Recurrent Herpes genitalis triggering Acute Myopericarditis in a 39-year-man with abuse of Amphetamine and Marijuana

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ABSTRACT

We describe a case of acute myopericarditis in a 39-year-old man who has a history of chronic Marijuana and Amphetamine abuse with a background of recurrent Herpes genitalis. Herpes simplex virus is known to cause myopericarditis. Amphetamine and Marijuana abuse is also known to cause toxic myocarditis. It is very rare to see a combination of these three factors to present itself as an acute cardiac condition to emergency department. Our patient presented to us with a history suggestive of an acute cardiac event. Clinical examination and investigations suggested acute myopericarditis. When such a scenario is encountered in clinical practice, careful history and examination plays a key role in establishing a clinical diagnosis along with laboratory and radiological investigation. Treatment of the viral infection with subsequent counselling regarding drug abuse must be offered to patient as treatment package.

Key words: Myopericarditis, Herpes Zoster, substance abuse, amphetamine, marijuana.

CASE PRESENTATION

A 39-year-old man presenting to Emergency Department with sudden onset of severe central crushing chest pain. His chest pain started acutely and progressively worsened over a period of forty-five minutes time period while having dinner. Pain was described as "balloon about to burst" with no associated dyspnoea. There was a brief period of myalgia and generalised weakness over a period of 24 hours prior to this episode. He had experienced exactly similar pain the previous night with was non exertional and settled with rest and paracetamol. Similar brief episodes of pain mild in nature were noted three months ago while at work. The patient attributed this to stress and did not seek medical attention. He has a history of Marijuana abuse in the form of smoking for ten years intermittently and amphetamine abuse for seven years. He has been abusing these drugs intermittently with a last dose of amphetamine and Marijuana four days prior to this presentation. He also has a history of Herpes genitalis for the past ten years for which he has been taking Acyclovir intermittently whenever the condition flares up. The genital ulcers never healed completed. He was not on any other medication and there is no significant family history.

On examination he was afebrile, tachycardic with a pulse rate of 96/min with blood pressure of 116/74 mm of Hg and saturations were 100% on room air. On auscultation a pericardial rub was noted. Systemic examination was unremarkable. Genital examination revealed active herpes infection.

INVESTIGATIONS

ECG showed hyper acute T waves in the V2, 3, 4 leads with mild ST elevation in the lateral leads. These ECG changes normalised in 72 hrs with mild T wave changes.

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DOI: 10.5530/jcrsci.2012.1.6

Haematological investigation revealed a white cell count of 11.5, Creatine kinase of 907 U/L, Cholesterol 5.5 mmol/l and CRP of 74. The Troponin levels were mildly elevated. Echocardiogram showed a good LV function with inferobasal hypokinesia and no valvular abnormalities. He received aspirin 150 mgs tablet and sublingual isosorbitrate mononitrate that relieved his chest pain. Viral laboratory titres for coxackie, ECHO and adenovirus were negative. HIV titres were normal. Herpes simplex virus was negative apart from a mild elevation in antibody for Herpes genitalis.

DIFFERENTIAL DIAGNOSIS

Acute Myocardial infarction

TREATMENT

Analgesics and bed rest for the treatment of myopericarditis. Oral Acyclovir for four weeks time.

OUTCOME AND FOLLOW-UP

His cardiac symptoms completely recovered in 2 months time and the active herpes infection also settled down after course of Acyclovir. Five years after the initial event he remains clinically well.

DISCUSSION

Numerous etiological agents cause myocarditis. Viral infection inducing myocardial inflammation includes Adenovirus, Enterovirus (Coxackie-B), Hepatitis C, HIV[1]. Herpes virus infection can be associated with myopericarditis[5,6]. Herpesviridae subfamily alfaherpesvirinae comprises of the Herpes simplex virus type 1 (HSV-1) and type 2 (HSV-2) in the simplex virus and Varicellovirus (Varicella zoster virus/HSV-3). HSV-2 is commonly referred to as Herpes genitalis virus causing papulo-vesicular rash in the genital region. Herpes simplex virus very rarely causes Myocarditis and de Vries in 1974[5] has described a case of myocarditis due to Herpes Simplex Virus. In our case, Herpes genitalis (HSV-2) was present as a chronic subclinical infection with exacerbations on and off despite treatment with Acyclovir. The mechanism by which Herpes Simplex Virus causes Myopericarditis is described as immune mediated through sensitisation of the cardiac muscle fibres to the viral antigens and similar mechanism is responsible for multiple organ involvement in the form of inflammation. Three essential pathways have been elucidated as the cause for myocarditis, direct myocardial invasion by cardiotropic virus or other infectious agents rapidly progresses to a second phase of immunologic activation[2]. In the last phase, CD4 activation prompts clonal expansion of B cells, resulting in further myocytolysis, additional local inflammation, and production of circulating anti-heart antibodies resulting in Myopericarditis.

Amphetamine is also known as Benzedrine and is prescribed for Attention Deficit Hyperactivity Disease (ADHD). The drug is also known to be a performance enhancer and can prove to be addictive in the long run. Amphetamine abuse can cause coronary vasospasm. Marijuana abuse has been reported to cause coronary vasospasm[3]. The toxic effects of both these substances to myocardium are mainly due to the sympathomimetic activity on coronary artery causing ischemic insult to the myocardium. Both Amphetamine and Marijuana are known to cause toxic myocarditis[3,4].

In the case described there is clinical evidence to prove a possible myopericarditis. He had chest pain with pericardial rub on examination suggestive of pericarditis. The ECG changes showed ST segment changes though this can be noted in the background of Myocarditis. The possibility that he also may have myocarditis is by the cardiac enzyme elevation (mild troponin I/B rise and CK-MB levels) and echocardiography showed mild basal hypokinesia suggesting myocardial involvement. The coronary angiogram ruled out the possibility of coronary artery occlusion. The Herpes simplex viral titres were elevated suggesting an on-going active infection. The IgM and IgG antibodies were also elevated suggesting the chronicity of the condition. The overall picture was that of an acute cardiac event with a background of drug abuse prior to the episode with an active Herpes genitalis infection.

Herpes genitalis is not associated with myocardial inflammation and there is no evidence in the literature so far to correlate HSV-2 infection as a causative agent for myopericarditis. We postulate a possibility of Herpes genitalis as a potential trigger factor along with the abuse of Amphetamine and Marijuana to cause myopericarditis. We also believe that the same immune mediated reaction and myocarditis due to Herpes Zoster Virus (HSV-3) infection can also be attributed to HSV-2 in causing myopericarditis. Our patient had on and off Herpes genitalis for ten years and he has been taking acyclovir

when he gets an exacerbation of the infection. There is a chronic sub acute infection on going in this case without immune compromise. This again may have primed the myocardium without obvious myopericardial inflammation and the drug abuse together may have brought the clinical picture evident, in the form of myopericarditis. After these may years of intermittent drug abuse this was the first occasion when the viral infection was active with a recent intake of Amphetamine and Marijuana. Other interesting fact about the recurrent Herpes genitalis was that the viral infection is treated with Acyclovir for two to three weeks when there is an flare up and the genital lesion disappear for several months when the activation occurs. There is no compromise in his immune status and HIV test was negative.

One can argue that this presentation could be a direct effect of the Amphetamine and marijuana but these substances are notorious to cause acute ischaemic events because of their vasoconstrictor effect on the coronary arteries than causing myocardial inflammation. In the same setting the Herpes genitalis chronicity with acute exacerbation could not be ignored as this may have acted as an underlying trigger factor for the acute myopericarditis. After a course of Acyclovir, rest and analgesia he was discharged home. The patient underwent psychiatric assessment and councelling. On a 5 year follow up he remains asymptomatic and clinically well.

CONCLUSION

Acute myopericarditis can be misdiagnosed for acute myocardial infarction in an emergency setting. Herpes Zoster may trigger myopericarditis in such circumstance under possible immune mediated toxic influence of amphetamine and marijuana. There is always a component of myocardial involvement with pericarditis. Careful history must be obtained to look for substance abuse as they may trigger myocarditis. Investigation in this case must include HIV testing, as imunocompromised individuals are more prone for recurrent Herpes infection and myocardial biopsy in this clinical situation may differentiate toxic myocarditis from infectious cause.

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