

Thrombotic occlusion of a left main coronary artery in a patient with prosthetic mitral valve

Mitral protez kapaklı olguda sol ana koroner arterin trombotik oklüzyonu

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Introduction

Atherosclerotic plaque rupture and subsequent coronary thrombosis are the main reasons for acute coronary syndromes. Non-atherosclerotic coronary embolism (CE) is an infrequent mechanism in the pathogenesis of acute myocardial infarction (AMI). Diagnosis and treatment of patients with CE are extremely difficult. This paper demonstrates a case of left main coronary (LMC) artery embolism resulting in cardiogenic shock and death in a patient with prosthetic mitral valve.

Case Report

A 42-year-old woman was admitted to emergency room with onset of chest pain and diaphoresis. She had rheumatic mitral stenosis and had undergone mitral valve replacement with St. Jude mechanical valve 3 years before. She had been asymptomatic since operation. A coronary angiogram (CA) was performed preoperatively and revealed normal coronary arteries. The patient has been using warfarin since operation. She has been missing her regular international normalized ratio (INR) controls for about 3 months and her last INR level was 1.42. Patient was anxious, hypotensive (80/50 mmHg) and complaining of chest pain. Prosthetic valve sound was well heard and lungs were clear. Electrocardiogram showed sinus tachycardia (123 bpm) and ST elevation (Fig. 1). A diagnosis of anterior AMI complicated with cardio-



Figure 1. Sinus tachycardia and acute anterior MI with ST elevation in V1-6 and D1-aVL on admission to emergency room 12-lead electrocardiogram

MI - myocardial infarction



Figure 2. Selective right coronary angiography view of a normal right coronary artery

genic shock was made and immediate coronary angiography was performed. Cinefluoroscopy showed no restriction of leaflet motion. Coronary angiogram showed a normal right coronary artery (Fig. 2) and total occlusion of distal LMC (Fig. 3). We planned emergency angioplasty for LMC occlusion. A 7 French Judkins left guiding catheter was used for procedure. Two 0.014-inch guidewires were advanced to the left anterior descending (LAD) artery and circumflex (Cx) artery. Kissing balloon dilatation was performed in distal part of the LMC. Although no-reflow phenomenon was revealed in LAD, TIMI 2 flow was achieved for Cx. Therefore, a 3.5x15 mm bare metal stent was implanted successfully in ostium of the Cx (Fig. 4). The second predilatation with 3x20 mm balloon was performed in the proximal part of the LAD. Despite above intervention no effective flow was provided for LAD. Hemodynamic condition of patient worsened in catheterization laboratory. Immediately endotracheal intubation and intra-aortic balloon pump were performed. Cardiac arrest developed and resuscitation was made unsuccessfully.

Discussion

Acute coronary syndromes without atherosclerotic plaque have been reported in 7% of all patients (1). Coronary embolism without atherosclerosis was reported in various situations as rheumatic heart disease, atrial fibrillation, dilated cardiomyopathy, intracardiac shunts, hypercoagulable states, endocarditis and valvular prosthesis (2). There is no agreement on the treatment of CE. Kotooka et al. (3) demonstrated 3 cases with CE resulting AMI (3). They performed only thrombus aspiration to 2 cases and aspiration with subsequent stenting to 1 case successfully (3). A small number of case reports demonstrated AMI due to CE in patients with valvular prosthesis (4-9). In a case with mitral valve prosthesis and AMI due to CE, Doğan et al. (4) performed thrombolytic therapy with tissue plasminogen activator successfully. In another report, thrombotic occlusion of LAD in a patient with aortic valve prosthesis was treated successfully with balloon dilatation and stenting by Kiernan et al. (6). Besides the invasive strategy and thrombolysis, glycoprotein IIb/IIIa inhibitors and bivalirudin infusions were

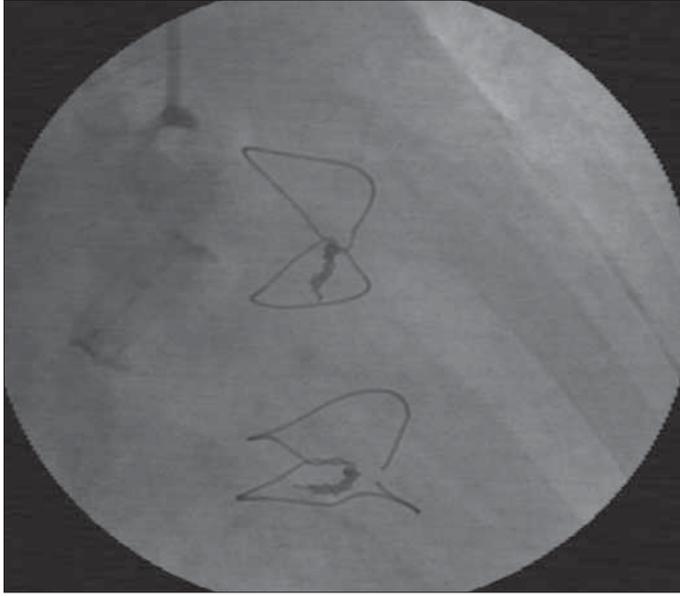


Figure 3. Selective left coronary angiography view of total ostial occlusion of left main coronary artery

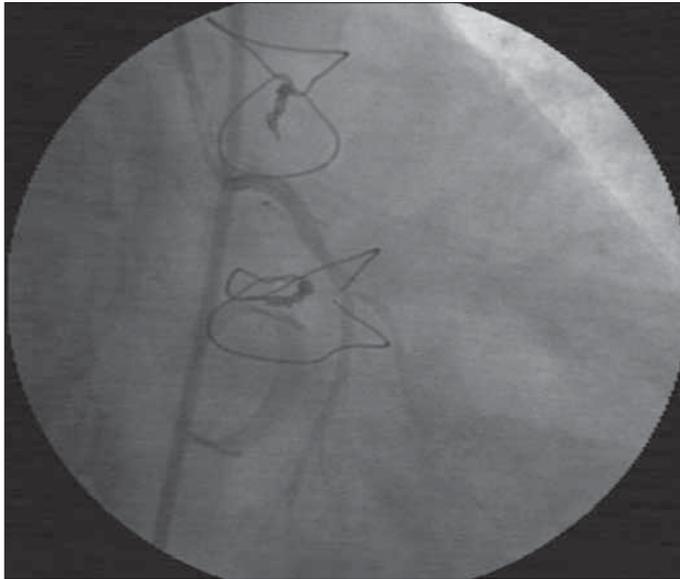


Figure 4. Angiography view of selective injection of left main coronary artery after implantation of 3.5x15 mm bare metal stent to the ostium of the left circumflex artery

tried as treatment modalities (7-9). Previous reports demonstrated hemodynamically stable cases in which embolic masses were located in LAD and RCA. Distinct from previous reports LMC of our case was totally occluded and patient was admitted with cardiogenic shock. Because of hemodynamic instability, we did not perform catheter aspiration and intravascular ultrasound to exclude an atherosclerotic plaque, which cannot be detected with standard angiography. We thought that the mechanism of LMC occlusion in our case was due to non-atherosclerotic CE originated from prosthetic mitral valve because preoperative CA of patient revealed normal coronary arteries.

Conclusion

In this report, we demonstrated the catastrophic results of LMC occlusion due to non-atherosclerotic CE in a patient with mitral valvular pros-

thesis. Although limited experiences showed that thrombus aspiration, coronary stenting and thrombolysis might be alternative treatment choices, our report demonstrated that inappropriate coronary anatomy, localization of thrombus and accompanying hemodynamic instability could make difficult to perform the appropriate treatment strategy in CE. So precise diagnosis of CE with normal coronary arteries is important to define the accurate prevalence and appropriate treatment options.

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Unusual bridging on dual-source CT coronary angiography: right atrial myocardial bridging

Çift-tüplü BT koroner anjiyografide nadir köprüleşme: Sağ atriyal miyokardiyal köprüleşme

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