LBBB masking the ECG changes of inferior wall infarction: a caution to be vigilant

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DESCRIPTION

The occurrence of left bundle branch block (LBBB) is known to mask the ECG changes of anterior wall myocardial infarction (AWMI) because of the changes it causes in the ST-T segments of the precordial leads. The ECG changes of inferior wall infarction (IWMI) which affects the limb leads are usually unaffected by the intraventricular conduction abnormality caused by LBBB. The occurrence of an IWMI being completely masked by the presence of a pre-existent LBBB on the ECG is an important occurrence which needs to be highlighted and discussed.¹⁻⁴

We present an interesting image of a middle aged man who presented to us with acute onset of severe chest pain with a window period of 3 h. The presenting ECG was confusing as it showed changes of an LBBB with no changes in limb leads which would have suggested an infarction (figure 1). The conventional Sgarbossa criterion which needs to be satisfied to diagnose an AWMI in the presence of LBBB were not satisfied.¹⁻³ The diagnosis of an IWMI was suspected on the basis

of the echocardiogram performed which showed the occurrence of significant hypokinesia in the inferior and posterior wall territory (videos 1 and 2). The angiogram revealed thrombotic occlusion of proximal right coronary artery which confirmed our diagnosis of an inferior wall infarction. The patient subsequently underwent successful primary angioplasty to the occluded right coronary artery. The lesion was soft to cross with a wire as is expected in case of acute thrombotic occlusion (figures 2 and 3, videos 3 and 4). The symptoms subsided after the procedure although there was no change in the ECG which still showed LBBB morphology (figure 4).

This case highlights the importance of this variation in ECG and also highlights the role of echocardiography and angiography in facilitating the correct diagnosis. This case stresses the fact that in patients with pre-existing LBBB more reliance should be placed on other modalities to diagnose an infarct to enable the appropriate treatment to be administered without wasting crucial time to salvage the threatened myocardium.

Figure 1 Presentation ECG of the patient showing changes of left bundle branch block on the ECG but no changes to suggest an inferior wall infarction.

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Video 1 Apical two chambered view showing significant inferior wall hypokinesia.

Video 2 Parasternal short axis view showing inferior wall hypokinesia.

Figure 2 Left anterior oblique view showing acute thrombotic occlusion of the proximal right coronary artery.

Figure 3 Left anterior oblique view showing successful revascularisation of the right coronary artery after the primary angioplasty procedure.

Video 3 LAO view showing acute thrombotic occlusion of the proximal RCA.

Learning points

- ▶ Pre-existent left bundle branch block (LBBB) can even mask the changes of an inferior wall myocardial infarction as it does for an anterior wall infarction.
- ▶ This finding should be brought to light and discussed for the benefit of the practitioners and physicians dealing with such cases to enable appropriate and timely management which could prove lifesaving in such high-risk patients.
- ▶ This case illustrates the value of an echocardiogram and a diagnostic coronary angiogram which helps in an immediate diagnosis and facilitates early administration of appropriate treatment to salvage the threatened myocardium.

Video 4 LAO view showing successful revascularisation of the RCA after the primary.

Competing interests None.

Patient consent Obtained.

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Figure 4 The postangioplasty ECG showing the same left bundle branch block pattern without significant ST-T changes.

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