CASE REPORT

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Inferior Myocardial Infarction Recanalized by Multiple Embolization to Distal Branches

Distal Dallara Multiple Embolizasyon ile Rekanalize Olan İnferior Miyokard Enfarktüsü

Göktürk İpek

Siyami Ersek Thoracic and Cardiovascular Surgery Training and Research Hospital, Clinic of Cardiology, İstanbul, Türkiye

ABSTRACT

Coronary artery embolization resulting in STEMI is a rare condition that is a challenging issue in the field of interventional cardiology in terms of determining the etiology and management. In this manuscript, we present a case characterized by distal multiple thrombus embolization from an infarct-related lesion located in the mid-segment of right coronary artery and discuss the management strategies.

Keywords: STEMI, distal embolization, PTCA

ÖZ

Koroner embolizasyon ve buna bağlı görülen STYMI tablosu nadiren görülen ve gerek etiyoloji araştırması gerekse tedavi stratejileri bakımından girişimsel kardiyoloji alanının zorlu konularından biridir. Biz bu yazımızla RCA mid bölgede infarktan sorumlu lezyondan distal dallara multiple trombüs embolizasyonu ile karakterize bir olgu sunuyor ve tedavi yöntemlerini tartışıyoruz.

Anahtar Kelimeler: STYMI, distal embolizasyon, PTKA

Introduction

Coronary embolization is a condition reported to be responsible for approximately 3% of ST-segment elevation myocardial infarctions (1). The most common causes of coronary embolization are atrial fibrillation, dilated cardiomyopathy, endocarditis, and systemic diseases such as malignancy, autoimmune diseases, and antiphospholipid syndrome. However, the etiology cannot be determined in approximately 25% of patients (2).

In this article, we present a case that underwent emergency coronary angiography because of acute inferior + posterior + right myocardial infarction (MI). We found total stenosis in the proximal regions of both the posterior descending artery (PDA) and posterolateral artery (PLA) due to distal thrombus embolization originating from an infarct-related lesion in the mid-region of the right coronary artery (RCA).

Case Report

A 65-year-old male patient was referred to the emergency department of our hospital with a diagnosis of 2-h chest pain and acute inferior + posterior + right MI. After the first evaluation in the emergency department, 300 mg of acetylsalicylic acid was orally administered, and 180 mg of ticagrelor was loaded. In the RCA angiography during the primary procedure (Figure 1), we determined a hazy plaque that did not cause significant stenosis in the mid-region of the RCA and total stenoses in the proximal PDA and PLA, thought to be due to embolism (Figure 2).

In addition, 80% stenosis was detected in the left anterior descending artery during angiography, and an elective procedure was decided. To treat both total stenoses in the distal segments of the RCA, we engaged the RCA ostium with a right Judkins guide catheter. We passed the total stenosis in the PDA ostial and then the PLA ostial stenosis, respectively, using Choose Floppy guidewire (Boston Scientific/Scimed,

Address for Correspondence: Göktürk İpek, Siyami Ersek Thoracic and Cardiovascular Surgery Training and Research Hospital, Clinic of Cardiology, İstanbul, Türkiye
E-mail: gokturkipek@hotmail.com **ORCID ID:** orcid.org/0000-0002-0948-1010

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Inc., Maple Grove, Minnesota). Balloon dilatations were performed using a 2.0x12 mm Shunmei semi-compliant balloon at a pressure of 12-14 atm. Complete patency and TIMI 3 flow were obtained in both arteries. There was no plaque imaging in the areas with total stenosis after successful ballooning of these segments; thus, embolism from the lesion in the mid-RCA was confirmed. In addition, there was a significant regression in the blurry appearance and stenosis rate in the mid-region during the distal ballooning process (Figure 3).

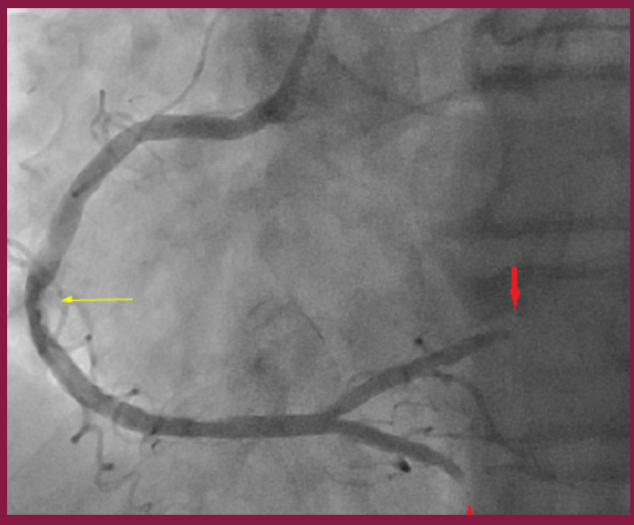

Figure 1. Multiple distal embolizations in the distal branches of the right coronary artery (red arrows) and a non-critical hazy lesion in the mid-region (yellow arrow) associated with the infarct

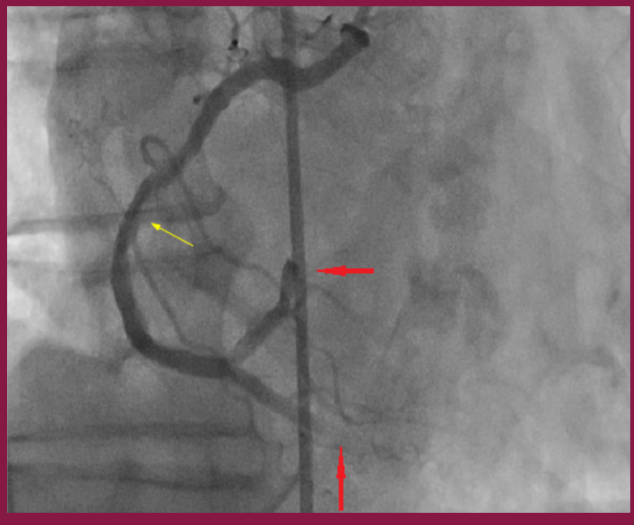

Figure 2. Multiple distal embolizations in the distal branches of the right coronary artery (red arrows) and a hazy lesion in the mid-region (yellow arrow)

Therefore, we did not consider stenting in the mid-region of the RCA. After the procedure, there was no angina, hemodynamic, or electrical abnormality during the clinical follow-up in the hospital. Thus, we did not plan any further intervention. Early echocardiographic imaging revealed that the inferior and inferior septum of the left ventricular wall was hypokinetic, the ejection fraction was 45%, and there was no valve pathology or source of intracardiac thrombus. In addition, there was no pathology to explain the hematological cause of thromboembolism.

Discussion

Although coronary embolization is detected in approximately 3% of all STEMI patients, the source of embolism may not be detected in some patients (1). Coronary embolism is a controversial issue in terms of both its causes and treatment methods, which the field of interventional cardiology cannot find clear answers to (3). For treating distal embolization, methods such as thrombus aspiration, glycoprotein 2b/3a antagonists, and thrombolytic administration are used according to the characteristic features of the thrombus (4,5). It should be noted that the source of distal embolization may be an acute responsible lesion in the proximal segments in patients with multiple distal total lesions presented with STEMI. In addition, in this case, it should be considered that the antegrade flow successfully provided by a low-pressure balloon dilatation with a diameter that will not cause dissection in the coronary can dissolve the thrombus.

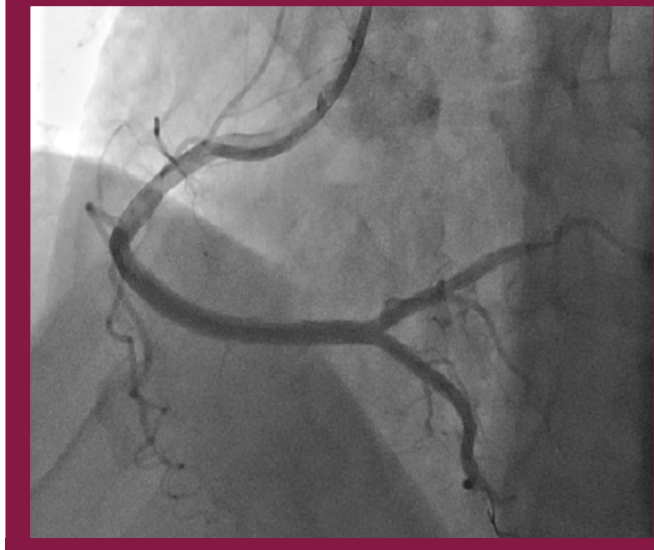

Figure 3. Distal TIMI 3 flow and non-critical plaque in the mid-region after balloon angioplasty

Informed Consent: An informed consent form was obtained from the patient.

Peer-review: Externally peer reviewed.

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References

1. Shibata T, Kawakami S, Noguchi T, Tanaka T, Asaumi Y, Kanaya T, et al. Prevalence, Clinical Features, and Prognosis of Acute Myocardial Infarction Attributable to Coronary Artery Embolism. Circulation. 2015;132:241-250. [Crossref]
2. Popovic B, Agrinier N, Bouchahda N, Pinelli S, Maigrat CH, Metzdorf PA, et al. Coronary Embolism Among ST-Segment-Elevation Myocardial Infarction Patients: Mechanisms and Management. Circ Cardiovasc Interv. 2018;11:e005587. [Crossref]
3. Tsang M, Jolly S. Interventional Strategies in Thrombus Management for ST Elevation Myocardial Infarction. Interv Cardiol. 2015;10:35-38. [Crossref]
4. Stone GW, Maehara A, Witzenbichler B, Godlewski J, Parise H, Dambrink JH, et al. Intracoronary abciximab and aspiration thrombectomy in patients with large anterior myocardial infarction: the INFUSE-AMI randomized trial. JAMA. 2012;307:1817-1826. [Crossref]
5. Kumar V, Sharma AK, Kumar T, Nath RK. Large intracoronary thrombus and its management during primary PCI. Indian Heart J. 2020;72:508-516. [Crossref]