

CASE REPORT

Fascicular Conduction Disturbances Post Re-Vascularization in Coronary Artery Disease

Bhabani Sahoo, MD, Gaurav Thakre, MD, B. V. Manjunath, MD, DM, *Mangalore, India*

ABSTRACT

In coronary artery disease, arrhythmias are often seen post revascularization. The most common arrhythmia being accelerated idioventricular rhythm and the less common being bundle branch block, ventricular tachycardia, atrial fibrillation and others. It is a belief that most of the arrhythmias post revascularization suggest vessel patency and successful reperfusion but sometimes it may suggest on-going ischemia due to a fresh lesion or stent thrombosis. The mechanism for development of new postoperative bundle branch block and intraventricular conduction defect is presumably excessive intraoperative regional ischemia because of more collateral dependent regions, which could be predominantly transient. If intraoperative regional ischemia does contribute to the development of new left hemiblock and right bundle branch block, the extent is less, explaining both the transient nature and prognostic insignificance. In this case, we are reporting about a patient who had baseline left bundle branch block (LBBB), developed transient trifascicular block with Mobitz type II atrioventricular block on a relatively lower heart rate recorded in one electrocardiogram and then reverted back to complete LBBB a few hours later. (*J Clin Prev Cardiol.* 2015;4(4):103-6)

Introduction

Alternating bundle branch block is when both right bundle branch block (RBBB) and left bundle branch block (LBBB) patterns appear on the same electrocardiogram (ECG) or within a period of hours to days (1,2). Before the reperfusion era, it represented up to 6% of all forms of bundle branch blocks (3) following acute myocardial infarction, with 44% progression rate to high grade atrioventricular (AV) block (4). With the advent of modern reperfusion therapy, it is now less commonly encountered in clinical practice. Such rare ECG need to be analyzed closely.

Case Presentation

A 65-year-old male, known diabetic and dyslipidemic presented to cardiology out-patient department on 10/02/2016 with chief complaint of chest pain for one day. He reported a history of such intermittent chest pain for the last 3-4 months. Baseline ECG showed complete LBBB with sinus bradycardia (Figure 1). ECG taken 2 weeks prior also showed complete LBBB. No old ECGs were available to compare. A trans-thoracic Echocardiography was done which showed no left ventricular (LV) regional wall motion abnormality with normal LV systolic function. His blood investigations were unremarkable, except for elevated glycosylated hemoglobin.

In view of chest pain being suggestive of angina, associated with coronary risk factors such as diabetes mellitus and dyslipidemia, and evidence of LBBB on ECG, the patient was advised to undergo coronary angiogram. Coronary angiogram revealed single vessel disease with 95% stenosis in the mid-segment of the left anterior descending artery for which successful percutaneous coronary angioplasty with drug-eluting stent placement was done. However, approximately

From: A.J. Institute of Medical Sciences, Kuntikana, Mangalore, Karnataka, India (B.S., G.T., B.V.M.)

Corresponding Author: Bhabani Sahoo MD
A.J. Institute of Medical Sciences, Kuntikana, Mangalore, Karnataka, India

Email: drbhabanisahoo@gmail.com

30 minutes post revascularization, ECG showed a lower heart rate which was associated with complete RBBB with II degree AV block (Figure 2). Patient was hemodynamically stable and complained of mild chest pain. A check angiogram was done immediately which showed patent stent. Because of baseline LBBB with bradycardia, beta blockers and other heart rate lowering drugs were not initiated.

ECG taken on the following morning showed complete LBBB similar to the baseline ECG (Figure 3), which suggested that the new onset RBBB with LAHB with Ist and IInd degree AV block were transient and insignificant prognostically. Patient remained asymptomatic thereafter and was discharged in a stable condition.

Case Discussion

Transient bundle branch blocks with sinus bradycardia are known to occur at the time of acute coronary reperfusion and are often accompanied by some degree

of hypotension. In our patient, hypotension was not present. Most of the times rhythm disturbances may actually indicate successful restoration of coronary flow but their specificity for successful reperfusion is limited (5). We are reporting this case because our patient had transient RBBB with left anterior hemiblock and Ist and IInd degree AV block on a relatively lower heart rate recorded in the same ECG. Another ECG recorded after a few hours suggested LBBB with sinus bradycardia on a relatively higher heart rate.

Conclusion

Although reperfusion arrhythmias may show a temporal clustering at the time of restoration of coronary blood flow in patients after successful revascularization, this brief electrical storm is generally innocuous and therefore no prophylactic antiarrhythmic therapy is necessary and specific treatment is not indicated, except in rare cases of symptomatic or hemodynamically significant reperfusion arrhythmias (6).

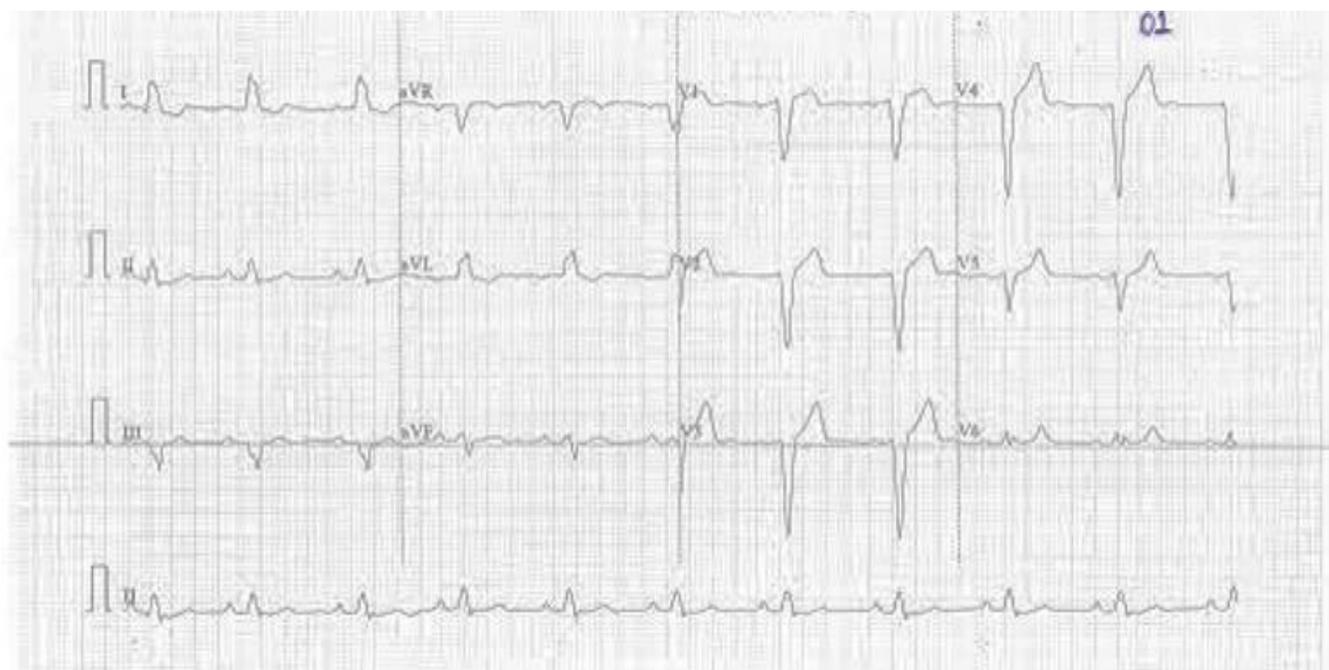


Figure 1. Baseline ECG on admission suggesting complete LBBB

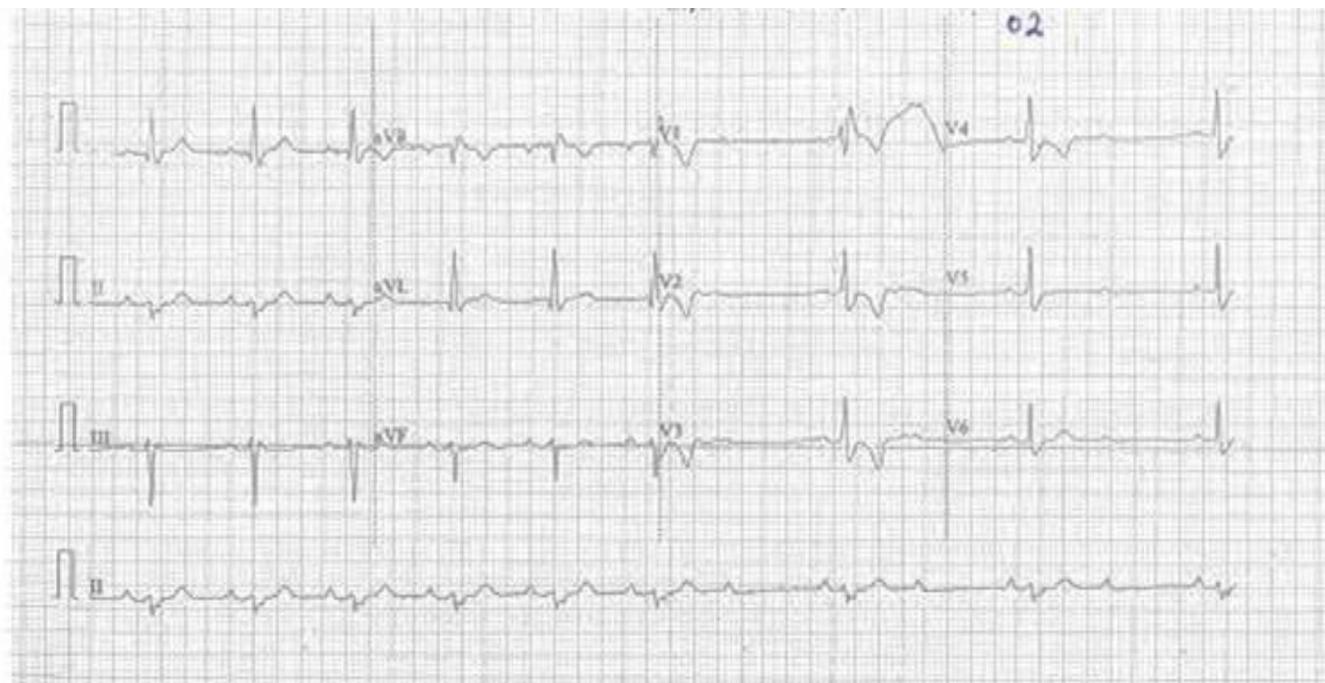


Figure 2. Transient trifascicular block with Mobitz type II AV block lasting a few hours.



Figure 3. ECG recorded the next morning after coronary revascularizations shows complete LBBB pattern similar to the baseline.

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