

## ECG Contest

## Response to ECG, January 2018



## Respuesta al ECG de enero de 2018

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The correct answer is number 4. Within the refractory period of the right bundle branch, there was a short phase of supernormal conduction. Beat 2 (Figure) occurred during this brief period. The impulse was conducted simultaneously from both bundle branches, giving rise to a narrow QRS complex. In contrast, impulse 3 occurred slightly after the end of the supernormal phase; it was blocked in the anterograde direction along the right bundle branch and depolarized the same branch in a retrograde way (linking phenomenon).<sup>1,2</sup> This shifted forward the right bundle branch cycle, including the window of supernormal conduction; the next impulse occurred within the supernormal conduction window and a narrow QRS complex occurred again, and so on.

Answer 1 is incorrect because no pure ventricular extrasystole with left bundle branch block morphology was observed in any of the recordings. The alternation of narrow and wide QRS complexes during tachycardia could have been 2:1 right bundle branch block (RBBB). However, this hypothesis does not explain the persistence of RBBB for several consecutive beats, even though RR intervals increased. Thus, answer 2 is incorrect. Answer 3 is incorrect because phase 4 RBBB does not explain the alternation of narrow and wide QRS complex. Moreover, phase 4 block is typical of slow rhythm.

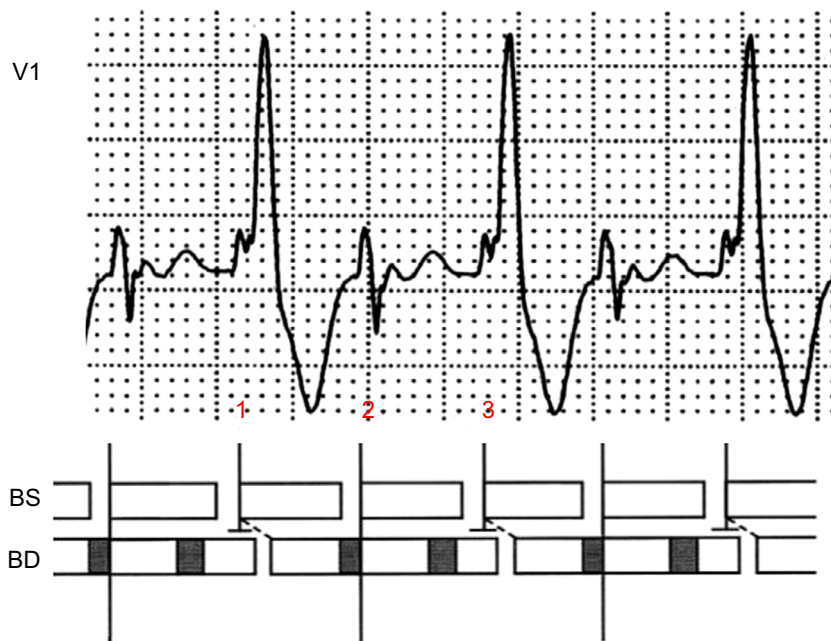


Figure.

## REFERENCES

1. Costantini M. Intermittent bundle branch block: a clinical model for the study of electrophysiological phenomena. *G Ital Cardiol.* 2014;15:25–36.
2. Luzzo F, Consolo A, Oreto G. Bundle branch block in alternate beats: the role of supernormal and concealed bundle branch conduction. *Heart Lung.* 1995;24:31.

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