serum anti-Parvovirus 19 IgM and Parvovirus B19 DNA were positive. Two weeks later; serum anti-Parvovirus B19 IgM was negative, pericardial effusion and pleural effusion were resolved. In our knowledge this case represents the first report of acute pleuro-pericarditis associated with Parvovirus B19 infection in a pediatric patient.

Keywords: Chest pain, parvovirus B19, pleuro-pericarditis

ÖZ

Parvovirüs B19 (PVB19) enfeksiyonu olan akut plöro-perikarditli on yedi yaşında bir erkek çocuğu rapor ediyoruz. Göğüs ağrısı, ateş ve nefes darlığı şikayetleri ile başvurdu. Fizik muayenede ortopne, ateş yüksekliği (38,4 °C), taşikardi ve hepatomegali vardı. Ekokardiyografide 12 mm perikardiyal efüzyon görüldü. Göğüs ultrasonunda 10 mm'lik sol plevral efüzyon saptandı. Serum anti-Parvovirus 19 IgM ve Parvovirus B19 DNA pozitif. İki hafta sonra; serum anti-Parvovirus B19 IgM negatif, perikardiyal efüzyon ve plevral efüzyon düzeldi. Bildiğimiz kadarıyla bu vaka, bir pediyatrik hastada Parvovirus B19 enfeksiyonu ile ilişkili ilk akut plöro-perikardit raporunu temsil etmektedir.

Anahtar Kelimeler: Göğüs ağrısı, parvovirus B19, plöro-perikardit

INTRODUCTION

Viruses are common etiology of pericarditis among children (1,2). Although enteroviruses are the most common pathogens of this condition, another viruses such as Herpes Simplex, Rubella can be cause of the viral pericarditis (2). While Human Parvovirus B19 is largely seen in the population, it can be etiological cause of erythema infectiosum (fifth disease), symmetric polyarthropathy, transient erythroblastopenia, pericarditis, hydrops fetalis

and fetal myocarditis (3). Currently, cases of perimyocarditis (4), pericarditis (5), pleuro-pericarditis and pericarditis-related heart failure (6) associated with Human Parvovirus B19 infection have also been reported in adult patients, on the contrary data is mostly limited in pediatric patients. We presented a seventeen-year-old boy who presented with acute pleuro-pericarditis associated with Human Parvovirus B19.

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Başvuru Tarihi/Received: 23.08.2022

Kabul Tarihi/Accepted: 20.10.2022





CASE REPORT

A seventeen-year-old boy presented with a 4-days history of precordial chest pain, dyspnea, fever and difficulty standing in supine position. Neither anemia nor articular pain was associated. On physical examination, patient had orthopnea, a weak appearance, increased temperature (38.4°C) and a respiratory rate of 28/min. His heart rate was 122/min, blood pressure was 90/68 mmHg, and peripheral pulses were weak. Heart sounds were muffled in cardiac examination. Other findings of physical examination were normal. Laboratory results were as follows: hemoglobin 14.1 g/dl, hematocrit 41.5 %, red blood cells $4.74 \times 10^6/\mu\text{l}$, white blood cells $14,500/\text{mm}^3$ (9% lymphocyte, 84% neutrophil, 6% monocyte, 1% eosinophil), platelet count $228,000/\text{mm}^3$, erythrocyte sedimentation rate 6 mm/h (normal <25 mm/h) and C-reactive protein 113 mg/l (normal <5 mg/l). Serum biochemistry showed normal levels of electrolytes, urea, creatinine, glucose, liver enzymes, troponin and creatinine kinase. Values for thyroid functions were in the normal range. Telecardiography of the patient was within normal limits with cardio-thoracic ratio of 50% and electrocardiography showed ST-segment elevation in the lateral/inferior leads (**Figure 1**). Echocardiography performed pericardial effusion measuring 11-12 mm in diameter with a little amount of fibrin, no signs of tamponade and normal systolic functions (**Figure 2**). Thoracic ultrasound revealed pleural effusion. Urinary culture and hemoculture were negative. Tuberculin skin test showed no signs of tuberculosis. Concerning involvement of collagen tissue diseases, anti-DNA, antinuclear antibodies, anti-cardiolipin antibodies and rheumatoid factor were negative. Serum IgM antibodies for EBV, HIV, VZV, adenovirus and coxsackievirus were found to be negative ELISA. DNA analysis by polymerase chain reaction (PCR) and serum anti-Parvovirus B19 IgM by ELISA and yielded positive results. Peripheral smear of the patient was normal. The patient's condition improved with the administration of non-steroidal anti-inflammatory drugs (NSAIDs) and bed rest. He was discharged after a two-weeks stay in hospital with complete resolution of symptoms.

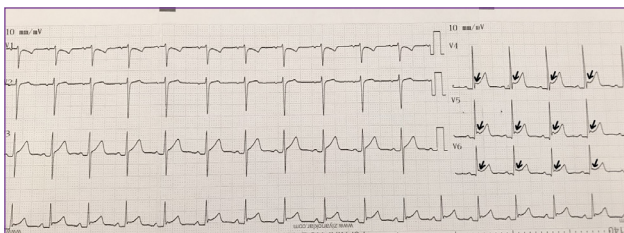


Figure 1. ST-segment elevation in the lateral/inferior leads

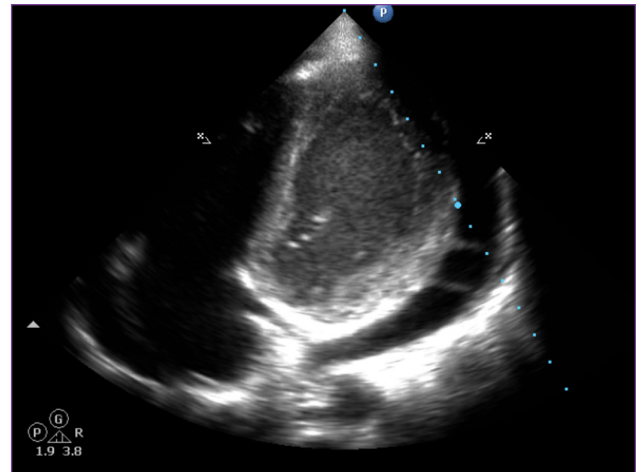


Figure 2. Two-dimensional echocardiogram showing a large Pericardial effusion and a little amount of fibrin

DISCUSSION

Viral pericarditis is the most common cause of acute pericarditis in the pediatric population (7). Although enteroviruses may be responsible for this clinical condition, coxsackie B virus is the most common causes of pericarditis and the disease may be caused by other viruses such as EBV, HIV, adenovirus and VZV (1,7,8). As patients with viral pericarditis often present with fever and precordial chest pain, they are generally less toxic appearing than patients with bacterial pericarditis. But, if myocarditis accompanies, clinical presentation can worsen (7). In our case, the main presenting symptoms were precordial chest pain, dyspnea, and fever. Although Parvovirus B19 infection frequently causes erythema infectiosum (fifth disease) in pediatric patients, less frequently, it can also lead to polyarthropathy, hydrops fetalis, fetal myocarditis, transient erythroblastopenia (4,9,10). The infection is generally diagnosed with physical examination, clinical symptoms, serological tests, and by the detection of viral DNA with PCR (11). Pleuro-pericarditis associated with Human Parvovirus B19 infection has also been reported in adult patients (4,6). In this comprehensive review of literature, no case of pleuro-pericarditis was retrieved in pediatric patients. Seishima et al. (6) reported Human Parvovirus B19 infection in a male patient who presented with fatigue, polyarthralgia and edema, and developed acute heart failure due to Parvovirus B19 associated pericarditis five days after admission. In another study, a 34-year old man who was diagnosed to have perimyocarditis induced with human Parvovirus B19 by showing anti-Parvovirus B19 Ig M and Ig G antibodies in the blood with ELISA. In the present case, the patient presented with complaints of precordial chest pain, dyspnea, fever and the diagnosis of pleuro-pericarditis was determined by clinical, electrocardiographic, echocardiographic and laboratuar findings. At first, bacterial and other viral pathogens, neoplasias and collagen tissue diseases were excluded.



CONCLUSION

This case seems to be the first reported pediatric case of pleuro-pericarditis due to Parvovirus B19 infection. Parvovirus B19 infection might be considered in the etiology of acute pleuro-pericarditis in pediatric patients.

ETHICAL DECLARATIONS

Informed Consent: Written informed consent was obtained from all participants who participated in this study.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

Author Contributions: All of the authors declare that have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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