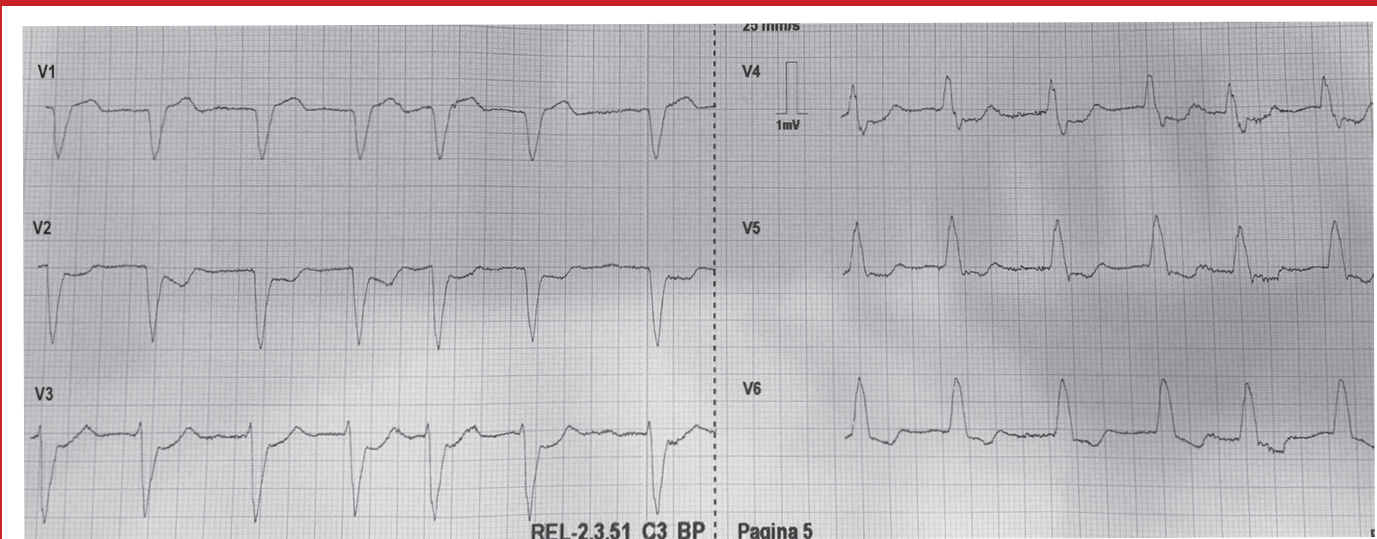


Left Bundle, Right Diagnosis

A 79-year-old male was brought to the emergency department by emergency medical services (EMS) with retrosternal chest pain radiating to both shoulders. The pain started 2 hours ago while he was working in his garden. His medical history included hypertension, hypercholesterolaemia and a transient ischaemic attack. Physical examination showed tachypnoea, 37 breaths per minute, without abnormalities at pulmonary or cardiac auscultation, a heart rate of 88 beats per minute, a blood pressure of 111/73 mmHg and unremarkable findings on abdominal examination. However, the patient looked clammy and grey. Nitroglycerine (GNT) administered sublingually relieved the pain. A partial electrocardiogram was performed by an EMS nurse (see Fig below).



The anterior ECG leads at presentation performed by emergency medical services.

Question: Which abnormalities raise your concern?

- A. A new left bundle branch block
- B. The negative T wave in leads V5 and V6
- C. The ST depression in leads V2–V4
- D. The irregularity of the cardiac rhythm

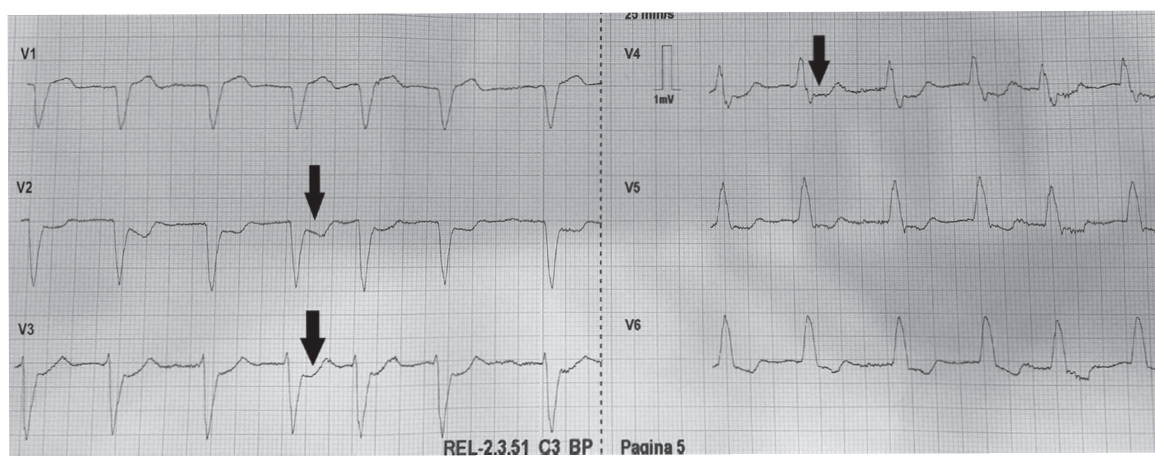
Source: Schaafsma, A.E., Coolsma, C. & Lameijer, H. *Neth Heart J* (2019) 27: 214. <https://doi.org/10.1007/s12471-019-1255-0>. © The Author(s) 2019.

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Answer

Rhythm Puzzle

The partial electrocardiogram (Fig.) shows a left bundle branch block (LBBB), possibly caused by acute coronary syndrome (ACS). However, it can also be pre-existent, or based on other cardiac disease. To evaluate ACS in patients with LBBB, the Sgarbossa criteria should be used [1]. Sgarbossa criteria comprise three electrocardiographic criteria for diagnosis of ACS in patients with LBBB: ST-segment elevation of 1 mm or more that is concordant with the QRS complex; ST-segment depression of 1 mm or more in leads V1, V2, or V3; and ST-segment elevation of 5 mm or more that is discordant with (in the direction opposite) the QRS complex. Each criterion increases the chance of ACS in patients presenting with LBBB. Smith *et al.* modified these criteria by replacing the third criterion with an ST/S ratio less than -0.25 , improving the diagnosis of STEMI in these patients [2].



The ECG as in Fig. of the rhythm puzzle question, showing LBBB with ST depression in V2–V4 in the anterior leads (arrows), which is a Sgarbossa criterion. ECG electrocardiogram, LBBB left bundle branch block.

In this electrocardiogram, LBBB with ST depression in V2–V4 in the anterior leads is observed. This observation, in combination with the patient's complaints, is sufficient reason to consider a STEMI equivalent. The patient was treated with heparin 5,000 IE (intravenous route), acetylsalicylic acid 500 mg and ticagrelor 180 mg and nitroglycerine (intravenous route). Emergency coronary angiography showed a significant stenosis of both the left main and right coronary artery, not accessible for percutaneous coronary intervention. The patient was treated with emergency coronary artery bypass grafting.

Source: Schaafsma, A.E., Coolsma, C. & Lameijer, H. *Neth Heart J* (2019) 27: 218. <https://doi.org/10.1007/s12471-019-1256-z>. © The Author(s) 2019.

References available on request/Healthcare.India@springer.com