Journal of Turgut Ozal Medical Center 2016;23(4):465-7
OLGU SUNUMU/CASE REPORT DOI: 10.5455/jtomc.2016.03.047

Case report: coronary embolism with st segment elevation in a patient with double valve replacement

Olgu sunumu: st segment elevasyonlu mi ile gelen çift kapak değişimi olan hastada koroner emboli

Ali Gur, Mehmet Ediz Sarihan

İnönü University, Faculty of Medicine, Department of Emergency, Malatya, Turkey

Abstract

This report describes a case of coronary embolism with ST segment elevation in a patient with aortic and mitral valve replacement admitted to our emergency department with complaining chest pain. A 25- year- old male was admitted to our emergency department complaining chest pain. The patient's chest pain was sudden, onset and compressive style. In his medical history he had aortic and mitral valve replacement two years ago. He was using warfarin regularly. His physical examination was normal. The ECG showed ST segment elevation in leads II, III and aVF. In laboratory analysis, creatine kinase MB (CK-MB) was 159 U/L (upper limit 25 U/L), troponin-I was 6.8 ng/ml (upper limit 0.01 ng/ml) and CK was 1225 U/L (upper limit 170 U/L). International normalized ratio (INR) was 1.2 although the patient was receiving warfarin treatment. Medical treatment was started in the emergency department immediately and cardiology consultation was requested. Coronary angiography was made to the patient by cardiologist. The patient's coronary angiography showed thrombus which caused %99 occlusion of circumflex artery (Cx) after OM2 branch. Thrombus aspiration was performed and treatment was contiuned at coronary intensive care unit. In his follow-up examination ECG changes was occurred. The patient's ECG showed normal sinus rhythm. In his following blood tests; troponin-I, CK and CK-MB decreased normal levels. After warfarin dosage adjustment the INR increased to 3.7. The patient continued to improve clinically and was discharged home. Coronary embolism should be suspected in patients with complaining chest pain, medical history of valve replacement and ST segment elevation.

Keywords: Coronary Embolism; St Segment Elevation; Chest Pain.

Öz

Bu olgu sunumunda acil servise göğüs ağrısı şikayeti ile başvuran inferior derivasyonlarda ST segment elevasyonu olan, özgeçmişinde aort ve mitral kapak değişim öyküsü olan yapılan koroner anjiyografide koroner emboli tespit edilen hastayı sunmayı amaçladık. Yirmi beş yaşında erkek hasta göğüs ağrısı şikayeti ile acil servisimize başvurdu. Hastanın ani başlayan sıkıştırır tarzda göğüs ağrısı mevcuttu. Hastanın özgeçmişinde 2 yıl önce aort ve mitral kapak değişim öyküsü vardı. Bu nedenle düzenli olarak warfarin kullanıyormuş. Hastanın fizik muayenesi doğaldı. Hastanın çekilen elektrokardiyogramında (EKG) II, III ve aVF derivasyonlarında ST segment elevasyonu mevcuttu. Hastanın troponin değeri 6.8 µg/L (üst limit 0.01 ng/ml), CK-MB 159 U/L (üst limit 25 U/L), CK 1225 U/L (üst limit 170 U/L) olarak yüksekti. Hastanın INR değeri ise warfarin kullanımına rağmen 1.2 idi. Hastanın medikal tedavisi acil serviste başlanarak kardiyoloji konsültasyonu istendi. Kardiyoloji tarafından hasta acil koroner anjiyografiye alındı. Hastanın koroner anjiografisinde sirkümflex arterde Om2 dalı sonrası %99 tıkanıklığa yol açan trombüs tespit edildi. Hastaya trombüs aspirasyonu uygulandı ve medikal tedavisine koroner yoğun bakımda devam edildi. Hastanın takiplerinde kan tetkiklerinin ve kliniğinin düzelmesi üzerine hasta şifa ile taburcu edildi. Acil servise göğüs ağrısı şikayeti ile başvuran, özgeçmişinde kapak değişim öyküsü bulunan, elektrokardiyogramında ST segment elevasyonu tespit edilen hastalarda koroner emboli olabileceği akılda tutulmalıdır.

Anahtar Kelimeler: Koroner Emboli; St Segment Elevasyonu; Göğüs Ağrısı.

Received/Başvuru: 07.04.2016
Accepted/Kabul: 11.07.2016

Correspondence/İletişim
Ali Gur
İnönü University, Faculty of Medicine, Department of Emergency, Malatya, Turkey
E-mail: doktoraligur@gmail.com

How to cite this article/Atıf için
Gur A, Sarihan ME. Case report: coronary embolism with st segment elevation in a patient with double valve replacement. J Turgut Ozal Med Cent 2016;23(4):465-7.

2016;23(4):465-7
DOI:10.5455/jtomc.2016.03.047

INTRODUCTION

Coronary embolism is a rare cause of myocardial infarction (MI) (1). The reasons of nonatherosclerotic MI include congenital anomalies of coronary arteries, coronary arteritis and coronary artery embolism (2). The diagnosis of coronary embolism should be considered in patients with dilated cardiomyopathy, rheumatic heart disease, chronic atrial fibrillation, infective endocarditis, valve prosthesis or hypercoagulable states such as pregnancy (3). In this report we aimed to present a coronary embolism case with ST segment elevation in a patient with aortic and mitral valve replacement admitted to our emergency department with complainig chest pain.

CASE REPORT

A 25 – year- old male was admitted to our emergency department with complaining chest pain. The patient's chest pain was sudden, onset and compressive style. In his medical history he had aortic and mitral valve replacement two years ago. Therefore, he was using warfarin regularly. His vital signs were stable. His physicial examination was normal. In his electrocardiogram (ECG) showed ST segment elevation in leads II, III and aVF (Figure 1).

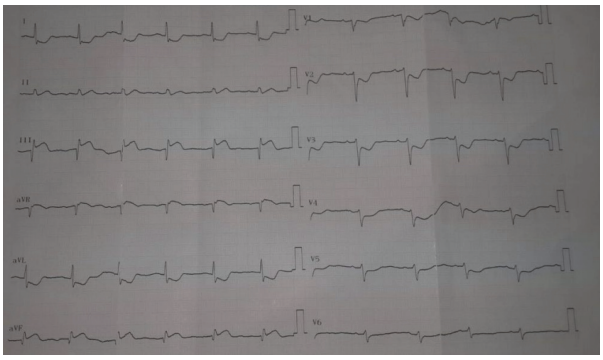

Figure 1. Initial electrocardiogram at presentation to the emergency room

In laboratory analysis, creatine kinase MB (CK-MB) was 159 (upper limit 25 U/L), troponin-I was 6.8 (upper limit 0.01 ng/ml) and CK was 1225 (upper limit 170 U/L). International normalized ratio (INR) was 1.2 although the patient was receiving warfarin treatment. The other laboratory tests were normal. Medical treatment was started in the emergency department immediatly and cardiology consultation was requested. Coronary angiography was performed. The patient's coronary angiography showed thrombus which caused %99 occlusion of circumflex artery (Cx) after OM2 branch. Thrombus aspiration was performed and treatment was contiuned at coronary intensive care unit. In his follow-up examination ECG changes was occurred. The patient's ECG showed normal sinus rhythm. The patient's echocardiogram showed functional mitral/aortic valves and no pathological findings were observed. In his following blood tests; troponin-I, CK and CK-MB decreased normal levels. After warfarin dosage adjustment the INR value increased to 3.7. The patient continued to improve clinically and was discharged home.

DISCUSSIONS

Results of coronary angiography of patients who had ST segment elevation MI revealed coronary vasospasm, coronary embolism and aortic dissection with no evidence of atherosclerosis. These results were also confirmed at autopsy (4). In our case we identified coronary embolism as the cause of ST segment elevation in MI.

The first case of coronary embolism that presented as myocardial infarction was reported by Virchow in 1856 (5). Virchow's triad of local trauma to the vessel wall, hypercoagulability and stasis of blood leads to thrombus formation. Recent studies showed that haemostatic changes related to fibrin formation and fibrinolysis also play important roles (6). The source of embolism is mostly thrombosis (7). Embolism means the obstruction of blood vessel mostly by thrombus that travel through the bloodstream (8). The causes of embolism are multifactorial and some of them are vascular diseases, cardiac diseases, dysfunction of thrombocyte, hypercoagulable states (9).

The rate of prosthetic valve induced thromboembolism is %0.5-8 and usually caused by left mechanical prosthetic valve. Valve replacement and atrial fibrillation increases the risk of embolism. Patients with double valve replacement has the risk of thromboembolism 1.5 times higher than the others (10). In our case mitral and aortic valve replacement were available so the risk of thromboemboli was higher compared to patients with one valve replacement.

Balloon angioplasty, stent or aspiration are recommended as treatment of coronary embolism with ST elevation Myocardial Infarction (11). In our case thrombus aspiration was performed and medical treatment was continued in coronary intensive care unit.

RESULTS

Coronary embolism should be suspected in patients with complainig chest pain, medical history of valve replacement, ST segment elevation in ECG and appropriate medical treatment must be given immediately.

REFERENCES

1. Kiernan TJ, Flynn AM, Kearney P. Coronary embolism causing myocardial infarction in a patient with mechanical aortic valve prosthesis. Int J Cardiol 2006;112(2):e14-6.
2. Elliot MA, Braunvard E. Acute myocardial infarction. In: Braunwald E, Zipes DP, Mann L, Libby P(eds). Braunwald's Heart Disease: A Textbook of Cardivascular Medicine. 8th edition. Phledelphia: Saunders 2008;1207-30.
3. Charles RG, Epstein EJ, Holt S, Coulshod N. Coronary embolism in valvular heart disease. Q J Med 1982;51:147-61.

2016;23(4):465-7
DOI:10.5455/jtomc.2016.03.047

4. Dewood MA, Spores J, Notske RN, Mouser LT, Burroughs R, Golden MS. et al. Prevalence of total coronary artery occlusion during the early hours of transmural myocardial infarction. N Engl J Med 1980;303(16):897-902.
5. Greig LD, Leslie SJ, Denvir MA. Paradoxical coronary embolism in a young woman. Int J Cardiol 2007;115(1):e17-9.
6. Carvalho ACA. Hemostasis and Thrombosis. Ed: Schiffman FJ. Hematologic Pathophysiology. Lippincott-Raven. Philadelphia-New York. 1998:161-244.
7. Werner G. Daniel, Itzhak Kronzon, Andreas Mügge NEJM 335:679 August 29,1996
8. Schwartz SM, Heimark RL, Majesky MW. Developmental mechanisms underlying pathology of arteries. Physiol Rev 1990;70(4):1177-209
9. Anderson FA Jr, Spencer FA. Risk factors for venous thromboembolism Circulation. 2003;107(23Suppl1):I9-6.
10. Zabalgoitia M. Echocardiographic recognition and quantitation of prosthetic valve disease. In: Otto C, editor. The Practice of Clinical Echocardiography. 3rd edition. Philadelphia: Saunders Elsevier, 2007;577-604.
11. Steinwender C, Hofmann R, Hartenthaler B, Leisch F. Resolution of a coronary embolus by intravenous application of bivalirudin. Int J Cardiol 2009;132(3):e115-6.