CASE REPORT

Transient left septal fascicular block and left anterior fascicular block as a consequence of proximal subocclusion of the left anterior descending coronary artery

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The association of left anterior fascicular block (LAFB) with left septal fascicular block (LSFB) characterizes a left bifascicular block subtype rarely described in the literature, probably due to the fact that most researchers are not aware of the existence of the left septal fascicle. We describe a case with this transient intraventricular conduction disturbance due to left anterior descending coronary artery subocclusion.

KEYWORDS

left anterior fascicular block, left bifascicular block, left septal fascicular block, transient intraventricular conduction disturbance

1 | CASE REPORT

A 73-year-old woman, Caucasian, with a long history of hypertension, dyslipidemic, prediabetic and regularly using medication

(olmesartan 40 mg, chlortalidone 12.5 mg, metformin 500 mg, rosuvastatin 5 mg, acetylsalicylic acid 100 mg daily).

Clinical event: She reports that at dawn, approximately at 6 a.m., her night rest was suddenly interrupted by intense feeling of exhaustion

FIGURE 1 ECG-1 performed on 16/01/18 at 10 a.m. Sinus tachycardia (heart rate 115 bpm), QRS duration 60 ms, QRS axis +63°, R-wave progression in the precordial leads until transition in lead V5. Conclusion: Sinus tachycardia, late R-wave progression in the precordial leads because it occurs in lead V₅ (when it happens in leads V₄, V₅, or V₆ it is referred to as a late transition). Isolated supraventricular extrasystole

FIGURE 2 ECG-2 performed on 16/01/18 at 1:45 p.m. Sinus tachycardia: heart rate 115 bpm, QRS duration 80 ms (with a minor increase in relation to ECG-1), QRS axis -50° : extreme left axis deviation, rS pattern in inferior leads, R wave voltage of $V_1 \geq 5$ mm (in the present case 8 mm), embryonic q wave from V_1 to V_3 , R wave voltage in $V_2 > 15$ mm (19 mm): prolonged R-wave peak time in right precordial leads, prominent anterior QRS forces, R wave voltage “in crescendo” from V_1 through V_2 and decreasing from V_5 to V_6 , absence of q wave in left precordial leads V_5 , V_6 and I (by absence of vector 1_{AM}) and negative T wave in the right precordial leads. Conclusion: Sinus tachycardia, LAFB, LSFB (left bifascicular block)

FIGURE 3 Note calcified plaques before S_1 (arrow)

and dyspnea at rest accompanied by cold sweat, but no precordial pain. The symptoms lasted for about 2 hr and ended spontaneously. Self-measurement of blood-pressure (BP) was 150/80 mmHg. Hours later, she decided to go to the emergency department of our hospital. The BP was 130/80 mmHg, sinus tachycardia and normal vital signs were noted.

At 10:30 a.m. an ECG was recorded (Figure 1), showing sinus tachycardia (heart rate 115 bpm) and isolated supraventricular extrasystoles. Routine lab tests revealed normal CK-MB and cardiac troponin levels.

Around 13:30 a.m., a new symptomatic attack, similar to the first one occurred, again accompanied by cold sweat, but now she also felt some pressure on the chest; a second ECG (Figure 2) was recorded.

Immediate coronary angiography was proposed; however, the patient refused the invasive procedure, and for this reason we conducted coronary computed tomography angiography, which revealed calcified plaques in the proximal or left anterior descending (LAD) artery before the first septal perforator branch (S_1) on the curved multiplanar reformatted view (Figure 3). Percutaneous coronary intervention with drug eluting stent placement was performed, resulting in reversion of the intraventricular dromotropic disorders (Figure 4).

2 | DISCUSSION

ECG2 presents all the electrocardiographic criteria for LSFB, repeatedly mentioned in the literature (Pérez-Riera & Baranchuk, 2015; Perez-Riera, Barbosa-Barros, Penachini da Costa de Rezende Barbosa, Daminello-Raimundo, & de Abreu, 2018), and ratified by the III SBC (Sociedade Brasileira de Cardiologia) Guidelines on the Analysis and Issuance of Electrocardiographic Reports—Executive Summary by Pastore et al. (Pastore, Samesima, & Pereira-Filho, 2016). The transitory nature of the electrocardiographic changes rules out the possibility of any other possible cause for prominent anterior forces such as normal variant, athlete's heart, erroneous placement of precordial leads, vectorcardiographic right ventricular hypertrophy types A and

FIGURE 4 ECG-3 after stent implantation. Sinus rhythm, heart rate 58 bpm, P-axis 50°, PR interval 196 ms, QRS duration 90 ms, QRS axis +40°, QT/QTc 4.24/4.16, T-axis +15° with minimal terminal T-wave inversion in V3-V6. Conclusion: sinus bradycardia

B, lateral infarction (previously named posterior infarction), right bundle branch block, ventricular preexcitation type A, obstructive and nonobstructive hypertrophic cardiomyopathy, Duchenne-Erb disease, endomyocardiofibrosis, or the combination of any of the above (Pérez-Riera, Barbosa-Barros, & Baranchuk, 2016).

Coronary computed tomography angiography showed proximal calcified subocclusion of the anterior descending artery before the first septal perforator artery, considered the main cause of LSFB in the developed world.

3 | CONCLUSION

We present an exceptional case of left bifascicular block (LAFB + LSFB), which appears as transient due to the critical obstructive lesion of the proximal LAD artery before S_1 . Acute care physicians and cardiologists should remain attentive to this pattern, often transient in the context of acute coronary syndrome, and when present, immediate coronary angiography is indicated.

CONFLICTS OF INTEREST

None.

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