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Acute myocardial infarction and right bundle-branch block

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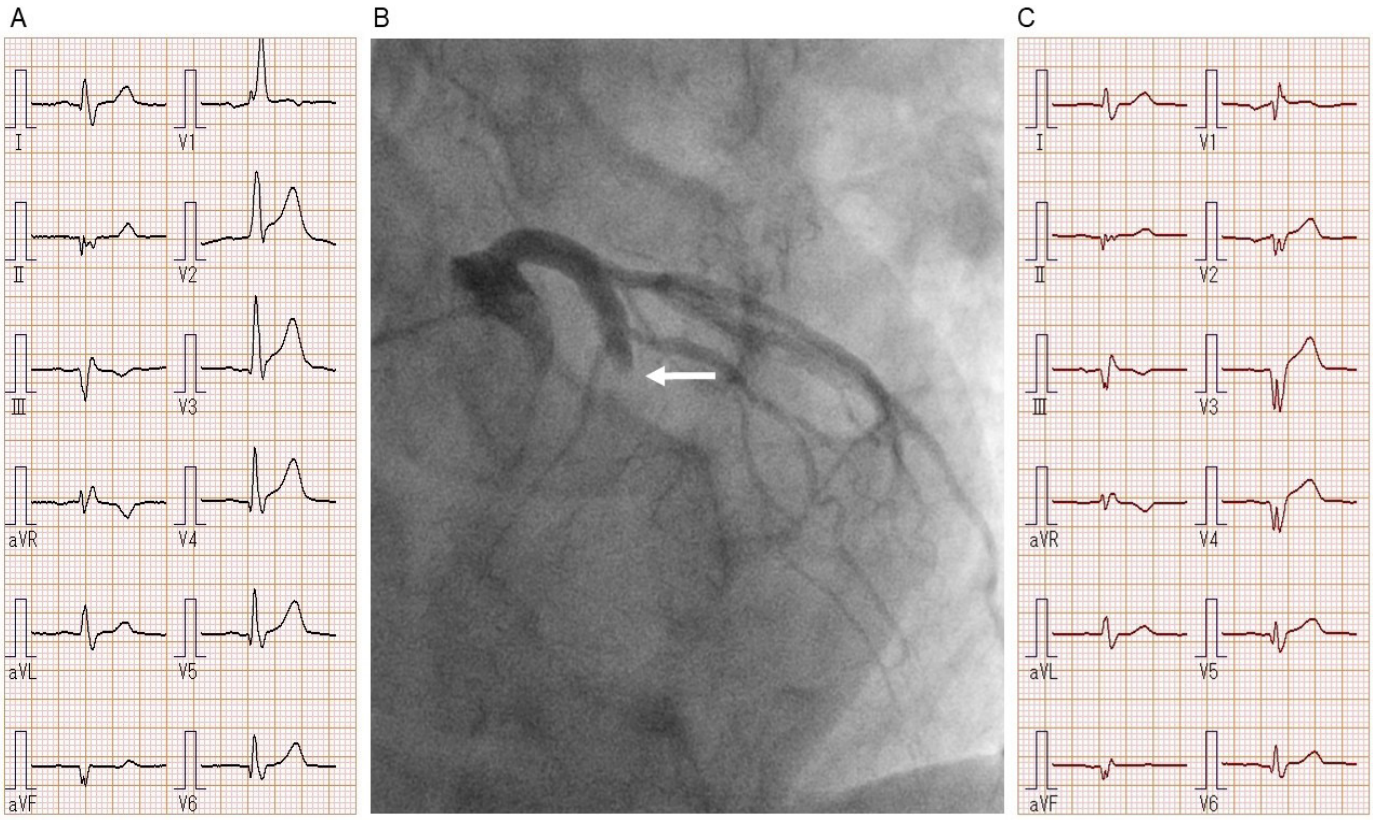
Clinical Image Description

The presence of left bundle-branch block (LBBB) may mask the electrocardiographic manifestations of acute myocardial infarction (AMI) [1]. It is, however, not widely known that this phenomenon can be observed in patients with right bundle-branch block (RBBB) [2].

We report a case of anterior AMI and RBBB. A 69-year-old man presented to the emergency room of our hospital with a two-hour history of chest pain. Although electrocardiography demonstrated RBBB without typical ST-segment elevation (A), a tentative diagnosis of AMI was made based on the cardiac biomarkers and echocardiographic findings. Emergency angiography revealed proximal occlusion of the left anterior descending coronary artery with no visualized collateral circulation (B, arrow). On follow-up electrocardiography obtained two hours after successful stent implantation, newly-developed abnormal Q waves were noted in the precordial leads (C). The peak creatine kinase level exceeded 5,000 U/L and his clinical course was complicated by left ventricular apical thrombus. The patient was discharged home and has been closely followed.

Among a cohort of 6,742 patients with AMI [3], RBBB was observed in 6.3%; 2.8% had RBBB alone, although the mechanism underlying the electrocardiographic features remains unclear. In 100 patients with first anterior AMI, the presence of RBBB had excellent diagnostic value for proximal occlusion of the left anterior descending coronary artery with a sensitivity of 100% and specificity of 100% [4]. A previous study reported that 178 patients with RBBB after AMI had increased in-hospital and one year after hospital discharge mortality rates (32% and 17%, respectively) than 754 patients without block (8% and 7%, $P < 0.001$ for both) [5]. Interestingly, in another study [3], in-hospital mortality was highest among patients presenting with new or presumably new RBBB (18.8%), followed by new or presumably new LBBB (13.2%), old LBBB (10.1%), and old RBBB (6.4%).



Discussion

Our case highlights the importance of paying attention to not only LBBB, but also to RBBB in patients with AMI.

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