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Acute pericarditis due to EBV infection: a case report

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ABSTRACT: Infectious and noninfectious causes are involved in the etiology of acute pericarditis. However, the most common reported causes are virus infections. A 23-year-old female patient presented with complaints of fever, respiratory distress, and chest pain. Pericardial effusion was detected on transthoracic echocardiography. Anti-EBV VCA IgM test result was positive, and she was diagnosed with pericarditis due to Epstein-Barr virus (EBV) infection. She responded well to nonsteroidal anti-inflammatory therapy and clinically recovered completely. We present this rare case to highlight and investigate the cases of those infected with EBV infection with a multidisciplinary approach to avoid cardiac complications.

Keywords: EBV, Epstein-Barr virus, Infectious pericarditis.

INTRODUCTION

Infectious and non-infectious causes are involved in the etiology of acute pericarditis. However, the most common reported causes are virus infections. The most common infectious agents are *Enteroviruses*, which include the *Coxsackievirus* and *Echovirus* families[2].

A French study[3] published in 2005 recommended non-invasive methods, such as blood cultures, throat swab cultures, serological tests for many infectious etiologies, serum antinuclear antibodies, and serum thyroid-stimulating hormone for reducing the unnecessary idiopathic diagnosis label in acute pericarditis. Acute pericarditis is usually a self-limiting disease if not related to a systemic disease and immunodeficiency[3].

Epstein-Barr virus (EBV) infection-induced pericarditis is an extremely rare condition[4]. We present a rare case of pericarditis due to acute EBV infection in a previously healthy 25-year-old female patient.

CASE REPORT

A 25-year-old previously healthy female patient was admitted to our infectious diseases' outpatient clinic with complaints of fever, sore throat, malaise, and retrosternal chest pain that were ongoing for one week. She was admitted to the hospital to investigate the etiology of fever. On physical examination, blood pressure was 100/70 mmHg, heart rate was rhythmic and 108/minute, fever was 38.3°C, respiratory rate was 24/minute, and oxygen level was saturating 98% in hospital room condition. On her physical examination, there was hyperemia and tonsillar membrane (Figure 1). There was no chest pain increasing in supine position or shortness of breath. There were no other pathological findings in physical examination. There was no hepatosplenomegaly or lymphadenopathy. Her laboratory parameters at the time of admission were hemoglobin level 110 g/dL (normal range: 12-18 g/dl), white blood cell (WBC) was in the normal range

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Figure 1. Bilateral enlarged inflamed tonsils which covered with white patches and petechiae on the palate.

but the erythrocyte sedimentation rate (86 mm/h; normal range: 0-10 mm/h), alanine aminotransferase (ALT) 154.7 (normal range: 5-33 U/L), alanine aminotransferase (ALT) 154.7 (normal range: 5-33 U/L), aspartate transaminase (AST) 142.8 (normal range: 5-33 U/L) and C-reactive protein (CRP) (8.5 mg/dL; normal range: <0.5 mg/dL) levels were elevated. The peripheral blood showed lymphocytosis also no atypical cells were detected. Pericardial effusion was detected in the posteroanterior (PA) chest X-ray at admission. Cardiology consultation was then requested. The heart valves on transthoracic echocardiography were normal and ejection fraction was 60% and vegetation was not detected. Since pericardial tamponade findings did not develop in the cardiology consultation, emergency pericardiocentesis was not required. Nonsteroidal anti-inflammatory (ibuprofen 600 mg/day) treatment started. Some laboratory tests were suggested for differential diagnosis. The requested laboratory tests were as follows: thyroid function tests were normal, standard tube agglutination test for brucellosis, tumor markers, anti-nuclear antibody, and anti-dsDNA test results were negative. There was no growth in throat culture and blood culture. Since the diagnosis could not be made with laboratory tests, 100 ml serohemorrhagic fluid was delivered for diagnosis on the 7th day of hospitalization. The fluid was hemorrhagic. The pathology and microbiology examination had no evidence of infection and malignant diseases. From the 2nd day of the drainage and medical treatment, the patient's fever and respiratory distress regressed. Meanwhile, the anti-EBV VCA IgM test result was positive, and the patient was diagnosed with EBV pericarditis. She was discharged after two weeks, as she had clinical improvement and no fever. She was seen during follow-up and the infection resolved completely. Laboratory values were found to be normal in the outpatient clinic control. There was no recurrence or reinfection in 3 months following in outpatient clinic control.

DISCUSSION

Epstein-Barr virus infection mostly occurs in childhood and late adolescence. It is most commonly seen in the form of infectious mononucleosis. Infectious mononucleosis may present with fever, malaise, sore throat, polymyalgia, elevated liver enzymes, organomegaly, and general lymphadenopathy, as well as asymptomatic. It usually resolves within a few weeks without complications[4]. The risk of cardiac complications, such as myocarditis and pericarditis due to EBV infection is very rare. It is especially seen in immunosuppressed patients[5]. However, this disease may also occur in immunocompetent patients[6,7]. It can be observed during acute or chronic EBV infection[5]. About 90 to 95% of adults are seropositive to EBV. The highest incidence of EBV infection has been reported to be between 15 and 24 years[8]. The presented case is a 25-year-old immunocompetent female, and she had an acute EBV infection and pericardial effusion. Also, there were no signs of myocarditis.

The pericarditis developing after EBV infection is known to be a self-limiting disease, but rarely it can be complicated such as cardiac tamponade[9-12]. Cases of acute pericarditis are generally admitted to hospital with sudden onset of retrosternal chest pain spreading to the shoulder and neck. Pain usually increases with breathing, swallowing and being in supine position but decreases with sitting and leaning forward. Patients also may complain of having fever, cough, malaise, myalgia and arthralgia[9-12]. The presented case also had complaints of fever, sore throat, malaise, and retrosternal chest pain.

Patients with acute pericarditis usually have leukocytosis, increased erythrocyte sedimentation rate and CRP levels[7,9-12]. There was also an increase in the CRP level of our patient, but she had no leukocytosis.

In the diagnosis of EBV infection, EBV DNA nucleic acid can be detected in the blood by polymerase chain

reaction (PCR). Serological heterophile antibodies and EBV-specific antibodies can be researched. Regardless of anti-EBV VCA IgG, the result of anti-EBV VCA IgM positivity indicates the acute primary EBV infection[7]. The most widely used of the heterophile antibodies is the Monospot test. The Monospot test is positive in 90% of infectious mononucleosis cases. It is routinely used because of its high sensitivity and specificity[13]. The patient's anti-EBV VCA IgM test result was positive, and the patient was diagnosed with EBV pericarditis. The Monospot test option could not be evaluated due to the lack of the Monospot test in our center.

Generally, non-steroidal anti-inflammatory drugs are sufficient for treatment. Pericardiocentesis is required in cases that develop tamponade or severe pericardial effusion[11,12,14]. Pericardiocentesis was done only as a diagnostic method for the presented case. She had no pericardial tamponade. Only non-steroidal anti-inflammatory drugs were given for medical treatment, and she was cured without any sequel or reinfection.

Although EBV-related cardiac complications are rare, they should be included in the differential diagnosis of diseases such as pericarditis/myocarditis, especially in adolescents, young adults, and children.

Conflict of Interests:
The authors declare that they have no conflicts of interest.

Informed Consent:
The patient gave the informed consent to participate in the study.

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