ASYMPTOMATIC PHYSICIAN MAN WITH “SADDLE BACK” ST SEGMEN ELEVATION ON RIGHT PRECORDIAL LEADS

MÉDICO ASINTOMÁTICO CON REPOLARIZACIÓN EN SILLA DE MONTAR EN LAS PRECORDIALES DERECHAS

Case report: Luciano Pereira MD from Ciudad del Este Paraguay

Flag of Paraguay

Comments Andrés Ricardo Pérez-Riera M.D. Ph.D.

Médico, de 46 años, asintomático. Se hace un ECG de control con el trazado que está más abajo. No refiere historia de muerte súbita familiar, pero un hermano menor suyo tuvo un episodio sincopal hace unos años. Nació y vivió en una zona con alta prevalencia de Chagas, y estudió en Sucre (Bolivia), donde hasta sus profesores tenían Chagas. Le he solicitado serología para la misma. Llama la atención BDASI, BIRD, pero ese ligero supradesnivel del ST en V2 (¿en silla de montar?) requiere la opinión de los calificados maestros del foro

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Physician, 46, asymptomatic. ECG is done with the layout control is showed in next sides.
It does not refer family history of sudden death, but his younger brother had a syncopal episode several years ago.
Born and raised in an area with high prevalence of Chagas disease, and studied in Sucre (Bolivia), where even his teachers had Chagas.
I have asked the same serology.
LAFB striking, IRBBB, but that slight ST elevation in V2 with saddle back appareance?)
Requires the opinion of qualified teachers forum.

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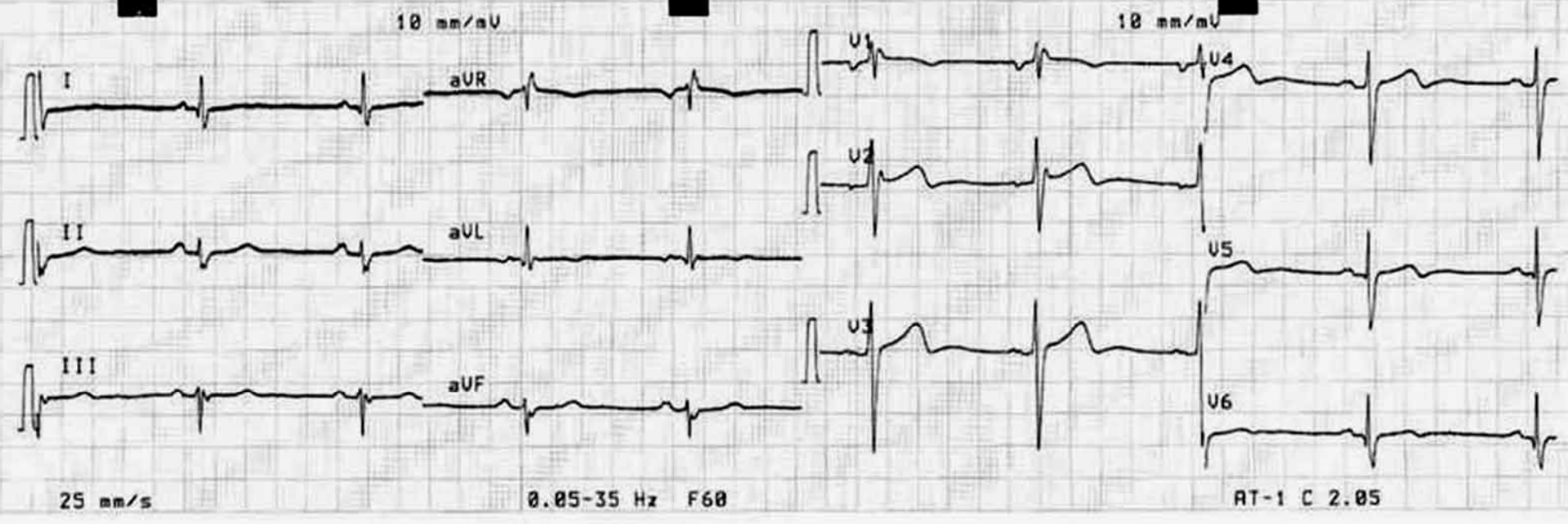
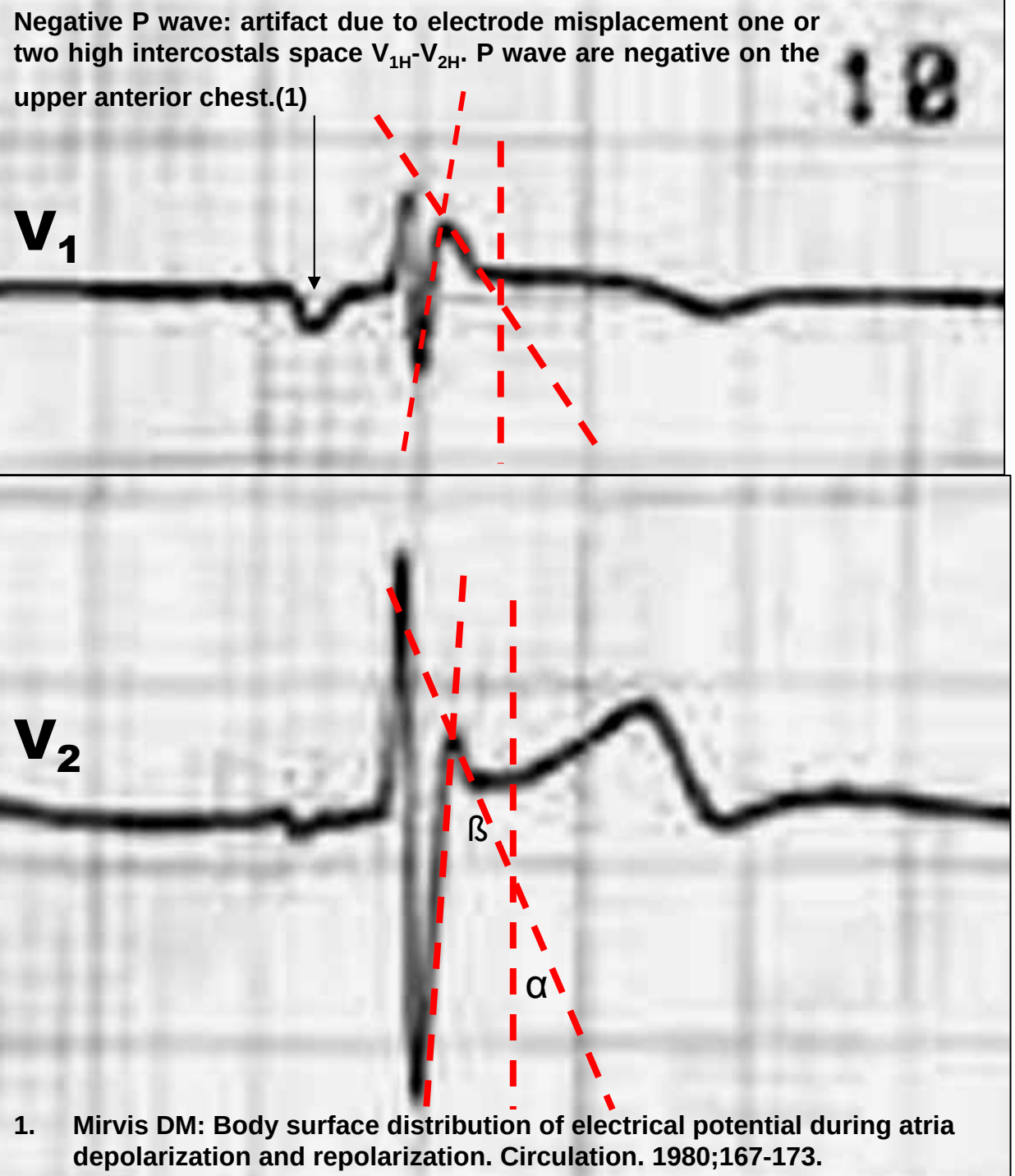


Sinus rhythm, HR 65bpm, QRS axis with extreme left deviation on frontal plane(-50º), SIII>SII, qRs pattern in I and aVL, final S waves in V_5-V_6: Left Anterior Fascicular Block (LAFB)
QRS duration 115ms, triphasic QRS pattern (rsr´/rSr´) in V_1-V_2, final prominent r wave in aVR, and final S/s wave in left leads: Incomplete Right Bundle Branch Block. (IRBBB)
Saddle back appearance of repolarization in V_2 followed by positive T wave.

Conclusion:

1) Negative P wave: possible artifact due to electrode misplacement one or two high intercostals space V_{1H}-V_{2H}. P wave are negative on the upper anterior chest.(1)
2) Left Anterior Fascicular Block
3) Incomplete Right Bundle Branch Block
4) Saddle back patter of repolarization in V_2: Pseudo type 2 Brugada ECG pattern. Why pseudo? Explanation on next slides.

1. Mirvis DM: Body surface distribution of electrical potential during atria depolarization and repolarization. Circulation. 1980;167-173.



“Innocent” incomplete right bundle branch block.

β angle: defined as the angle between the upslope of the S-wave and the downslope of the r'-wave.

α angle: defined as the angle between a vertical line and the down slope of the r'-wave. Here α angle is narrow. In patients with Brugada syndrome α angle is wider.

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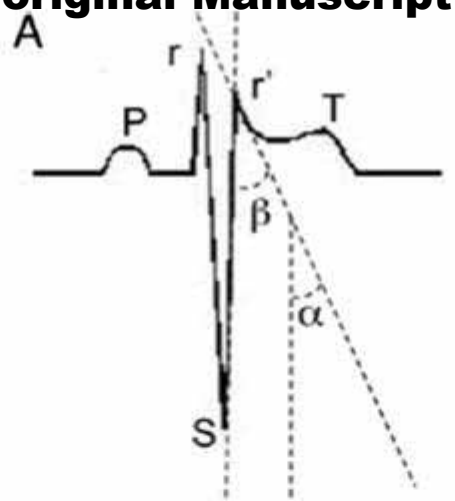
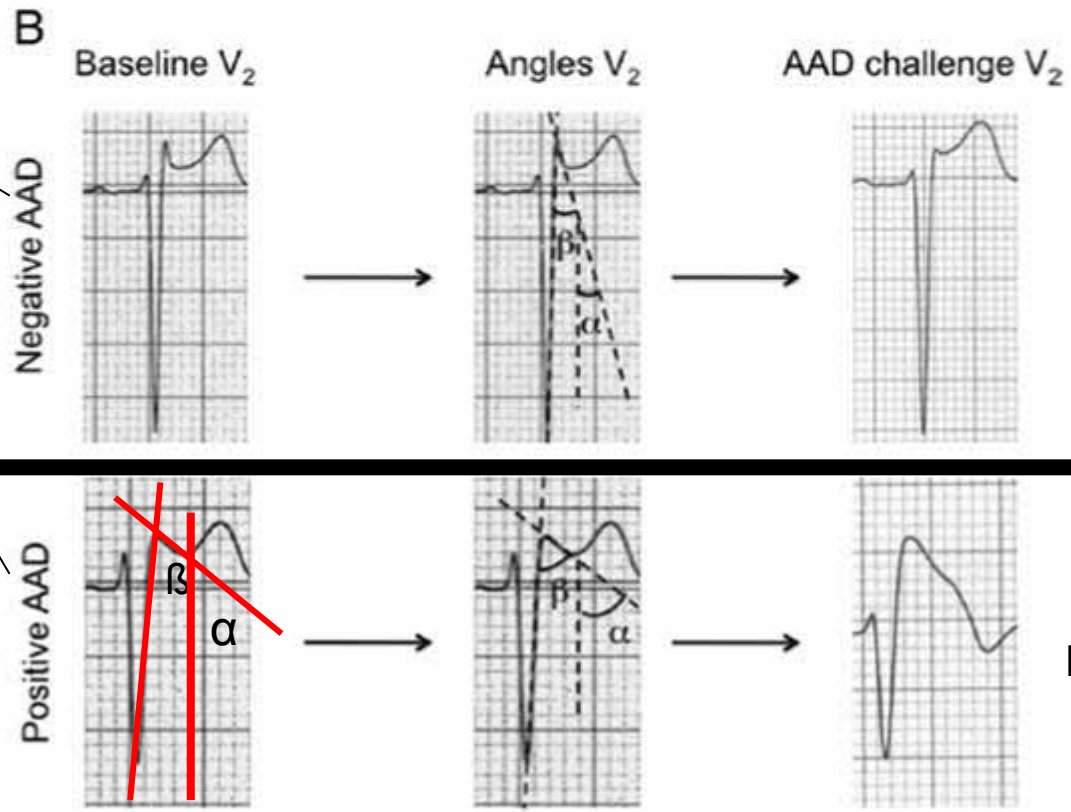
Chevalier original Manuscript figure



AAD: Antiarrhythmic Drug Challenge



INOCENT IRBBB WITH SADDLE BACK PATTERN

IRBBB WITH SADDLE BACK PATTERN TYPE 2 BRUGADA ECG PATTERN

Wide ß and α angles

Dear Luciano: Recently, Stéphane Chevallier et al (1) from the University Hospital of Lauzane, Switzerland evaluate new ECG criteria for discriminating between “innocent” incomplete RBBB present in 3% of the population and the Brugada types 2 and 3 ECG patterns. Thirty-eight consecutive patients with either type 2 or type 3 Brugada pattern that were referred for an Antiarrhythmic Drug Challenge (AAD) were included. Before AAD two different angles alone and in combination with QRS duration were measured from ECG leads V_1 and/or V_2 showing incomplete RBBB: α angle: defined as the angle between a vertical line and the down slope of the r'-wave. In patients with BrS α angle is wider and fall more slowly than innocent IRBBB. α angle was slightly less sensitive and specific compared with β and is clearly related with repolarization (repolarization phenomena) because it is not influenced by depolarization(QRS duration) (2)β angle: defined as the angle between the upslope of the S-wave and the downslope of the r'-wave. The mean β angle was significantly smaller in the 14 patients with negative results on AAD compared to the 24 patients with positive results on AAD (36 ± 20° vs. 62 ± 20°, $p < 0.01$). Its optimal cutoff value was 58°, which yielded a positive predictive value of 73% and a negative predictive value of 87% for conversion to type 1 pattern on AAD. β angle is related to both depolarization an repolarization. A wider QRS complex (slow conduction) and abnormal repolarization both contribute to a wider β angle. (2)Observation: When the angles were combined with QRS duration, it tended to improve discrimination. The authors conclude that in patients with suspected BrS, simple ECG criteria can enable discrimination between “innocent” incomplete RBBB and types 2 and 3 Brugada patterns. Conclusion in your case: both the α angle and β angle are acute not wide. You must only preformed chagasic serology because epidemiology is strong and by the presence of LAFB on ECG

References

1. **Chevallier S, Forclaz A, Tenkorang J, et al. New electrocardiographic criteria for discriminating between Brugada types 2 and 3 patterns and incomplete right bundle branch block. J Am Coll Cardiol.2011 Nov 22;58: 2290-2298.**
2. **Brugada P. On the Intriguing Phenotypic Manifestations of Brugada Syndrome and the Diagnosis Value of the Electrocardiogram. 2011; 58: 2299-2300.**

These conclusions are coincident with ours recent observations using Frank VCG where we observed always the two operative physiopatological mechanisms:

1. **Depolarization mechanism:** Right end conduction delay on RVOT at the end of QRS loop

2. **Repolarization mechanism:** Rounded, small, and with symmetrical afferent and efferent limbs of T loop while in innocent IRBBB Groups and CRBBB, T loop is elliptical, narrow, or linear with asymmetrical afferent (slower conduction) and efferent limbs (1)

1. Peréz-Riera AR; Ferreira Filho C; Ferreira M; de Abreu LC, Yanowitz FG, Femenia F, Ferreira C, Brugada P, Baranchuk A. Do Patients with Electrocardiographic Brugada Type-1 Pattern Have Associated Right Bundle Branch Block? A comparative Vectorcardiographic Study. Europace. 2012 January 10. 2-9. doi 10.1093/europace/eur 395.