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CASE REPORT
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# Akut ST Yükselmeli Miyokard Enfarktüsünde Sol Ana Koroner Stentleme Olgusu

# The Case of Left Main Coronary Stenting in Acute ST Elevation Myocardial Infarction

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**Öz**

Mevcut çalışmalar ışığında, sol ana koroner arter (LMCA) lezyonları stabil ve planlı hastalarda cerrahiye daha uygundur. Ancak, LMCA lezyonlarının bu stentlemesinde OCT, FFR ve IVUS gibi invaziv araçlar, girişimsel kardiyoloji çağında prosedürel optimizasyon için popülerlik kazanmaktadır. Uzun vadeli sonuçlar tartışmalı olmasına rağmen, kısa süreli çalışmalar stentleme ve cerrahi arasında aynı mortalite ve morbidite oranlarını ortaya koymuştur. Burada, sol koroner sistemde distal akış olmaksızın LMCA'nın total obstrüksiyonu nedeniyle hemodinamik bozukluğu olan akut anteriyor ST yükselmeli miyokard enfarktüslü (MI) hastaya acil şartlarda yapılan crush stentleme işlemini sunuyoruz.

**Anahtar Kelimeler:** , Cerrahi, Sol Ana Koroner, Stentleme.

**Abstract**

In the light of present studies, the left main coronary artery (LMCA) lesions more suitable for surgery on stable and planned patients. But invasive tools like OCT, FFR and IVUS usage in this stenting of LMCA lesions gains popularity for procedural optimization in interventional cardiologist era. Although long term results are debatable but short term studies revealed same mortality and morbidity rates between stenting and surgery in acute coronary syndromes. We herein present an acute anterior ST elevation myocardial infarction (MI) with hemodynamic disturbance because of total obstruction of LMCA with no distal flow in left coronary system. After crush stenting of LMCA, patient's situation was going well and discharged with medical therapy shortly after intervention.

**Keywords:** Left Main Coronary Artery, Stenting, Surgery.

## 1. Introduction

For patients, who is presenting with stable coronary artery disease in unprotected LMCA lesions has been recommended option surgery rather than interventional therapy (PCI). [1] Previous studies revealed that same results of mortality and composite event of death, MI, and stroke in unprotected LMCA-targeted PCI.[2, 3] However There is a lack of evidence of clinic outcomes of PCI in acute coronary syndromes (ACS) along with LMCA lesions.[3]

A few numbers of studies have showed conflicting results in LMCA-PCI in ACS settings. [3] PCI of LMCA is associated with a remarkably high short-term and long-term survival rates in some studies. [4, 5] Also PCI and ACBG have similar clinical outcomes with low rate of stroke in PCI.[4, 5] However, studies on long-term clinical outcomes of LMCA-PCI in the patients with ACS are relatively rare.[3] Contrarily, Some studies revealed poor outcome on PCIs of LMCA. [4, 5] But EXEL trial showed PCI and CABG had similar results in LMCA occlusion with ACS. [4]

## 2. Case Report

We presented, here, the case that ACS with cardiogenic shock and total occlusion of LMCA. The case was 55 years old male, who was presented with hyper acute anterior ST elevated myocardial infarction. He suffered severe chest pain and pressure sensation shortly after heavy meal. Luckily, he close to hospital and applied emergency unit quickly. His history revealed that, he had high blood pressure otherwise he was normal and no complains beforehand. But his family had premature coronary heart disease.

He had one hour lasting complains during administration. His conciseness was open but anxiety and sweeting with nausea were present. His blood pressure and pulse rate was low (80/40 and 55) respectively. During physical examination S3 and apical systolic murmur (1/4) were auscultated and pulses were weak. His ECG shows bradycardia (55 /min) and ST depression in anterior derivations (V4-6) with ST-segment elevation of 5-6 mm in lead aVR. Transthoracic echocardiography revealed globally hypo-akinesia in all segments of LV, also LVEF % 30, first degree mitral insufficiency and type I diastolic dysfunction were present in echocardiography at emergency unit. His blood tests were normal at administration.

After cardiology consultation, he was accepted catheterization laboratory. After that Coronary angiography revealed LMCA total obstruction and no distal run off in left coronary system also RCA was non dominant. (Figure 1A, B). LMCA was wired with PT2, 0,014 coronary guide wire and ballooned with 2.0/20 mm coronary balloon. (Figure 1 C) After balloon, left system was visualized and % 95 distal LMCA lesions were revealed. (Medina 1.1.1, Figure 1D) Kissing balloon with 3,0/20 for LAD and 2, 75/20 for Cx was performed via 16 atm. pressure. (Figure 2A) Residual % 90-80 hazy lesion was stented with 2,75/24 Drug eluting stent (Xience) for Cx and 3, 0/24 (Xience) for LAD via classic crush technic.(Figure 2B, C) After stenting both Cx and LAD rewired and simultaneous kissing balloon of LAD and Cx was performed with 3,0/24 and 2, 75/24 balloons respectively for post dilatation of stents. POT was performed 3,5/10 NC balloon with 16 atm. (Figure 2D) our case was completed within 15 minutes after femoral arterial sheath placement. We did not use OCT, IVUS or FFR for optimization of procedure.

After procedure, tirofiban infusion and LMWH, prasugrel and acetylsalicylic acid, atorvastatin were initialized. One day of procedure cardiac blood markers mildly elevated but clinical presentation remarkably improved and echocardiography showed % 45 LVEF. Patient was discharged 6 days after procedure. Patient had LVEF %50 and functional class NYHA 4 and no symptoms during control examination at 1 month later after discharge.

## 3. Discussion

Acute LMCA occlusion commonly presented as acute pulmonary edema, cardiogenic shock, or sudden death. Only those who had combined coexistence of

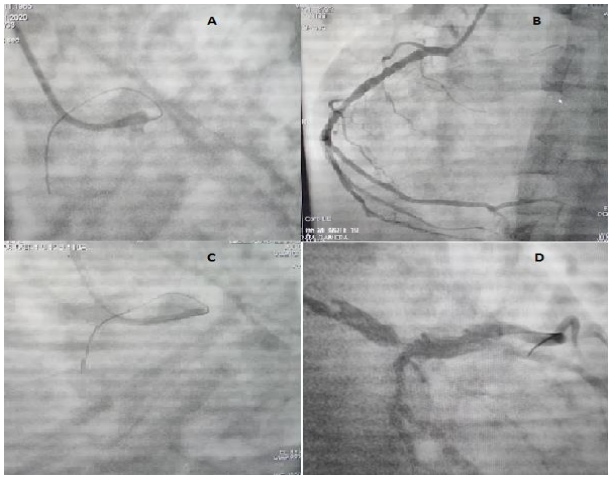


**Figure 1.** Coronary Angiography


**Figure 2.** LMCA stenting (Crush Technique)

intercoronary collaterals, a dominant RCA, and an incompletely occluded. LMCA could survive to be discharged. LMCA stenting should be DK-crush Stenting associated with FFR, OCT, IVUS in stable patients. But totally occluded LMCA is unstable stuation. Because of that, the technique, which is the best known by operator, should be performed in unstable cases. Bifurcations Bad Krozingen (BBK) II trial showed that culotte technique is superior than T-stenting in means of restenosis ratio.[4,5] But culotte technique presented a similar result compared with crush technique in NORDIC Stent Technique study and was even inferior to double kissing (DK)-crush technique in DK-CRUSH III trial.[4,5] In the light of these results, I think the best 2-stent technique is the technique you are most familiar with.

We presented here an acute total LMCA occlusion stenting. There is ongoing debate about LMCA stenting and surgery. [1-5] Although some studies show similar mortality and morbidity rates.[4, 5] Some studies reveal that surgery superior than interventions in the terms of repeat revascularization.[4, 5] Guidelines advice LMCA intervention in the presence of FFR, IVUS and OCT.[2] But the management of acute settings are obscure.[1] Albeit long term data of these stentings are absent. But

intervention of unprotected LMCA in acute-unplanned settings with hemodynamic deterioration shows similar short term mortality and morbidity in recent studies. [3-6] Surgery has same risks with PCI in ACS. [3-6] Moreover surgery requires preparation which is resulted delay in revascularization. Also myocardial preservation is a more important issue in hemodynamic deterioration.

## 4. Conclusion

In our opinion, in acute settings and presence of experienced cardiologist intervention is superior because of short preparation time, absence of anesthesia, short revascularization time and feasibility of catheterization laboratory. On the other hand, after implantation of stents, elective usage of OCT, IVUS, FFR for verifying the optimal stent apposition and presence of residual stenosis are another debatable issue. Our experience suggests that primary LMCA intervention is a feasible and effective procedure, and it may save lives in this clinical setting.

**References**


1.Higami, H, Toyofuku, M, Morimoto, T, Ohya, M, Fuku, Y, Yamaji, K et al., Acute Coronary Syndrome With Unprotected Left Main Coronary Artery Culprit - An Observation From the AOI-LMCA Registry, *Circulation Journal*, 2018, 25, 83(1), 198-208.

2.Sousa-Uva, M, Neumann, F.J, Ahlsson A, Fernando A, Adrian, P.B, Umberto, B, et al., 2018 ESC/EACTS Guidelines on myocardial revascularization, *European Heart Journal*, 2019, 40, 3096.

3. Gani, B, Fjolla, Z.B, Gjin, N, Fernando, A, Shpend, E, Zarife, R, et al., Long-Term Outcomes of Patients with Unprotected Left Main Coronary Artery Disease Treated with Percutaneous Angioplasty versus Bypass Grafting: A Meta-Analysis of Randomized Controlled Trials, *Journal of Clinical Medicine*, 2020, 9, 2231.

4. Javier, V.A, Hector, T, Dawn, A.J, Issam, D.M, John, M.C, Stephen W, et al., Contemporary Use and Trends in Unprotected Left Main Coronary Artery Percutaneous Coronary Intervention in the United States: An Analysis of the National Cardiovascular Data Registry Research to Practice Initiative, *JAMA Cardiology*, 2019, 4, 100–109.

5.Doucet, S, Jolicœur, E.M, Serruys, P.W, Outcomes of left main revascularization in patients with acute coronary syndromes and stable ischemic heart disease: analysis from the EXCEL trial, *American Heart Journal*, 2019, 214, 9–17.

6.Yousif, A, James, P.H, Ahran, A.D, Christopher, M.C, Megha, P, Ziad, A.A, et al., Mortality after drug-eluting stents vs. coronary artery bypass grafting for left main coronary artery disease: a meta-analysis of randomized controlled trials, *European Heart Journal*, 2020, 41, 3228–3235.