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Photo Clinic

CMV Pneumonitis with Bilateral Pleural and Pericardial Effusion in A Child with Non Hodgkin Lymphoma

Mohammad Ali Fallahzadeh[1], Mitra Khalili[2]*

[1]Pediatric Congenital Hematologic Disorders Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
[2]Department of Pediatric Radiology, Shahid Beheshti University of Medical Sciences, Tehran, Iran

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Corresponding author:
Mitra Khalili, Department of Pediatric Radiology, Mofid Children's Hospital, Tehran, Iran
Phone: +98 912 4807938
Email: m.khalili76@yahoo.com

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A 12-year-old boy, known case of T-lymphoblastic lymphoma who was on 35th day of induction phase was admitted to the oncology department due to fever and neutropenia. He had received weekly vincristine for 4 weeks, 2 doses of doxorubicin and one dose of cyclophosphamide 1 gr/m2 along with PEG and also corticosteroids for the whole induction period. Broad-spectrum antibiotics for coverage of most probable bacterial pathogens was started for the patient. He developed higher fever, progressive dyspnea and respiratoy distress in the next few days following admission. Chest-X-ray showed bilateral moderate pleural effusion and cardiomegaly. Trimethoprim-sulfamethoxazole 20 mg/kg/day was started as empiric therapy for pneumocystis Jiroveci. Chest tomography revealed bilateral moderate-sized pleural effusion along with pericardial effusion and also a consolidation in left middle lobe parenchyma with small centrilobular nodules of soft-tissue attenuation mimicking tree-in-bud appearance (Figure 1 A, B). Chest tube and pericardial window was inserted for the patient. Cytology and flowcytometric analysis of the pleural fluid was negative for lymphoma cells. It was a transudative fluid negative for fungi such as candida and aspergillus species and mucoracea by PCR; however, quantitative PCR for CMV-DNA was reported positive with a high copy number.

Cytomegalovirus (CMV) is a herpes virus family member which is well known for causing symptomatic disease in immunocompromised patients either via reactivation of previous infection or via gaining a primary CMV infection. In immunocompetent persons, CMV infection is usually asymptomatic or incites symptoms similar to infectious mononucleosis.[1] Prevalence of human CMV infection is very high worldwide. In developing countries, it is predicted to be approximately 90%. This infection is most commonly transmitted horizontally over saliva, sexual route, transfusion or through an organ transplantation.[2] CMV can be responsible for a wide spectrum of clinical manifestations ranging from asymptomatic infection to a mononucleosis like syndrome, disseminated infection, gastrointestinal disease including hepatitis and cholecystitis, pneumonia, retinitis, encephalitis and ultimately, in some cases, death of the host.

There are numerous reports of CMV myocarditis in immunocompetent subjects. A comprehensive review of the English-language medical literature has reported 16 cases of CMV myocarditis in immunocompetent individuals in whom pericardial effusion had developed in 3 of them.[3] In a prospective trial, 4 out of 57 adult patients with large pericardial effusion were proved to be CMV pericardial disease.[4] There are also reports of CMV infection and massive pericardial effusion in infants.[5, 6] In a review from Minnesota bone marrow transplantation Database from 1974 to 1993, patients presenting with large and recurrent sterile serosal effusions following

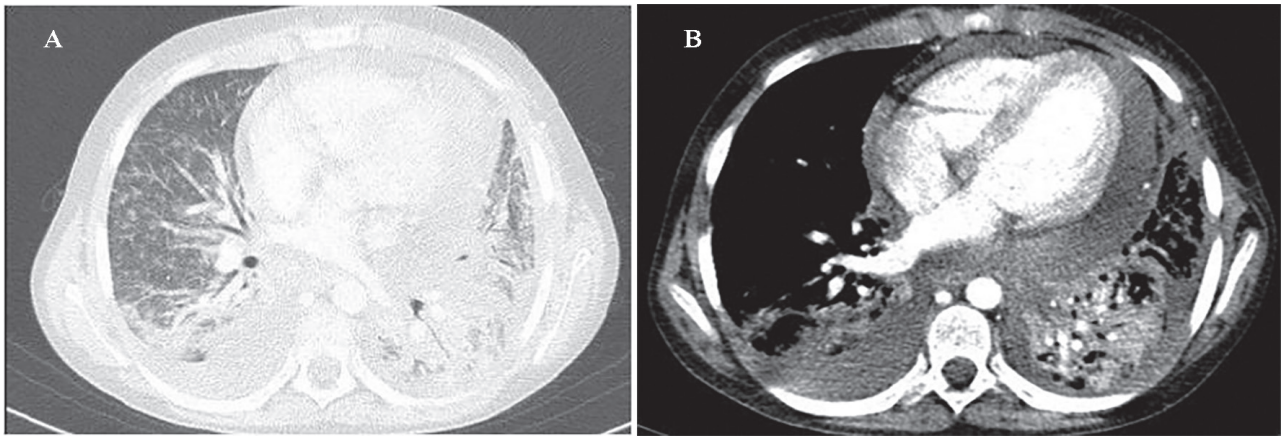

Figure 1: A) Mild to moderate bilateral pleural effusion along with severe pericardial effusion. B) Consolidation in LLL and posterior segment of RLL with centrilobular nodules and tree in bud appearance in RML.

bone marrow transplantation were studied. Seven patients with multiple effusions involving two or more of the pleural, pericardial or peritoneal cavities were identified. Five of seven patients had CMV disease.[7] A 12-year-old uremic patient who had received a renal transplant from a donor of unknown CMV status was evaluated for fever and pericardial effusion. Viral DNA was detected with PCR in the patient.[8]

In a study from a department of radiology in Korea, 10 non-AIDS immunocompromised patients with CMV pneumonia were encountered between January 1997 and May 1999. High resolution CT scans were analysed which the most frequent CT pattern was ground-glass opacity in all patients, with 8 bilateral patchy and 2 diffuse in distribution. Other findings included poorly-defined small nodules (n=9) and consolidation (n=7). Pleural effusion were seen in six patients (60%).[9]

CMV should be considered as a putative pathogen in immunocompromised children with malignancy who display severe pleural and pericardial effusion in the setting of an interstitial pneumonitis.

Conflict of Interest: None declared.

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