doi: 10.5505/abantmedj.2015.03743

Abant Medical Journal

Olgu Sunumu / *Case Report*

Volume Cilt 4 *Issue* Sayı 4 *Year* Yıl 2015

Prerequisite Revascularization of Unprotected Left Main Coronary Artery Before Culprit Lesion Stenting

Sorumlu Lezyonu Stentlemeden Önce Ön Koşul Sol Ana Koroner Revaskülarizasyonu

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Özet

Güncel kılavuzlar ana koroner arter hastalığı olan asemptomatik iskemi, stabil anjina yada unstabil anjina / non-STEMI olan hastalarda CABG önerir. Ancak eşlik eden ciddi ana koroner arter hastalığı olan STEMI ile başvuran hastalarda hiç bir öneri yoktur. Bizim vakamızda suçlu lezyonu revaskülarizasyon amacıyla önce ciddi ana koroner arter lezyonu ile uğraşmak zorunda kaldık.

Anahtar Kelimeler: Korunmasız sol ana koroner stentleme, Akut koroner sendrom, PCI, CABG.

Abstract

Current guidelines recommend CABG as the treatment of choice for patients with asymptomatic ischemia, stable angina, or unstable angina/non-ST elevation myocardial infarction who have left main coronary artery disease. However there is no suggestion for patients presenting with ST elevation MI who have concomitant severe LMCA disease. In our case we had to deal with the stable but severe LMCA lesion first, in order to revascularize the culprit lesion.

Keywords: Unprotected left main coronary artery stenting, Acute coronary syndrome, PCI, CABG.

Introduction

Between 4% and 7% of patients with acute myocardial infarction (AMI) have significant involvement of the left main coronary artery (LMCA) (1-2). Current guidelines have no recommendation for patients with ST elevation MI who also have a very critical LMCA lesion. As we all do know, for patients requiring LMCA revascularization, coronary artery bypass graft (CABG) surgery has been the gold standard therapy option. On the other hand, primary percutaneous coronary intervention is the gold standard therapy in STEMI patients. What we have to deal herein is a challenging LMCA lesion preventing us to revascularize the culprit lesion unless we firstly stent the LMCA lesion itself.

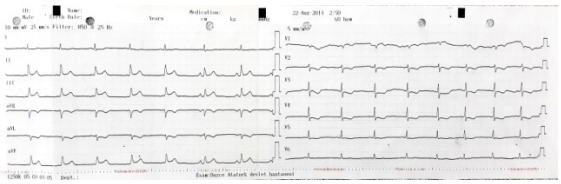

Figure 1. Initial ECG (Electrocardiogram) showed 1 mm ST segment elevation in leads D2, D3, aVF and 0,5 mm ST segment depression in leads D1,aVL, V2-5

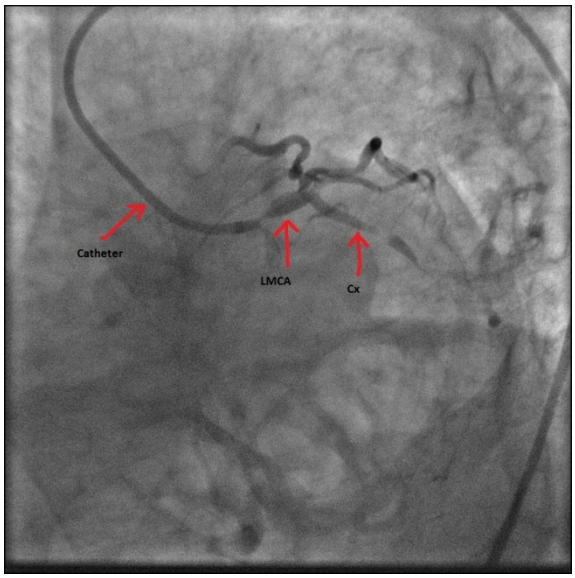

Figure 2. The patient immediately underwent coronary angiography (CAG) which revealed an accompanying critical LMCA lesion as well as total occlusion of the Cx artery

Case report

A 65 year-old female patient presented to our Emergency Department with crushing chest pain which had lasted half an hour. She had a history of hypertension. Arterial blood pressure was 130/80, and heart rate was regular 60 bpm at the time of admission. The initial ECG

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Geliş tarihi / *Received*: 16.08.2014 **Kabul tarihi / Accepted:** 18.11.2014 **Çıkar Çatışması / Conflict of Interest:** Yok / None

(Electrocardiogram) showed 1 mm ST segment elevation in leads D2, D3, aVF and 0,5 mm ST segment depression in leads D1,aVL, V2-5 (Figure 1). The patient immediately underwent coronary angiography (CAG) which revealed an accompanying critical LMCA lesion as well as total occlusion of the Cx artery (Figure 2-5). Since that catheter induced iatrogenic LMCA spasm is not a rare condition we had a pose after sufficient amount of nitroglycerin is administered through catheter in order to exclude this entity, which shows no difference than previous images. So we continued the procedure. After implanting a bare metal stent (4,0x9 mm İNTEGRİTY) to the LMCA lesion, we managed to deploy a drug eluting stent (2,5x24 mm ENDEAVOUR) to the culprit lesion after predilatation with a 2,0x20 mm balloon. After the intervention patient's chest pain relieved and the ST segment elevation resolved completely (Figure 6). The hospital stay of the patient was uneventful and she was discharged with acetylsalicylic acid, clopidogrel, atorvastatin, metoprolol and ace-inhibitor therapy.

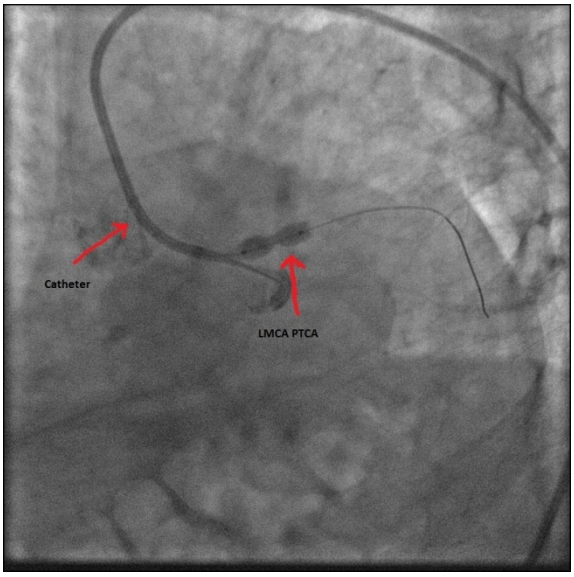

Figure 3. LMCA stenting

Discussion

Critical unprotected left main coronary artery (ULMCA) stenosis is the most severe type of coronary artery lesion and carries a high risk of short-term death in the absence of treatment (3-4), because it compromises a large proportion of the myocardium. The Coronary Artery Surgery Study (CASS) registry (5), which provides data on a vast patient population with long follow-ups, has demonstrated unequivocally that surgical revascularization improves both survival and quality of life. For a long period of time significant disease of a ULMCA has been considered a relative or absolute contraindication to percutaneous transluminal coronary angioplasty, with or without bare-metal stenting, because of high rates of abrupt vessel closure, restenosis, and target vessel revascularization (6-8). Although CABG remains the standard treatment for LMCA disease, Ren-Je et al. (9) demonstrated that stent implantation is a safe and clinically beneficial revascularization procedure for ULMCA disease in patients who have high operative risk as well as those who refuse CABG.

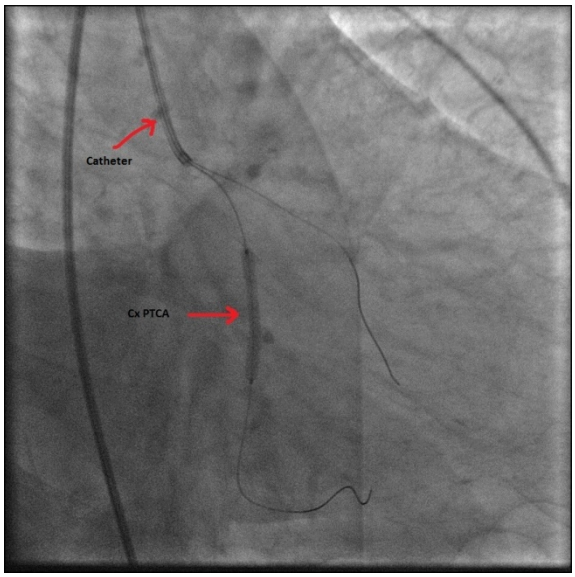

Figure 4. Cx artery stenting

Revascularization of unprotected left main coronary artery before acute coronary syndrome related culprit lesion stenting has never been published before. However, emergency PCI to an ULMCA culprit lesion in patients with ACS is a feasible therapeutic option with acceptable major adverse cardiac event (MACE) rates and should be considered in patients presenting with AMI in the acute setting. Primary PCI of the ULMCA is technically feasible in most patients and has the advantage of providing more rapid reperfusion compared with CABG, with acceptable short- and long-term outcomes (10).

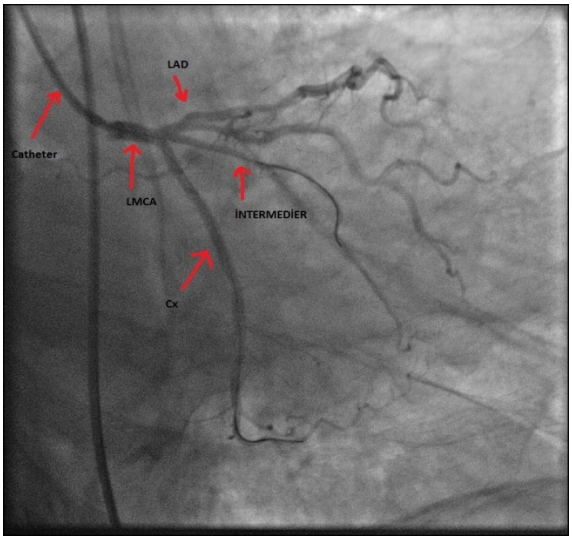

Figure 5. Final image after percutaneous coronary intervention of LMCA and Cx artery

Even in the most recent data, very few patients treated with primary PCI underwent adhoc revascularization of ULMCA, thus outcomes associated with urgent revascularization of stable LMCA disease in the emergency setting remained largely undefined.

To our knowledge, our study is the first case reported as a prerequisite ULMCA stenting before revascularization the culprit lesion. Thus, the management of such a case needs far more studies based on similar cases. However, revascularization of unprotected left main coronary artery before acute coronary syndrome related culprit lesion stenting seems to be an appropriate way of managing the case as discussed above.

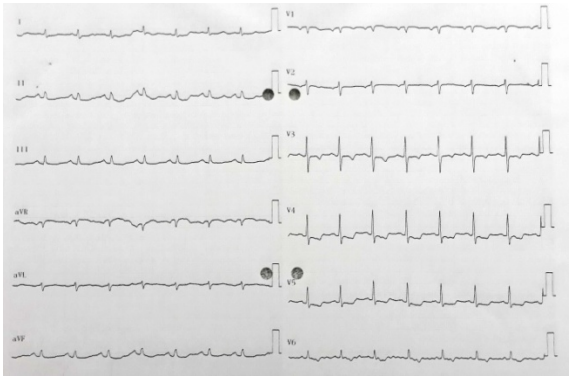

Figure 6. ECG showed ST segment resolution after percutaneous coronary intervention of both coronary arteries are successfully completed

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