The Intercontinental Journal of Emergency Medicine

Case Report

DOI: 10.51271/ICJEM-0066

Coexistence of iliac artery thrombosis and acute myocardial infarction: a rare clinical entity

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Cite this article: Taysı ME,Karaoğlu F, Demirel ME. Coexistence of iliac artery thrombosis and acute myocardial infarction: a rare clinical entity. *Intercont J Emerg Med*. 2025;3(4):88-90.

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Received: 30/10/2025 ◆ **Accepted**: 25/12/2025 ◆ **Published**: 26/12/2025

ABSTRACT

Acute myocardial infarction (AMI) concomitant with iliac artery thrombosis in the absence of underlying hematological disorders or cardiac arrhythmias is an exceedingly rare clinical entity. We report a case of a 55-year-old male with a history of hypertension and chronic smoking who presented with epigastric pain and nausea. On initial evaluation, electrocardiography showed no ST-segment elevation. While under observation, the patient developed abrupt-onset, severe pain in the left lower limb. A subsequent electrocardiogram demonstrated ST-segment elevation in leads II, III, and aVF, consistent with an inferior ST-segment elevation myocardial infarction (STEMI). Given the concomitant onset of lower limb pain, thoracoabdominal computed tomographic angiography was promptly performed, revealing complete occlusion of the left common iliac artery with extension into the internal and external iliac arteries. The patient underwent emergent primary percutaneous coronary intervention with successful stent deployment in the right coronary artery, followed by referral to a tertiary vascular surgery center for definitive management of the iliac artery thrombosis. This case underscores the importance of maintaining a high index of suspicion for multiple simultaneous vascular events in the setting of acute coronary syndromes, particularly when novel or atypical symptoms develop.

Keywords: Acute myocardial infarction, iliac artery thrombosis, smoking, hypertension, case report

INTRODUCTION

Inferior myocardial infarction is a critical cardiac emergency that occurs due to the occlusion of the coronary arteries, resulting in decreased perfusion of the affected myocardial territory, potentially leading to serious complications and mortality. This condition is most frequently caused by occlusion of the right coronary artery (RCA). Compared to anterior wall infarctions, inferior MIs generally have a more favorable prognosis. Although the mortality rate is less than 10%, patients may still develop complications such as hypotension, malignant arrhythmias, conduction disturbances, and cardiogenic shock.[1-4]

Iliac artery occlusion is a subtype of peripheral arterial disease, often referred to as aortoiliac occlusive disease. Similar to other arterial conditions, this pathology can present with a wide range of symptoms, from being asymptomatic to progressing to limb-threatening ischemia. Risk factors including diabetes, hyperhomocysteinemia, hypertension, hyperlipidemia, and tobacco use play a significant role in its development. Chronic smoking contributes to inflammation and endothelial dysfunction, potentially promoting thrombosis formation.[5,6]

According to the U.S. Food and Drug Administration (FDA), approximately 800,000 people die annually due to cardiovascular diseases. Smoking doubles the risk of cardiovascular disease, and both smoking and hypertension are considered key modifiable risk factors for such events.[7]

In this case report, we present a rare occurrence of simultaneous inferior myocardial infarction and iliac artery occlusion.

CASE

A 55-year-old male patient with a known history of hypertension and a 35 pack-year smoking background presented to a regional hospital with complaints of sharp epigastric pain and nausea during the morning hours. It was learned that he had taken a non-steroidal anti-inflammatory drug (NSAID) and a proton pump inhibitor (PPI) before admission.

At initial presentation, his vital signs and physical examination were unremarkable, and electrocardiography (ECG) showed normal sinus rhythm. However, approximately one hour after admission, he developed sudden severe pain in

his left leg and was referred to our hospital with a preliminary diagnosis of aortic dissection for further evaluation and treatment.

Upon arrival, the patient reported continued epigastric pain, with new-onset left leg pain. Vital signs were stable, and there was no significant bilateral blood pressure difference. On physical examination, his left leg was cold and pale.

A repeat ECG revealed ST-segment elevation in leads DII, DIII, and aVF, and ST-segment depression in leads DI, aVL, V4–V6 (**Figure 1**). The Troponin T level was elevated at 41.15 ng/L. Due to the "knife-like" nature and distribution of the pain, contrast-enhanced CT angiography was performed to rule out aortic dissection, and no aortic dissection was detected. Aneurysmal dilatation was observed proximal to the abdominal aortic bifurcation. No contrast opacification was observed in the middle-distal segment of the left common iliac artery or in either the internal or external iliac arteries, and these findings were interpreted as consistent with total occlusion (**Figure 2**).

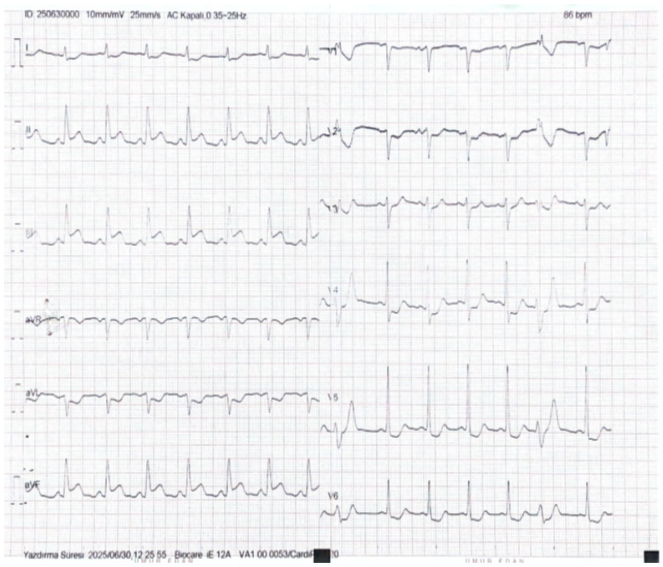

Figure 1. The patient's electrocardiogram (ECG) demonstrates ST-segment elevations and depressions

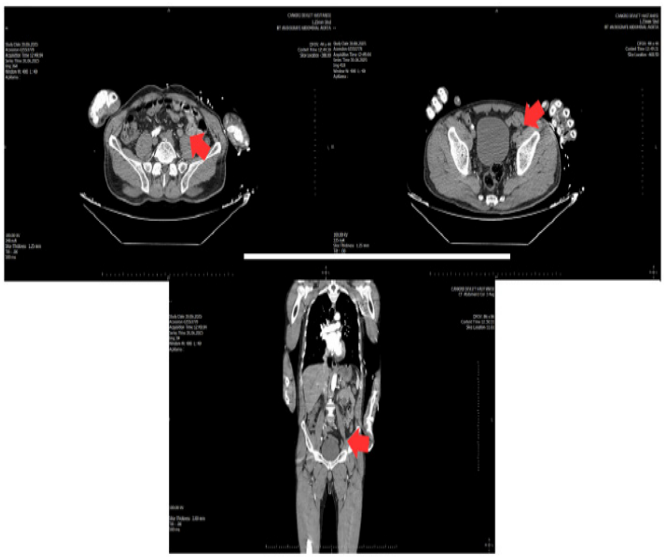

Figure 2. Transverse and coronal images from thoracoabdominal computed tomographic angiography demonstrating iliac occlusion from different angles

Since our hospital lacks a cardiovascular surgery unit, the patient was managed by the cardiology department. He was admitted to the coronary intensive care unit with a preliminary diagnosis of acute inferior myocardial infarction. Primary percutaneous coronary intervention (PCI) was performed (**Figure 3**), and a balloon and stent were placed in the RCA. The patient was subsequently referred to a tertiary center for further intervention regarding the iliac artery occlusion.

Figure 3. Interventional imaging demonstrating right coronary artery (RCA) occlusion and iliac artery occlusion prior to stent placement

DISCUSSION

Simultaneous arterial thrombosis involving different vascular territories is an exceptionally rare clinical occurrence, particularly in patients without underlying hematological disorders or arrhythmias such as atrial fibrillation that predispose to thrombus formation.[8] In the present case, the patient had no known prothrombotic condition or arrhythmia, and his only identified risk factors were hypertension and chronic smoking, both of which are well-established but modifiable contributors to cardiovascular disease.

The coexistence of an acute inferior myocardial infarction and an iliac artery occlusion in the same patient highlights the complexity of vascular events and the importance of comprehensive diagnostic evaluation. Inferior myocardial infarction generally has a better prognosis compared to anterior infarctions; however, if not recognized and treated promptly, it poses significant risks of morbidity and mortality Similarly, iliac artery thrombosis, often associated with advanced peripheral arterial disease, can progress rapidly from asymptomatic disease to acute limb-threatening ischemia.

Diabetes is perhaps the most important underlying factor in silent myocardial infarction, but it has been reported that the prevalence of silent MI decreases when hypertensive individuals maintain lower blood pressure levels.[9,10] Although our patient did not experience a silent myocardial infarction, the chest pain was atypical rather

than characteristic. This atypical finding may be attributed to uncontrolled hypertension, highlighting the importance of adequate blood pressure control, although this association cannot be definitively proven.

One of the critical clinical challenges underscored by this case is that, in the presence of a life-threatening diagnosis such as myocardial infarction, other coexisting vascular pathologies may be overlooked, particularly when presenting symptoms overlap or evolve rapidly. This underscores the need for a high index of suspicion and a more comprehensive evaluation, particularly when patients develop new or atypical symptoms during acute coronary syndromes.

CONCLUSION

This case underscores the rarity and clinical significance of simultaneous occlusions in two distinct arterial territories in a patient with no hematologic abnormality or arrhythmic predisposition. It further highlights that clinicians, while focusing on critical diagnoses such as myocardial infarction, must remain vigilant for other potentially life-threatening vascular conditions that may present concurrently and require urgent attention.

ETHICAL DECLARATIONS

Informed Consent

Written informed consent was obtained from the patient included in this report. Signed consent forms are retained by the authors and are available upon request.

Peer Review Process

This report underwent external peer review.

Conflict of Interest

The authors declare no conflicts of interest.

Financial Disclosure

This case report did not receive any financial support.

Author Contributions

All authors made substantial contributions to the clinical documentation, interpretation, and manuscript preparation. All authors approved the final version of the manuscript.

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