

# A Different View of Minoca; A Rare Case of Coronary Cameral Fistula

İrem Oktay Oğul<sup>1</sup>, Enes Ali Aslan<sup>1</sup>, Yakup Alsancak<sup>1</sup>, Sefa Tatar<sup>1</sup>

<sup>1</sup>Necmettin Erbakan University Faculty of Medicine, Department of Cardiology, Konya, Türkiye

## Abstract

Coronary cameral fistula (CCF) is defined as an abnormal connection between the coronary artery and the heart chambers. Although rare, most are asymptomatic. It is less likely to be seen in older age. It usually starts from the right coronary artery and ends in the right ventricle or right atrium. Often detected incidentally, CCFs can also present with symptoms of heart failure or rarely with anginal symptoms. We report a case of coronary cameral fistula presenting with a prediagnosis of acute coronary syndrome in our clinic. We aimed to contribute to the literature by sharing a rare case of coronary cameral fistula presenting with a diagnosis of acute coronary syndrome especially in emergency departments.

**Keywords:** Angina pectoris, coronary angiography, coronary cameral fistula, stealing syndrome

## Introduction

A coronary cameral fistula is defined as an abnormal connection between the coronary artery and the heart chambers (1). The most common coronary artery fistula is the fistula originating from the right coronary artery and spilling into the right ventricle. Fistula terminating in the left atrium or left ventricle are rare (2). In particular, CCFs originating from all three epicardial coronary arteries are rare but can be clinically significant. These cases may present with acute coronary syndrome causing steal syndrome. Since there is often no underlying obstructive lesion, these cases may be diagnosed as myocardial infarction without obstructive coronary arteries (MINOCA) (3).

## Case Report

A 51 years old male patient was admitted to the emergency room with a complaint of stabbing chest pain for the last one week. In his anamnesis, he described that the chest pain increased with exertion and radiated to the back. It was learned that he had no known disease and coronary history, was a 20 pack/year smoker, had no family history and was not taking any medication regularly. Vital signs in the emergency room

revealed a blood pressure of 120/80 mmHg, pulse rate of 85 per minute and saturation was 95%. Electrocardiography (ECG) showed sinus rhythm V 1-6 with T negativity 85/min (Figure-1). Echocardiography revealed no wall motion defect and no major valve pathology. Laboratory findings showed renal function tests within normal range, C-reactive protein within normal range, haemoglobin level 17.6 gr/dl, HS Troponin-T level 12.9 ng/l (upper limit 14 ng/l). At 3 hours, the control HS Troponin-T level was 69.2 ng/l and the patient was hospitalized in the coronary intensive care unit with a prediagnosis of acute coronary syndrome. Coronary angiography was performed during follow-up. Angiography showed dilatation in the main coronary artery (LMCA), ectasia in the left anterior descending artery (LAD) and circumflex artery (CX), and diffuse tortuosity in the coronaries. CCF formed by the LAD, CX and right coronary artery (RCA) together and spilled into the left ventricle. Opaque filling was observed in the left ventricle (Figure-2). Although the patient had a low body mass index, dilatation of the coronary arteries was thought to be the effect of steal syndrome caused by multiple fistulas. The patient was admitted to the coronary intensive care unit with medical follow-up. The patient's medical treatment was adjusted as acetylsalicylic acid (ASA) 100 mg pill 1x1, metoprolol 50

**Corresponding Author:** İrem Oktay Oğul  
e-mail: iremoktay.io42@gmail.com

**Received:** 11.07.2024 • **Revision:** 07.10.2024 • **Accepted:** 23.10.2024

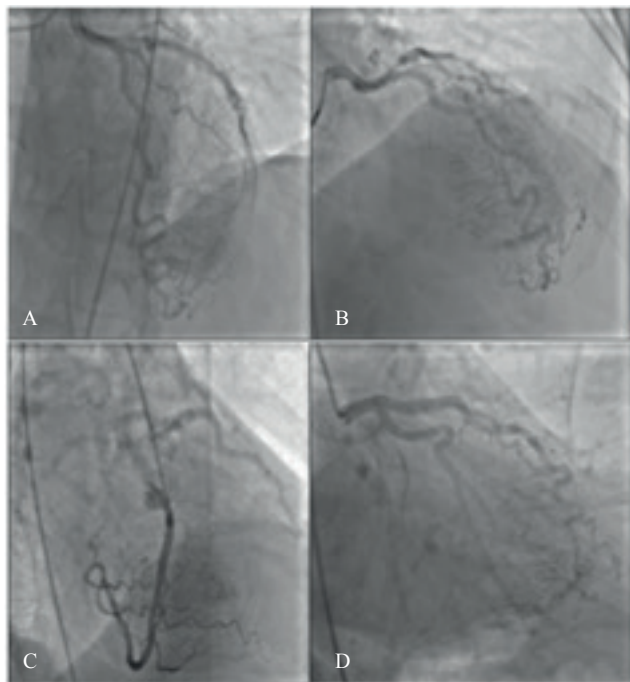
**DOI:** 10.33706/jemcr.1514727

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**Cite this article as:** Oktay Oğul İ, Aslan EA, Alsancak Y, Tatar S. A Different View of Minoca; A Rare Case of Coronary Cameral Fistula. Journal of Emergency Medicine Case Reports. 2024;15(4): 106-107



**Figure 1.** T negativity in leads V1-6 in normal sinus rhythm



**Figure 2.** Coronary angiography images. Left anterior descending artery (A,B), right coronary artery (C) and circumflex artery (D) and left ventricular microfistulas in different views

mg pill 1x1, and rosuvastatin 20 mg pill 1x1 due to an LDL cholesterol level of 149 mg/dl. In the patient who currently had nosigns of heart failure, medical treatment was decided primarily in terms of CCF. The patient was discharged with the recommendation of out patient follow-up.

## Discussion

CCFs are rare coronary anomalies. Especially CCFs opening into the left ventricle are less common in the literature (1). When we look at the etiology, the most common cause of CCFs is abnormal embryogenesis (4). While the diagnosis can be made at any age, the diagnosis is usually made in early childhood when a heart murmur occurs in an asymptomatic child or in a child with symptoms of heart failure. However, cases of CCF diagnosed at an advanced age with anginal complaints and signs of acute heart failure

are seen in the literature (5). It may cause anginal symptoms by causing heart failure symptoms and steal syndrome. (6). When we look at the literature, we can see that patients with CCF also present with acute coronary syndrome (2, 4, 5). As in the case reported by Alsancak Y et al., CCFs originating from all three coronary arteries cause steal syndrome and are often diagnosed with a prediagnosis of acute coronary syndrome (7). The absence of an occlusive lesion after angiography in these patients with high troponin levels suggests atherosclerosis at the microvascular level and the diagnosis of MINOCA (3).

## Conclusion

Angiography performed with suspicion of stenosis in the coronary arteries and finding a CHF instead of a stenosis may be considered lucky in these patients. The size of the fistula and the possibility that it may lead to heart failure in the follow-up will be the other side of the unlucky coin.

**Consent statement:** Written informed consent was obtained from the patient(s) for publication of this case report, including accompanying image.

**Declaration of competing interest:** The remaining authors declare that they have no competing interests.

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