

# A Case of Left Main Coronary Thrombosis Treated Using Tirofiban

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The presence of a thrombus in the left main coronary artery is a rare but serious situation. Although there are no clear guidelines for such cases, a coronary artery bypass grafting (CABG) surgery is generally performed. Also, in the literature, there are limited reports on cases treated successfully through percutaneous procedures or medical therapy. In this article, we report the case of a patient with a thrombus in his left main coronary artery, a completely obstructed right coronary artery, and chronic renal failure. Because an immediate CABG was highly risky, the patient was given a tirofiban infusion for 48 hours. After the tirofiban infusion, the patient's thrombus had shrunk and his clinical situation had stabilized, paving the way for a successful surgical intervention.

**Keywords:** Coronary, thrombosis, tirofiban

## INTRODUCTION

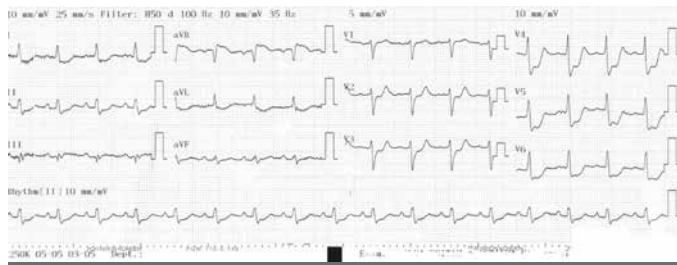
The presence of a thrombus in the left main coronary artery (LMCA) is a rare but serious situation. Although the incidence of a thrombus in LMCA has been reported to be 0.8%-1.7% and probably higher owing to undiagnosed sudden cardiac deaths (1). In this report, we present the case of a 57-year-old patient diagnosed with non-ST segment elevation myocardial infarction, who was found to have a thrombus in his LMCA and was treated with tirofiban infusion.

## CASE PRESENTATION

A 57-year-old male patient presented at our Emergency Department with an intermittent constrictive chest pain. On obtaining his history, he was found to have chronic kidney failure and to be on hemodialysis for 7 years. On arrival, the electrocardiogram (ECG) showed extensive ST depressions and elevation on aVR (Figure 1). Troponin I level of 2.7 ng/ml and transferred to the intensive care unit. On transthoracic echocardiography, the lateral and posterior walls were hypokinetic and ejection fraction was 40% and serious mitral insufficiency was observed. Two hours after admission, the patient experienced chest pain again. ECG showed enlarged QRS complexes and increased ST elevation on aVR (Figure 2), then, underwent to the catheterization laboratory and showed the total obstruction of proximal right coronary artery (RCA). Thrombus formation was also observed in LMCA, left anterior descending artery (LAD), and proximal circumflex artery (Figure 3). Stenosis of over 80% in coronary angiography, which is considered to be very serious, was observed. An urgent coronary artery bypass grafting (CABG) was planned, but the Cardiac Surgery Department said that owing to the high risk, surgery could not be performed and suggested that it be postponed until the clinical condition improved. Upon this, tirofiban infusion was started for 48 hours accompanied by continuous hemodialysis so that it could pass through the dialysis. At the second hour during infusion, ECG showed some regressions; the QRS complexes enlargement had diminished (Figure 4). The patient was hemodynamically stable, and the chest pain had ameliorated. On the third day, control CAG was performed, and the thrombus in LMCA had regressed. Only in the ostial segment of the circumflex artery, the thrombus could still be observed, with a TIMI 3 flow in LAD (Figure 5). The patient subsequently underwent surgery with triple CABG. The patient was discharged on the 15<sup>th</sup> day after admission with no further symptoms or complications. The patient's consent was assessed.

## DISCUSSION

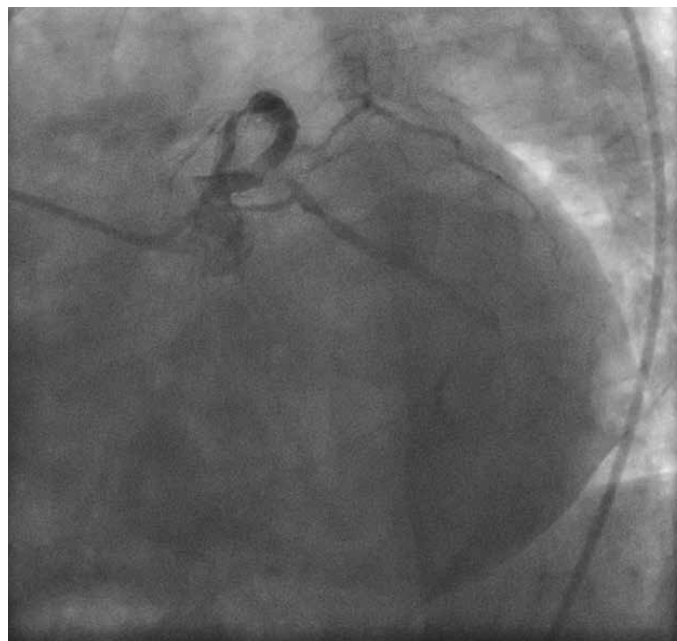
The presence of a thrombus in LMCA is a serious life-threatening situation. The clinical presentation and prognosis depend on the presence of collateral flow from RCA and on the amount of distal flow confinement that the thrombus creates. Thrombus development can be secondary to the rupture of an atherosclerosis plaque, but it may also occur in a normal coronary artery. In our case, we believe that the thrombus development was secondary to an atherosclerosis plaque rupture or to a protein C deficiency owing to chronic kidney disease.



**FIGURE 1.** The patient’s ECG showing extensive ST segment depression and ST segment elevation on aVR on admission

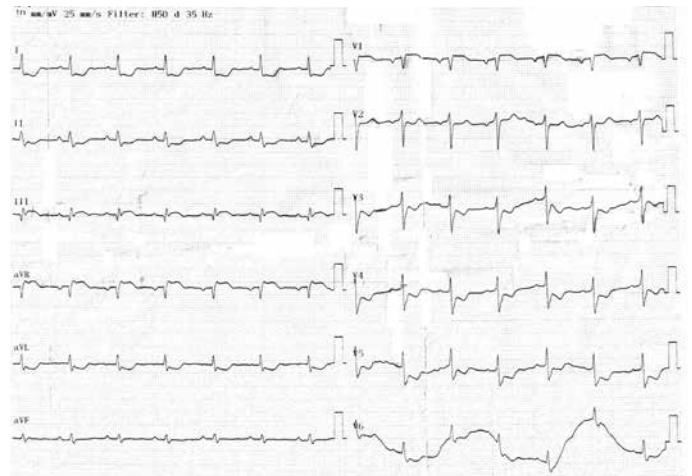


**FIGURE 2.** Two hours after the hospitalization, ECG showing enlarged QRS complexes and increased ST segment elevation on aVR

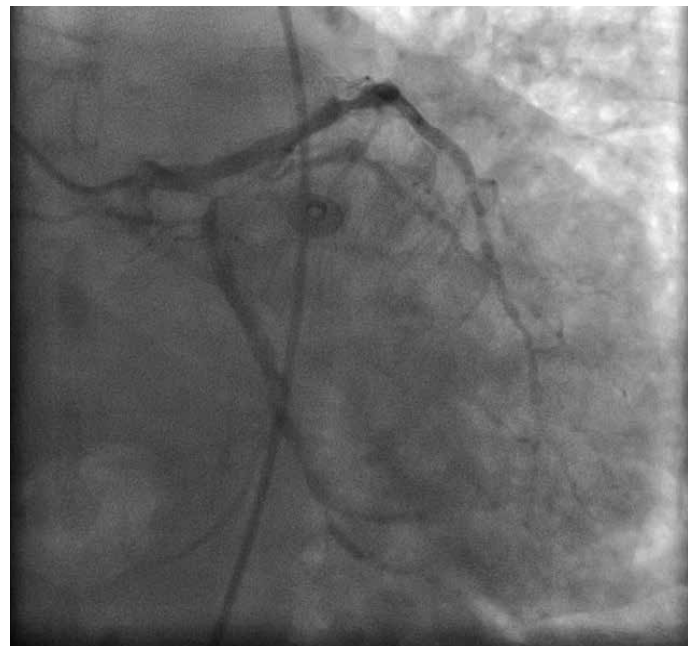


**FIGURE 3.** Left coronary angiogram demonstrating coronary thrombus in LMCA, proximal LAD, and proximal circumflex artery

There is no consensus as to how patients with a thrombus in LMCA should be treated. Most of the cases reported in the literature involved the use of CABG (2, 3). Nevertheless, there have been successful reports of treatment via thrombus aspiration (4). Few studies in the literature report patients with a thrombus in LMCA to have been treated medically. Gürkan et al. (5) first



**FIGURE 4.** At the second hour of the tirofiban infusion therapy, the patient’s ECG findings showing some regressions; the QRS complex enlargement is diminished



**FIGURE 5.** Control coronary angiography, demonstrating coronary thrombus only in the ostial segment of the circumflex artery

reported successful results in treating a patient with a thrombus in LMCA with a tissue plasminogen activator infusion. Ayari et al. have reported thrombus regression in treating a thrombus in LMCA in a patient with angio-Behçet disease via infusion of tirofiban for 48 hours (6). Sayin et al. have also reported regression of a thrombus in LMCA in patients with protein C and protein S deficiency using tirofiban (7). In another case of a thrombus in LMCA, the blood flow in the coronary artery was achieved through a “kissing balloon” technique, followed by the initiation of abciximab infusion, yielding successful results (8). In our case, the patient did not have ST elevation; therefore, thrombolytic therapy was not planned. Although our patient was hemodynamically stable, totally obstructed RCA and renal condition would have let to a high risk of operative mortality. Therefore, tirofiban infusion was initiated, which successfully shrank the thrombus and made an elective, but successful, operation possible.

## CONCLUSION

In patients with a thrombus in LMCA, who despite being clinically stable, for some reason, cannot undergo urgent surgery, treatment with tirofiban can shrink the thrombus and help decrease the mortality risk in the surgery to follow.

**Informed Consent:** Written informed consent was obtained from patient who participated in this study.

**Peer-review:** Externally peer-reviewed.

**Author contributions:** Concept - S.K., Z.E.; Design - N.B., Ş.A.; Supervision - N.B., Ş.A.; Resource - N.B.; Materials - N.B.; Data Collection and/or Processing - S.K., Z.E.; Analysis and/or Interpretation - S.K., Z.E.; Literature Search - S.K., Z.E.; Writing - S.K., Z.E. N.B.; Critical Reviews - N.B., Ş.A.

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## REFERENCES

1. Prasad SB, Whitbourn R, Malaiapan Y, Ahmar W, Maclsaac A, Mededith IT. Primary percutaneous coronary intervention for acute myocardial infarction caused by unprotected left main stem thrombosis. *Catheter Cardiovasc Interv* 2009; 73: 301-7. [\[CrossRef\]](#)
2. Ren X, Hui PY. Thrombus of the left main coronary artery. *Cardiol J* 2009; 16: 372.
3. Ikitimur B, Gurmen T, Tabakan A, Suzer K. Acute coronary syndrome caused by a mobile mass in the left main coronary artery. *J Am Coll Cardiol* 2010; 55: 15. [\[CrossRef\]](#)
4. Jaffe R, Shiran A, Rubinshtein R. Left main coronary artery occlusion due to thrombus embolization from a prothetic mitral valve. *JACC Cardiovasc Interv* 2013; 6: e43-4. [\[CrossRef\]](#)
5. Gürkan U, Tatlısu MA, Aruğaslan E, Bolca O. Successful management of left main coronary artery thrombus with intracoronary thrombolysis. *Türk Kardiyol Dern Ars* 2014; 42: 475-7. [\[CrossRef\]](#)
6. Ayari J, Mourali MS, Farhati A, Mechmeche R. Left main coronary artery thrombosis revealing angio-Behçet syndrome. *Egypt J Intern Med* 2014; 26: 88-90. [\[CrossRef\]](#)
7. Sayın MR, Akpınar I, Karabag T, Aydın M, Dogan SM, Cil C. Left main coronary artery thrombus resulting from combined protein C and S deficiency. *Intern Med* 2012; 51: 3041-4. [\[CrossRef\]](#)
8. Jeong MH, Ahn YK, Park JC, Ahn BH, Na KJ, Kim NH, et al. A case of successful primary coronary intervention for the total occlusion of left main stem with the aid of abciximab. *J Korean Med Sci* 2001; 16: 509-11. [\[CrossRef\]](#)