ARCHIVES OF HELLENIC MEDICINE: ISSN 11-05-3992

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Electrocardiogram Quiz – Case 43

ARCHIVES OF HELLENIC MEDICINE 2019, 36(6):845–846
ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2019, 36(6):845–846

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A 62-year-old man was referred for echocardiographic evaluation. Two weeks ago, he had been admitted to another hospital for a non-ST segment elevation myocardial infarction for which he had undergone coronary arteriography. Coronary angiography revealed a 60% occlusion of the left anterior descending artery (LAD), a totally occluded right coronary artery (RCA), and a totally occluded left internal mammary artery (LIMA) graft to the LAD. The patient's history included coronary artery bypass grafting operation, with a LIMA graft to the LAD, and an ascending aorta replacement with an aortic graft (Hemashield straight tube, Boston Scientific) due to aneurysm, twelve years earlier. Moreover, nine years ago, he had undergone percutaneous coronary angioplasty and had received a drug-eluting stent to the RCA.

Questions

a. What abnormal electrocardiogram (ECG) findings are present?
b. What is the differential diagnosis?

Comment

Left anterior fascicular block (LAFB) is considered a failure or delay of conduction in the left anterior fascicle. It comprises a conduction abnormality related to, but distinguished from, left bundle branch block (LBBB). On the surface ECG, LAFB is typically characterized by modest widening of the QRS complex, left axis deviation, rS complexes in the inferior leads, and qR complexes in the high lateral leads. In some cases, there is evidence of a late transition in the precordial leads. In the above ECG the QRS complex does not become equiphasic until lead V5 or V6. This is also sometimes referred to as a persistent S-wave.

LAFB cannot be diagnosed when a prior inferior wall myocardial infarction (MI) is evident on the ECG. Inferior MI can also cause extreme left-axis deviation, but will manifest with Q-waves in the inferior leads II, III, and aVF. By contrast, QRS complexes in the inferior leads should begin with r-waves in LAFB. The conduction abnormality can be seen in approximately 4% of cases of acute MI. It is the most common type of intraventricular conduction defect seen in acute anterior MI, and the LAD artery is usually the culprit vessel.

It can be seen with acute inferior wall MI, as in our case, with the RCA as the culprit vessel. It is also associated with hypertensive heart disease, aortic valvular disease, cardiomyopathies, and degenerative fibrotic disease of the cardiac skeleton.

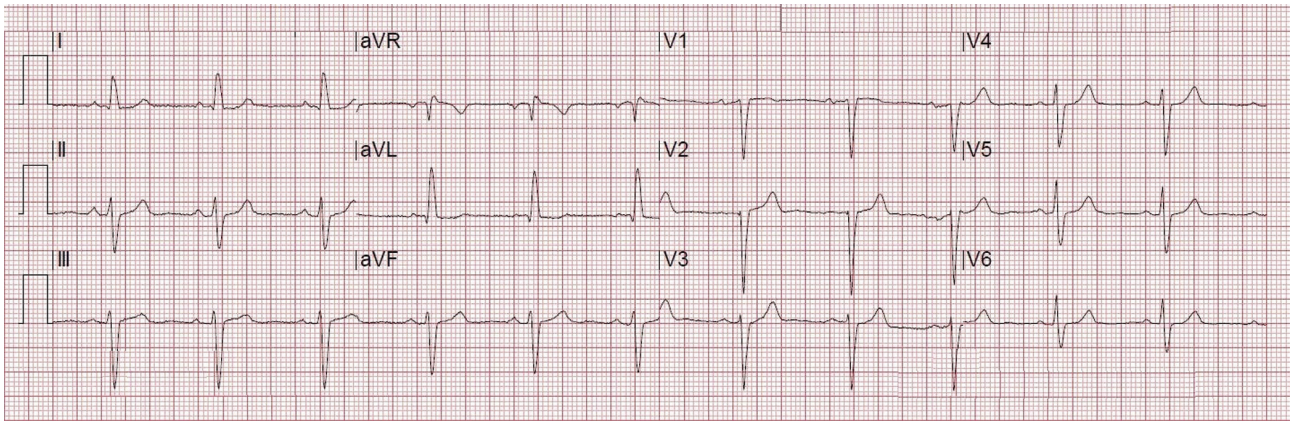

Figure 1

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