

# Hyper-dominant left anterior descending coronary artery with continuation as a posterior descending artery—An extended empire

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Hyper-dominant left anterior descending artery (LAD) is a rare coronary anomaly where LAD continues as a posterior descending artery. It is a rare coronary anomaly and there are only 19 cases reported so far in 17 case reports in the literature. Its involvement during acute coronary syndrome can be fatal as it leads to ischemia/infarction of a larger area of left and/or right ventricular myocardium. Its early recognition and management is essential with a high index of clinical suspicion.

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## Introduction

Coronary artery anomalies are rare anatomical variations of their origin, course, and supply associated with or without other congenital abnormalities. Overall, they are observed in ~1–2% of the general population in those who undergo conventional or computed tomographic coronary angiography, as reported in a different series [1]. Most of the coronary anomalies are incidental findings, as in our case during conventional coronary angiography and interventions.

We report a case of a patient who presented with acute anterior wall myocardial infarction, underwent primary angioplasty of the left anterior descending artery (LAD), which continued as a posterior descending artery (PDA) in the posterior interventricular groove upon the restoration of Thrombolysis in Myocardial Infarction (TIMI) 3 flow. This is a rare coronary anomaly with only 19 cases reported so far in 17 case reports in the literature of the anomalous origin of the branches of the right coronary artery, mainly of the posterior descending artery from the left anterior descending artery or its branches.

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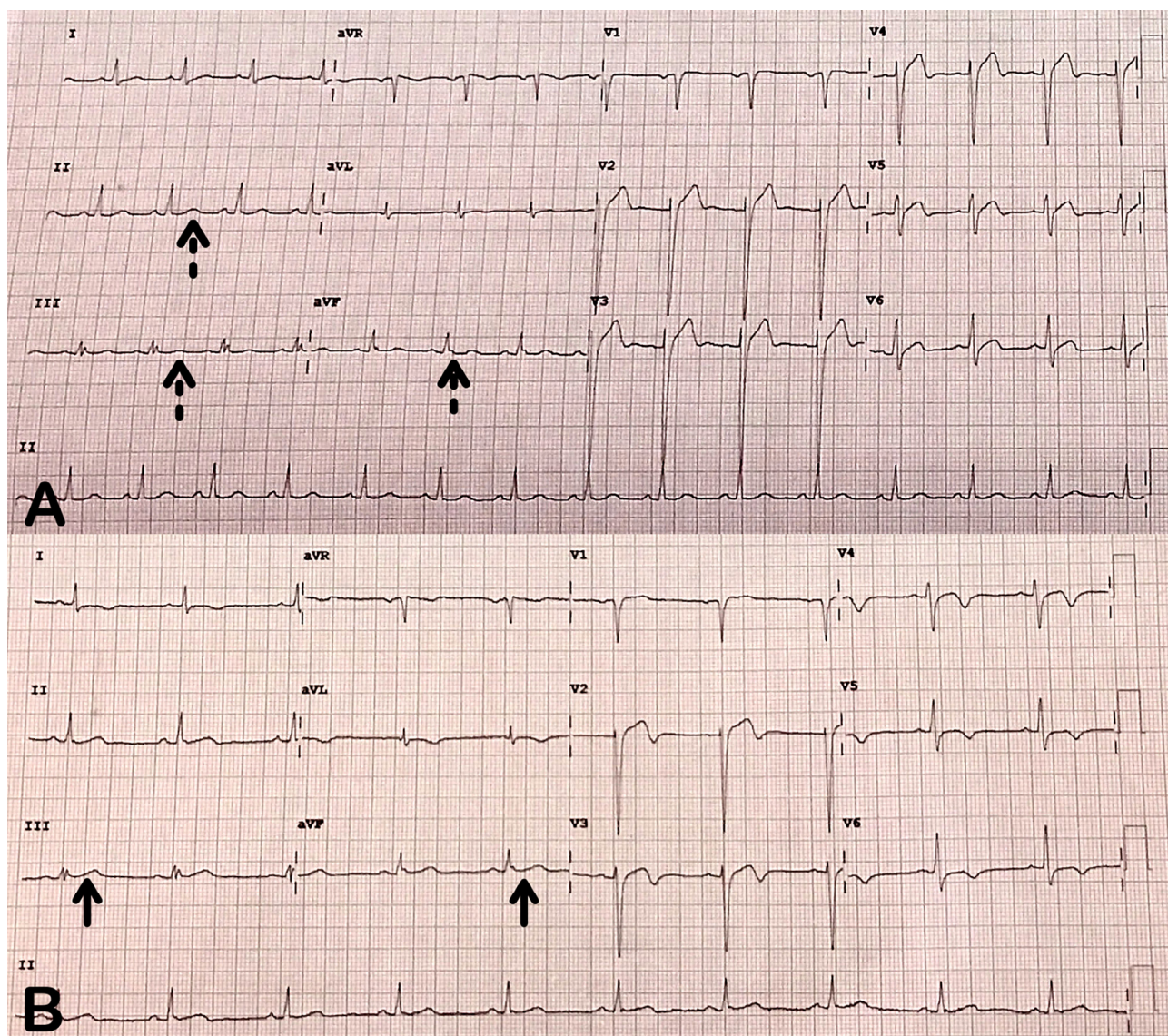


Figure 1. (A) Electrocardiography showing ST-segment elevation in leads V1–V6 with absence of the reciprocal ST-segment depression (Dashed black arrows) of inferior leads (II, III, aVF). (B) Post PCI of the LAD, Electrocardiography showed discrete ST-segment elevation in leads V1–V6 with T-wave inversions with absence of the reciprocal changes (Solid black arrows) in inferior leads (II, III, aVF). LAD = left anterior descending; PCI = percutaneous coronary intervention.

## Case report

A 56-year-old male, hypertensive, presented with complaints of retrosternal chest discomfort for 8 hours. Electrocardiography (ECG) showed ST-segment elevation in leads V1–V6, with the conspicuous absence of the reciprocal changes in II, III, and aVF (Fig. 1A). Echocardiography showed hypokinesia of anterior and inferior wall (Ejection Fraction, 42%). Cardiac markers were elevated [high sensitivity (HS)-troponin I, 302 ng/L; normal range, 8–28 ng/L]. Coronary angiography (CAG) revealed 99% stenosis of the proximal segment of the LAD with TIMI I flow (Fig. 2A). The

patient underwent primary percutaneous coronary intervention (PCI) of LAD using 3.0 × 38 mm drug-eluting stent (DES) and final CAG, upon restoration of the flow, showed the hyper-dominant LAD wrapping around left ventricular apex, did not show any tapering and ran along the posterior interventricular groove as a posterior descending artery (PDA) up to the crux (Fig. 2B). The right coronary artery (RCA) was nondominant and small, diminutive without any communication with the PDA or overlap of their course. Post PCI, ECG showed T wave inversions and reduction of the ST segment elevations and voltages of the S wave in the V1–V6; I, aVL with mild

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