

# Myopericarditis Caused by H1N1 Virus Infection

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## ABSTRACT

A 25-year-old male patient, applied to emergency department with complaints of fever lasting for 3 days, non-productive cough and tachycardia. Troponin I level was 18 ng/ml. The patient had no previously known disease and was hospitalized in coronary intensive care unit. We presented a case of acute myopericarditis occurred after an acute influenza infection, caused by H1N1 virus that recently led to pandemics worldwide.

**Key words:** H1N1, myocardit, pericardit

## H1N1 Virüs Enfeksiyon Nedeniyle Meydana Gelen Myokardit

### ÖZET

25 yaşında erkek hasta, 3 gündür süren ateş, kuru öksürük ve taşikardi nedeniyle acil servise başvurdu. Troponin I düzeyi 18 ng/ml idi. Hastanın bilinen hiç bir hastalığı yoktu ve hasta koroner yoğun bakım ünitesine yatırıldı. Biz son yıllarda pandemiye neden olan H1N1 virüsüne bağlı olarak gelişen myokardit olgusunu sunduk.

**Anahtar kelimeler:** H1N1, myokardit, perikardit

## INTRODUCTION

Although acute viral infections are generally asymptomatic, they can rarely lead to inflammation of the heart, such as acute myocarditis. Myocarditis is a disease resulting from the inflammatory infiltration of myocytes and accompanied by the necrosis of cardiac muscle. While viruses are the most common causes of the myocarditis, other agents such as bacteria, fungi, autoimmune diseases and pharmacological agents may lead to myocarditis. Viral myocarditis frequently occurs after a recently experienced upper respiratory tract infection, which is generally asymptomatic and may rarely results to congestive heart disease and death (1). Although various diagnostic tools such as echocardiography, myocard perfusion scintigraphy (MPS) and cardiac magnetic reso-

nance imaging (CMRI) have been used for the diagnosis, but to make precise diagnosis is often difficult. Until now, except anti-inflammatory and supportive therapy, there is no definitive medical therapy (1).

Our aim are to present a case of acute myopericarditis occurred after an acute influenza infection, caused by H1N1 virus that recently led to pandemics worldwide.

## CASE

A 25-year-old male patient, applied to emergency department with complaints of fever lasting for 3 days, non-productive cough and tachycardia. Troponin I level was 18 ng/ml. The patient had no previously known dis-

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Received: 01.06.2011, Accepted: 04.07.2012

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ease and was hospitalized in coronary intensive care unit.

In physical examination; the patient was generally stable and blood pressure, heart rate, and temperature was 90/60 mmHg, 99/min, 37.2°C, respectively. Pericardial frottement was seen but there were no hepatomegaly, splenomegaly or palpable lymph node. While chest X-ray was normal, electrocardiography (ECG) revealed diffuse concave ST-segment elevation in all leads except V1 and AVR, and a PR depression in V1, along with a normal sinus rhythm. A minimal pericardial effusion, hypokinesia of mid and apical areas of the septum and normal ejection fraction were detected by echocardiography. Normal thyroid-stimulating hormone and hemoglobin levels, leucopenia (4.100 cells/mm<sup>3</sup>), elevated micro CRP : 11.2 mg/L and AST 85 UI/L, ALT 57 levels were found. Troponin I reached to peak level on the second day (39.584 ng/mL). Many serological analysis like EBV, CMV, parvovirus B19, HBV, HCV, HIV1-2, HTLV were negative. Polymerase chain reaction (PCR) test result was positive which the sample was obtained from nasal swab for diagnosis of H1N1. A medical therapy was initiated with Oseltamivir phosphate 75 mg and Moxifloxacin 400 mg. Patient did not show fever during hospitalization. Coronary arteries were normal. Control echocardiographic findings were the same before. Patient was discharged after a few days of hospitalization, and control echocardiographic findings which done 15 days after discharge were in normal limits.

## DISCUSSION

Diagnosis of myocarditis is more important than pericarditis, because of prognostic significance. Myocardial inflammation occurs in myocarditis and leads to serious complications, in particular arrhythmias, such as ventricular arrhythmia, or cardiac dilatation. These complications can arise suddenly, and could become life-threatening.

Influenza virus is a single-stranded RNA virus, belonging to Orthomyxoviridae family. It has three types, namely A, B and C. Influenza A, that is present in humans, is classified subtypes according to Hemagglutinine (16 H) and Neuraminidase (9N) surface antigens. Influenza A has subtypes such as H1N1 (1918 Spanish influenza and Pandemic influenza 2009), H2N2 (1957 Asian influenza), H3N2 (1968 Hong Kong influenza), H5N1 (avian influ-

enza) and other subtypes less associated with humans (H7N7, H1N2, H9N2, H7N2, H7N3, H10N7) (2).

The most commonly seen symptoms, which spreads by droplets, are fever with sudden onset, coughing, sore throat and fatigue. Polymerase Chain Reaction (PCR) is used for diagnosis (4). Clinical presentation can vary from subclinical status, similarly to seasonal influenza, to severe conditions like respiratory failure and death (myocarditis, encephalopathy, toxic shock syndrome) (3). In this article, we presented a case that begun like a seasonal influenza thereafter, progressed to myopericarditis. Echocardiographic results returned to normal, during the follow-up.

Consequently, infection caused by H1N1 virus that led to pandemics worldwide is generally subclinical or asymptomatic. But as in our case report, it may also rarely cause severe complications such as myocarditis, pericarditis, bronchial asthma, encephalitis, toxic shock syndrome and secondary bacterial pneumonia.

## REFERENCES

1. Cooper LT, Baughman KL, Feldman AM, et al. *The role of endomyocardial biopsy in the management of cardiovascular disease: A scientific statement from the American Heart Association, the American collage of Cardiology, and the European Society of Cardiology endorsed by the Heart Failure Society of America and the Heart Failure Association of the European Society of Cardiology.* *J Am Coll Cardiol* 2007;50:1914-31.
2. Fowler R, Jouvett P, Christian M, Kumar A. *Critical Illness Due to Influenza A 2009 H1N1.* *Crit Care Rounds* 2009;11:14
3. *(Assessing the severity of an influenza pandemic At: [http://www.who.int/csr/disease/swineflu/assess/disease\\_swineflu\\_assess\\_20090511/en/index.html](http://www.who.int/csr/disease/swineflu/assess/disease_swineflu_assess_20090511/en/index.html) (Accessed on 17-5-2009).*
4. Khanna M, Gupta N, Gupta A, Vijayan VK. *Influenza A (H1N1) 2009: a pandemic alarm.* *J Biosci* 2009;34(3):481-9.