

# Iatrogenic Left Main Coronary Artery Dissection – A Disastrous Complication

Baysal SS\*, Özbek K and Cirit A

Şanlıurfa Mehmet Akif İnan Training and Research Hospital, Cardiology Department, Şanlıurfa, Turkey

## Abstract

Iatrogenic left main coronary artery (LMCA) dissection is a potentially fatal complication of coronary intervention which requires rapid and effective management. Bailout stenting, coronary artery bypass grafting (CABG) and conservative approach could be followed due to patient's clinical status. In this report, we present a LMCA dissection case which was managed successfully with coronary revascularization.

**Keywords:** Left main coronary artery; Dissection; Bailout stenting; Coronary artery bypass surgery

## Introduction

Although iatrogenic left main coronary artery (LMCA) dissection rarely occurs, it is one of the most dreadful complications of coronary catheterization with an incidence of less than 0.1. If not managed quickly and properly, it could be fatal. Bailout stenting, coronary artery bypass grafting (CABG) and conservative approach are the options of treatment for this situation. In this report, we present a guide catheter induced LMCA which was managed with both bailout stenting and then CABG [1,2].

## Case

A 67-year-old man with smoking history admitted with non-ST-segment elevation myocardial infarction to our clinic. Coronary catheterization performed; there was 95% stenosis in proximal segment of left anterior descending artery (LAD) and 90% stenosis in the mid segment of intermediate coronary artery (IM). LAD lesion was covered successfully with 2.75\*23 mm drug-eluting stent. Elective percutaneous coronary intervention (PCI) was planned ten days later. On the next admission for elective PCI to IM, right femoral approach with 6F introducer sheath was used and LMCA was engaged with an extra support 6F EBU 3.5 guiding catheter (Medtronic, USA). After contrast injection to visualize coronary arteries, extensive dissection was revealed from LMCA to LAD proximal segment with total occlusion (Figure 1). Dissection also extended to ostial circumflex coronary artery (CX). Patient had a severe chest pain and heart rate was decreased. In a minute ventricular fibrillation occurred. Patient was immediately resuscitated with support of vasopressors and inotropes. After two times defibrillation with 360 joule, normal sinus rhythm was provided. We decided to perform bailout stenting for LMCA because of critical condition of the patient. Both CX and LAD true lumens were crossed with 0.014 inch Fielder wires. At first balloon inflation was performed with 2.0\*15 mm semi-compliant balloon in the ostial segment of CX and then 2.0\*12 mm balloon was used in proximal LAD. From ostial LMCA to proximal LAD was covered with 3.0\*18 mm drug eluting stent (Figure 2). In both arteries grade (TIMI) 3 flow was provided (Figure 3). After that patient's hemodynamic status stabilized and his chest pain resolved. He was immediately transferred to coronary intensive care unit. In intensive care unit, half an hour later chest pain repeated with ST elevation in anterior leads on electrocardiogram. So we referred the patient to cardiovascular surgeons for urgent CABG. Urgent operation was performed with two anastomoses, left internal mammary artery (LIMA) to LAD and saphenous vein graft (SVG) to CX. After a week, patient was eventually discharged in stable health status.

## Discussion

LMCA dissection is a rare complication of cardiac catheterization which could be catastrophic if not managed properly in time. Inappropriate catheter manipulation, type of the catheter, stiffer guide wires, rapid contrast injection, operator's experience, anatomical localization and atherosclerosis of LMCA are the factors that could lead to dissection. In our case, using stiffer extra support guide

## OPEN ACCESS

### \*Correspondence:

Sadettin Selçuk Baysal, Şanlıurfa Mehmet Akif İnan Eğitim Araştırma Hastanesi, Esentepe, 63300, Şanlıurfa, Turkey.

Tel: +90 414 3186000

Fax: +90 414 3186812

E-mail: sselcukbaysal@hotmail.com

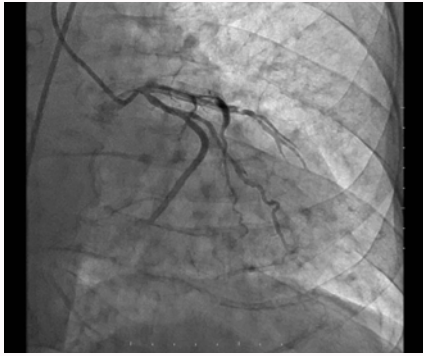
Received Date: 07 Mar 2018

Accepted Date: 23 Apr 2018

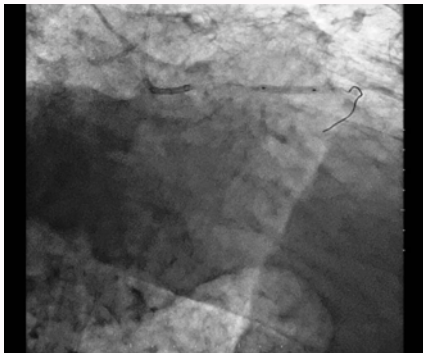
Published Date: 27 Apr 2018

**Citation:** Baysal SS, Özbek K, Cirit A. Iatrogenic Left Main Coronary Artery Dissection – A Disastrous Complication. *J Cardiol Forecast.* 2018; 1(1): 1002.

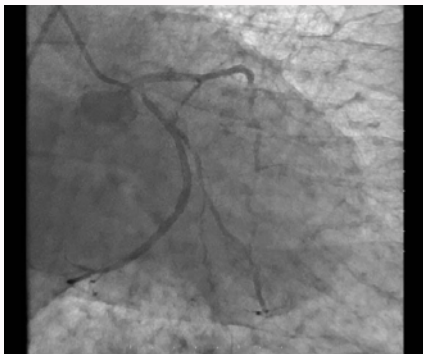
**Copyright** © 2018 Baysal SS. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



**Figure 1:** Iatrogenic left main coronary artery (LMCA) dissection after catheter engagement.



**Figure 2:** Bailout stenting from ostial left main coronary artery (LMCA) to proximal left anterior descending artery (LAD).



**Figure 3:** Re-establishing TIMI 3 coronary flow after bailout stenting left main coronary artery (LMCA).

catheter (6F EBU 3.5) and deep seeding without co-axial alignment with LMCA were the reasons of complication [1-3].

It is very important to decide which treatment strategy to apply when a cardiologist finds himself in this situation. Clinical and hemodynamic status of the patient, extend of the atherosclerosis in other arteries and the grade of the coronary flow in dissected artery are the major criteria's in management of this situation. If patient has chest pain and hemodynamic instability, immediate revascularization (PCI or CABG) therapy should be the first option. In revascularization approach, bailout stenting should be the first decision for rapid treatment. CABG should be considered in case of unsuccessful PCI. For multi vessel lesions, CABG could be the first treatment option [1-3]. In our case we performed bailout stenting first and succeeded for a while but when patient's clinic worsened again we referred the patient to the surgeons for CABG. The last option, conservative strategy called 'watchful waiting' is suitable for asymptomatic patients with good hemodynamic status [4].

Chen et al [5] reported that urgent bailout stenting with back-up CABG when needed, had a survival rate of 94.4% among 36 patients underwent revascularization therapy for iatrogenic LMCA dissection. Estehardi et al [2] reported that during five year follow-up, only one patient died among 31 patients who had revascularization therapy. These results proved that urgent revascularization strategy is a safe and favorable approach for iatrogenic LMCA dissection cases.

## Conclusion

Iatrogenic LMCA dissection is a rare but potentially catastrophic complication of cardiac catheterization with favorable early and long term outcomes when recognized timely and treated with proper strategy.

## References

1. Onsea K, Kayaert P, Desmet W, Dubois C. Iatrogenic left main coronary artery dissection. *Netherlands Heart Journal*. 2011; 19: 192-195.
2. Eshtehardi P, Adorjan P, Togni M, Tevaearai H, Vogel R, Seiler C, et al. Iatrogenic left main coronary artery dissection: incidence, classification, management, and long-term follow-up. *American heart journal*. 2010; 159: 1147-1153.
3. Namazi MH, Rostami RT, Mohammadi A, Amini AL, Safi M, Saadat H, et al. Iatrogenic left main artery dissection: A catastrophic complication. *Experimental & Clinical Cardiology*. 2012; 17: 254.
4. Alfonso F, Almeria C, Fernández-Ortíz A, Segovia J, Ferreiros J, Goicolea J, et al. Aortic dissection occurring during coronary angioplasty: angiographic and transesophageal echocardiographic findings. *Catheterization and Cardiovascular Interventions*. 1997; 42: 412-415.
5. Cheng C-I, Wu C-J, Hsieh Y-K, Chen Y-H, Chen C-J, Chen S-M, et al. Percutaneous coronary intervention for iatrogenic left main coronary artery dissection. *International journal of cardiology*. 2008; 126: 177-182.