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Dilated Cardiomyopathy Complicated by Intraventricular Thrombosis in a Young Immunocompetent Patient Living with HIV Infection

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Abstract

HIV infection is a frequent cause of cardiovascular diseases. Longstanding infection may cause heart failure and secondary thromboembolic disorders. We present a rare case of dilated cardiomyopathy complicated by intraventricular thrombosis in a Young immunocompetent patient living with HIV infection. This atypical case alerts the scientific community for the earlier screening of cardiovascular disorders in all patients with HIV infection. For the HIV patients with dilatated cardiomyopathy it is necessary to evaluate the benefit of prophylactic anticoagulation in such case.

Keywords: Dilated cardiomyopathy; Intraventricular thrombosis; Young immunocompetent HIV infected patient

Abbreviations: CD: Cluster Differentiation; CVD: Cardiovascular Disease; INR: International Normalized Ratio; HIV: Human Immunodeficiency Virus; NYHA: New York Heart Association

Background

HIV infection has become a major cause of cardiovascular diseases [1]. The relationship between HIV and cardiovascular diseases (CVDs) is multifactorial, including the role of the virus itself, opportunistic conditions or the effect of treatment [1,2]. The burden of CVDs is such important that studies including histological specimens showed that cardiac lesions are found in 60% of HIV infected patients [3,4]. Dilated cardiomyopathy is one of the main etiologies in HIV patients suffering for heart failure and it is frequently seen in HIV-infected people with low CD4 counts [5]. Dilated cardiomyopathy is a frequent cause of cavity thrombosis [6] and HIV itself expose patient to endothelial lesions induced by the infection. Despite the high risk of thromboembolism in patient with HIV [7] there is no recommendation for prophylactic anticoagulation. We report a rare case of dilated cardiomyopathy with extensive intraventricular thrombosis in an immunocompetent HIV adolescent. By this case we aim to clarify the importance of performing echocardiography for all HIV-infected patients in order to detect early cardiac damage associated with HIV. But also, to emphasis the need of evaluating prophylactic anticoagulation in such patient by randomized clinical trials.

Case Presentation

A 13 years old Cameroonian teenager resident at Yaoundé and knowing HIV infected since childhood with unknown initial viral load and initial CD4 count at 1298 per mm3, treated with Zidovudine/Lamivudine (Duovir®) 1tablet/day, Efavirenz 1tablet a day with good compliance and no opportunistic infection documented. She was referred at emergency unit for resting dyspnea. The history started by dry cough since 4 weeks that became productive with expectoration streaked with blood associated with fever and night sweating. She took a treatment based on oral amoxicillin and clavulanic acid 500mg twice daily; the evolution was marked by the regression of the fever but persistence of the cough with appearance of resting dyspnea. A chest X-ray was requested showing a heart enlargement (Cardiothoracic Index: 0, 57) (Figure 1).

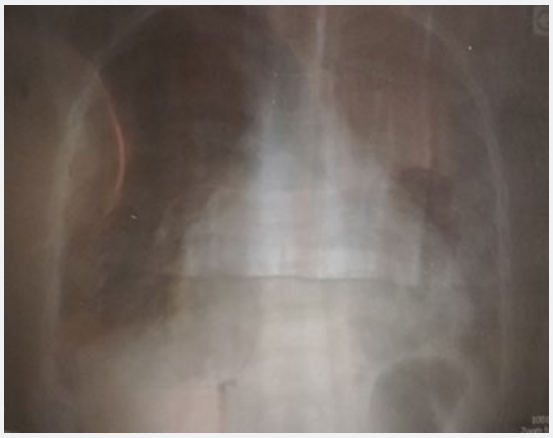

Figure 1: Chest X-ray face incidence showing an enlarged heart.

This result conducted the team to perform a transthoracic echocardiography that showed myocardial dysfunction with ejection fraction at 38%, moderate pulmonary hypertension and moderate pericardial effusion. The patient was placed on Furosemide 40mg: half tablet once daily, Captopril 50mg half tablet a day and Molsidomine 2mg half tablet a day (but treatment not started). She was therefore referred to the Yaoundé University Teaching Hospital for better management. When she arrived at the pediatric ward, she complained of anorexia, asthenia; Productive cough, resting dyspnea, chest pain for more than a month. Clinical examination showed an ill-looking patient with following vital Parameters: Blood pressure: 140/110mmHg; Heart rate: 128bpm; Respiratory rate: 44cpm; Tº: 37ºC; SaO2: 98%. She also presented, signs of right heart failure: spontaneous jugular veins distension, hepatojugular reflux, painful hepatomegaly and Signs of left heart failure: Tachycardia, orthopnea, rales crakles predominant on the right, spreading tip shock, galloping sound, mitral systolic murmur of intensity 3 over 6th. The diagnosis of congestive heart failure stage II of NYHA classification with probable dilated cardiomyopathy as baseline heart disease. Another Transthoracic doppler echocardiography was performed showing: dilated cardiomyopathy with severely impaired ejection fraction 32%, moderate functional mitral insufficiency, pulmonary hypertension and minimal pericardial effusion. Research of tuberculosis by gastric tubing was negative, Full blood count showed severe thrombopenia 31000 per mm3. White blood count was: 4400 per mm3 Hemoglobin level was 13g. C reactive protein was 6mg per liter, dipstick was normal and plasmatic sodium, potassium and chloride levels were respectively: 142 / 3.8 / 103mEq per liter. Calcium / Magnesium / Phosphorus were normal at 92/29/39 mg / l; Hepatitis B and C serologies were negative and ferritinemia was normal. The patient received, Nicardipine 20mg 1 tablet tree time a day, Furosemide 40mg tree time a day Ramipril 2.5mg 1 tablet a day- Carvedilol 6.25mg 1 tablet a day. She came one week after hospitalization for follow-up with no complaint. BP: 90/60mmHg HR: 110bpm RR: 18cpm and regression of signs of heart failure. The electrocardiogram showed regular sinus tachycardia at 107 bpm, biventricular hypertrophy and incomplete right bundle block (Figure 2).

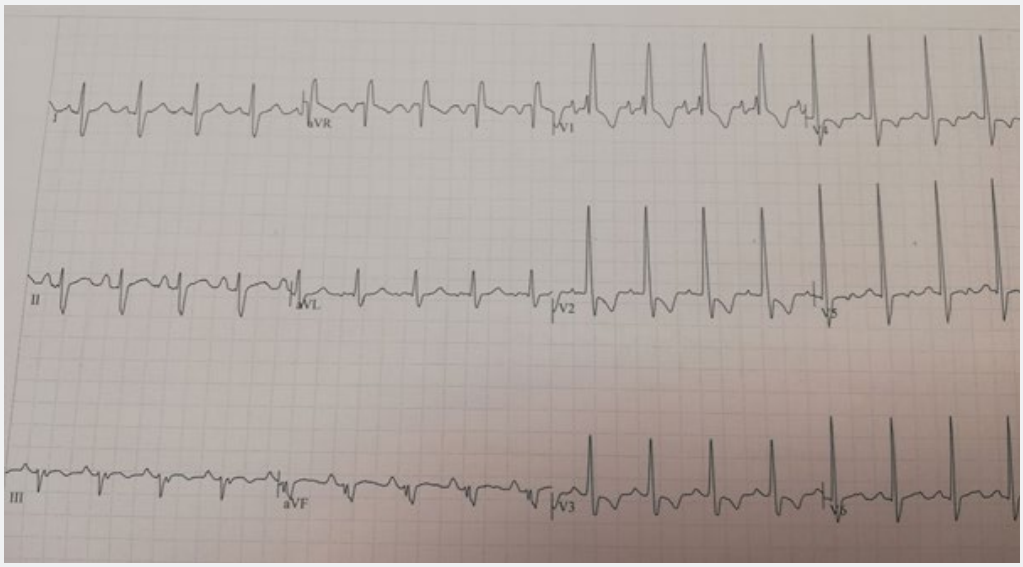

Figure 2: Electrocardiogram showing Right and Left ventricular hypertrophy with incomplete right limb block and secondary abnormalities of repolarization.

Control echocardiography revealed dilated cardiomyopathy with same ejection fraction, and presence of 2 left and right intraventricular thrombi approximately 32 and 19 mm in diameter.

Shewas put under Acenocoumarol 4mg 1 tablet per day, the initial INR was 1.5 and target range was obtained after one week with INR at 2.4 (Figures 3 & 4).

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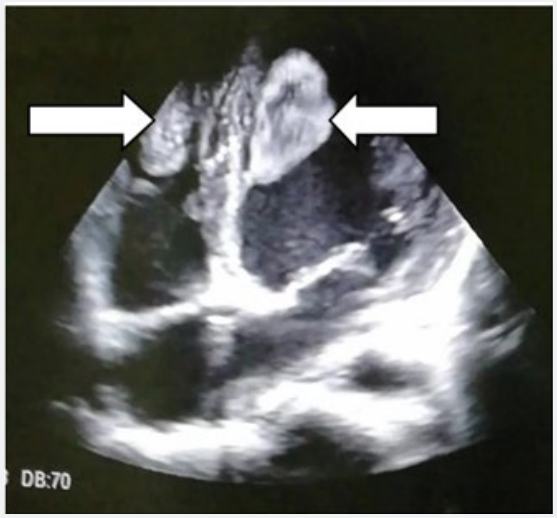

Figure 3: Apical 4 cavities view of echocardiography showing thrombus in Left and Right ventricles.

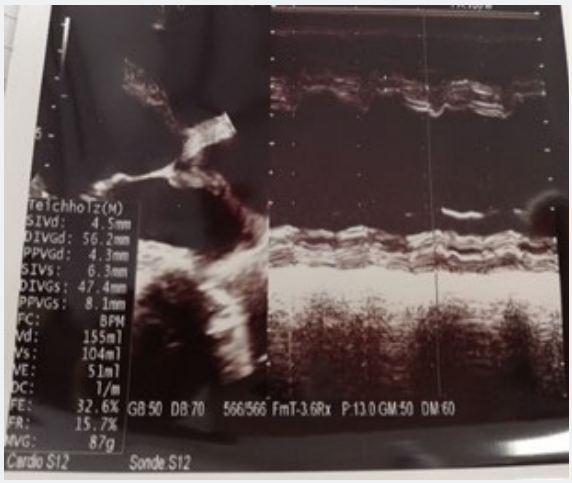

Figure 4: Long-axis parasternal echocardiography with LV systolic function.

Discussion

The right prevalence of cardiovascular disease during HIV infection is not very clear, ranging widely between 20 and 80% depending on the method used [8,9]. Cardiomyopathies occur at a late stage of infection in a context of significant reduction of CD4 lymphocytes [9,10]. In Cameroon Nzuobontane et al. [11] reported a prevalence of 23.3% of cardiomyopathies in the context of HIV infection [11]. There are several pathophysiological mechanisms of this dilated cardiomyopathy specific for HIV. Viral myocarditis due to HIV infection or co-infection with other cardiotropic viruses; the other mechanism maybe the development of cardiac autoantibodies, dietary deficiency including thiamine and selenium, and the role of antiretroviral therapy, mainly nucleoside analogues (AZT) and certain protease inhibitors have also been mentioned. Dilated cardiomyopathy with severely impaired ejection fraction in HIV-positive patients is associated with poor prognosis compared to cardiomyopathies of other etiologies [12]. In this patient with dilated cardiomyopathy on HIV site we observed biventricular thrombi without other associated risk factors; the state of hypercoagulability observed in patients with HIV and ventricular stasis of the blood would be the main pathway of this disease. In Cameroon, Nkoke et al. [13] reported a case of biventricular thrombus in an immunocompromised HIV-infected patient of 52 years old with cardiomyopathy [13]. Our case was very atypical because our patient was very young and immunocompetent, this reinforce the direct effect of HIV in both heart failure and thrombosis.

Conclusion

The presence of intraventricular thrombosis is a frequent complication in dilated cardiomyopathy in HIV-infected patients and this may affect young and immunocompetent patients. This case emphasis the need of early cardiovascular screening of HIV infected patients and evaluating prophylactic anticoagulation in such patient by randomized clinical trials.

Authors' Contributions

NSA managed the patient. CT drafted the initial manuscript which was modified by MNT. SK supervised all the process. All authors read and approved the final manuscript.

Consent for Publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-chief of this journal.

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