Images in Electrophysiology

Split P waves: marker of extreme interatrial delay

Eduardo Back Sternick1,2,*, José Luiz Barros Pena2, Pedro Paulo Nascimento Santos2, and Arash Yavari3

1Electrophysiology Unit, Alameda Oscar Niemeyer 217, 34006-056, Nova Lima, Minas Gerais, Brazil; 2Pós-Graduação Ciências Médicas, Faculdade Ciências Médicas, Alameda Ezequiel Dias 275, 1st floor, Belo Horizonte, Minas Gerais, Brazil; and 3Division of Cardiovascular Medicine, level 6, West Wing, John Radcliffe Hospital, University of Oxford, Oxford OX3 9DQ, UK

* Corresponding author. Tel: +55-31-993010075; fax: +55(31)32895000. Email address: eduardo.sternick@cienciasmedicasmg.edu.org

A 38 year-old-male patient with syncope and familial PRKAG2 cardiomyopathy due to R302Q mutation was admitted in 2004 with recurrent syncope and advanced AV block for a dual chamber pacemaker implantation (Panel A). In 2017, the electrocardiogram during reprogrammed DDD pacing set at 30 beats, showed sinus bradycardia and split P waves (arrows) (Panel B), with prolonged interatrial conduction time, without split intracavitary atrial electrograms (Panel C). Longitudinal tissue Doppler biatrial strain imaging (Panels D and E) revealed the right atrial contraction curve to occur during the first P wave, while left atrial contraction curve occurred just after the second P wave, with the deformation curve earlier and greater in the lateral wall compared to the interatrial septum. The pattern of left atrial deformation is consistent with Bachmann’s bundle block and inferior interatrial conduction (Panel E).

Conduction delay may result from excess glycogen storage and/or ion channel remodelling rather than fibrosis. Interestingly, in spite of this abnormal conduction velocity, the patient did not have atrial fibrillation, as assessed from pacemaker logs over 13 years of follow-up. AVC, aortic valve closure; AVO, aortic valve opening; MVC, mitral valve closure; MVO, mitral valve opening.

Published on behalf of the European Society of Cardiology. All rights reserved. © The Author(s) 2018. For permissions, please email: journals.permissions@oup.com.