

Successful Percutaneous Intervention of the Left Main and Right Coronary Arteries in the Same Session

Sol Ana Koroner Arter ve Sağ Koroner Artere Aynı Seansta Başarılı Perkütan Girişim

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Abstract

Left main coronary artery (LMCA) stenosis is a relatively infrequent but important cause of symptomatic coronary artery disease. Patients who have LMCA stenosis experience a high rate of complications during or shortly after catheterization. In this case, we present a 84 years old woman with subacute inferior myocardial infarction and confirmed diagnosis of both LMCA and right coronary ostial severe stenosis who was successfully managed with percutaneous coronary intervention in the same session due to the sudden development of cardiogenic shock. (*Sakarya Med J* 2017, 7(3):154-157)

Anahtar Kelimeler: Left main coronary artery, cardiogenic shock, percutaneous coronary intervention, same session

Özet

Sol ana koroner arter (SAKA) darlığı semptomatik koroner arter hastalığının önemli fakat nispeten nadir bir sebebidir. SAKA darlığı olan hastalar kateterizasyon esnasında veya hemen sonrasında ortaya çıkabilecek yüksek komplikasyon riski altındadır. Bu vakada subakut inferior miyokard enfarktüsü ile prezente olan, koroner anjiyografi sonucu SAKA ve sağ koroner arterde ciddi ostial lezyon saptanan ve ani kardiyojenik şok geliştiği için aynı seansta hem SAKA hem de sağ koroner artere stent takılan 84 yaşında bir erkek hasta sunulmaktadır. (*Sakarya Tıp Dergisi* 2017, 7(3):154-157)

Keywords Sol ana koroner arter, kardiyojenik şok, perkütan koroner müdahale, aynı seans

Introduction

Significant left main coronary artery (LMCA) stenosis is detected in 4-10% of patients undergoing coronary angiography and is associated with poor prognosis in their follow-up¹. Recently published guideline of European Society of Cardiology (ESC) on myocardial revascularization recommended that patients with LMCA disease are eligible for management either with percutaneous coronary intervention (PCI) or coronary artery bypass graft (CABG)². The key criteria to decide for the choice of therapeutic strategy are location of the lesion, risk scoring scale of the patient (SYNTAX score), and the absence/presence of multivessel disease. Another criterion was presence of cardiogenic shock secondary to acute coronary syndrome and/or LMCA stenosis requiring emergent PCI².

In this case report, we present revascularization of proximal LMCA and ostial right coronary artery (RCA) lesions managed successfully by PCI at the same session due to the haemodynamic instability which developed secondary to subacute inferior myocardial infarction (MI).

Case Presentation

A 84-year-old female patient was presented to emergency department with chest pain characterized by retrosternal pressure, starting about 10 hours ago and lasting 5-6 hours. Medical history of patient did not reveal any coronary artery disease or cardiovascular risk factors. Blood pressure at presentation was 130/80 mmHg and heart rate was 83 beats per minute. Electrocardiogram showed normal sinus rhythm, 1 mm ST elevations and pathological Q waves at D2, D3 and aVF leads and T wave inversions at V2 to V6 leads. Cardiac biomarkers at initial evaluation showed high-sensitive troponin value as 1162 pg/ml (reference range: 0-14 pg/ml). Thereafter, patient was transferred to catheterization laboratory with the diagnosis of subacute inferior MI. During cardiac catheterization, LMCA ostial calcific lesion (Figure 1a) and RCA ostial lesion (Figure 2a) were persisted despite intravenous nitrate. The patient was immediately consulted with the department of cardiovascular surgery (CVS) with a final decision to perform a surgical intervention. Subsequently the patient was admitted to the coronary intensive care unit to monitor under IV nitrate and heparin therapy. The next day when the surgery would

be performed, chest pain recurred with diffuse ST elevation and hypotension, which was consulted with CVS unit again. CVS team claimed against surgical intervention due to current clinical condition and increased risk of perioperative mortality. Therefore, the patient was taken into the catheterization laboratory again. RCA was catheterized with Judgkins right 4.0 guiding catheter. 99% stenoses after RCA ostial and conus branches were passed through floppy guidewire. These stenoses were pre-dilated with Simpass balloon, followed by implantation of 2.5x23 mm drug eluting stent (DES – everolimus eluting stent) to distal lesion and 2.75x18 mm DES to RCA ostial lesion (Figure 2b). Hemodynamic instability was observed to be resolved after restoring blood flow in RCA. Subsequently, PCI of LMCA was decided in the same session and pre-dilation of LMCA ostium was performed with 3.5x12 mm Simpass balloon. Residual stenosis was managed by implantation of 4.0x16 mm DES (Figure 1b). No complication was observed and the procedure was completed successfully.

Figure 1. Selective coronary angiographic images of the left main coronary artery;

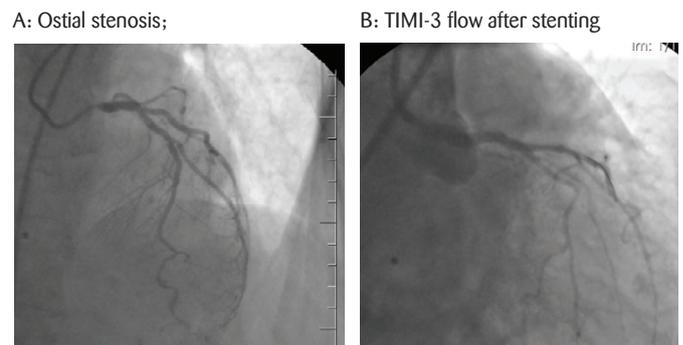
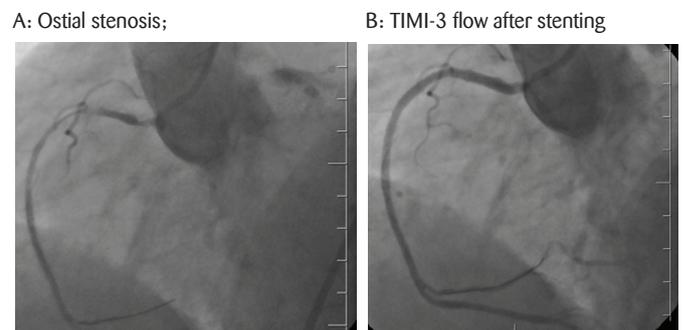


Figure 2. Selective coronary angiographic images of the right coronary artery;



While being monitored in coronary intensive care unit after the procedure, the patient had cardiac arrest which returned to sinus rhythm after cardiopulmonary resuscitation. Since ECG showed increments of ST elevations in inferior leads, the patient was proceeded to catheterization laboratory again. Upon visualization of hazy appearance within RCA ostial stent, the same lesion was managed by implantation of 2.75 x12 mm DES with a post-dilation of 3.5 x 10 mm non-compliant balloon, ensuring a thorough, normal blood flow. No complication was observed and the procedure was completed successfully, after which the patient was followed up in the coronary intensive care unit.

Discussion

This case was about an old female patient who presented to our department with clinical manifestations of subacute inferior MI secondary to LMCA stenosis along with RCA ostial lesion. The patient was initially planned to be managed by CABG (with a SYNTAX score 31), yet worsening clinical condition and increased perioperative risk made CVS team to refer the patient to our department to perform percutaneous intervention. Percutaneous transluminal coronary angioplasty with coronary stenting was performed to RCA ostial lesion and LMCA lesions consecutively at the same session. Intraaortic balloon pump was not implanted upon restoring of TIMI-3 flow, absence of mechanical complications, and normalization of haemodynamic parameters after the procedure, and the patient was managed by medical therapy. Very few publications are present in the literature describing such patients.

Though unprotected LMCA stenosis presented with acute coronary syndrome is a rare condition, increased in-hospital mortality is reported especially in STEMI and/or hemodynamically or arrhythmically instable patients³. PCI is a commonly used approach in these cases, often preferred in surgically high-risk patients with comorbid conditions and/or in hemodynamically instable patients. Montalescot et al. in their study consisting of cases of LMCA stenosis presented with acute coronary syndrome reported that percutaneous intervention was preferred in high risk patients and associated with recurrent revascularization in 6-month follow-ups. On the contrary, CABG was preferred in low risk patients, which provided a better quality of life³.

Unprotected left main trunk intervention multi-center assessment (ULTIMA) registry including 40 LMCA stenosis cases who underwent primary PCI and comparing in-hospital and 1-year mortality rates between those managed by balloon angioplasty alone (70%) and those managed by primary stenting (35%), concluded stent implantation to be performed in all patients⁴. Tan et al⁵ performed a study with 279 LMCA patients where they assess long-term results of percutaneous revascularization. Investigators concluded that unprotected LMCA procedure might be an alternative option in elective patients and an appropriate approach in hemodynamically unstable and surgically high-risk and/or inoperable patients. Caggegi et al⁶ investigated 1-year major outcomes of 583 LMCA patients presented with ACS, who were randomized to either PCI or CABG strategies. The results of the study showed no difference between PCI and CABG groups in terms of mortality, while rate of major cardiac adverse events requiring re-revascularization was found to be higher in PCI arm. Abdelmalak et al⁷ examined LMCA patients presented with ACS, who were considered to be in high-risk group for CABG. Primary outcomes of the study were incidence of death, major cardiac adverse event, and repeated revascularization, where authors concluded that PCI might be an alternative treatment to CABG in these patients.

Clinical approach and management of LMCA stenosis presented with acute coronary syndrome is still not clearly established so far. Further large-scale studies are needed to define novel treatment strategies and experiences and to determine an optimal approach for this condition where an immediate and maximal revascularization is addressed.

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