EP CASE EXPRESS

doi:10.1093/europace/euab145

# Right ventricular only pacing for cardiac resynchronization therapy

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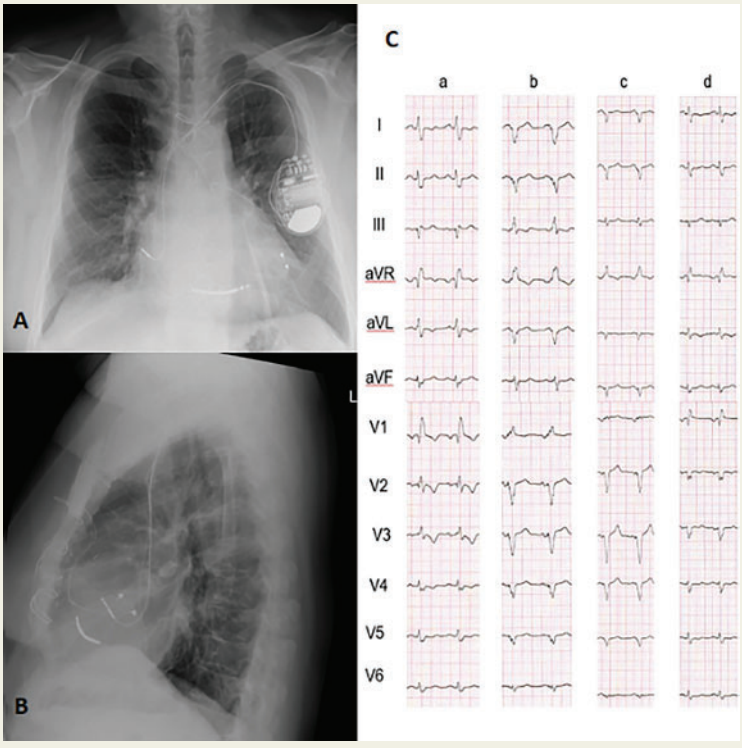
During follow-up of a patient with ischaemic cardiomyopathy with cardiac resynchronization therapy (CRT) implantation 12 years ago, persistent severely reduced left ventricular (LV) ejection fraction and exertional dyspnoea New York Heart Association (NYHA) II–III were observed despite optimal medical therapy and consistent 99% biventricular pacing. The patient was in sinus rhythm with complete right bundle branch block (RBBB) and intrinsic QRS duration of 160 ms. 12-lead electrocardiograms (ECGs) during intrinsic rhythm, right ventricular (RV), LV, and biventricular pacing were obtained (*Panels C (a-d)*). During biventricular pacing with adaptive atrioventricular (AV) interval (AVI), the ECG reflected combined wave fronts of RV and LV pacing with no signs of fusion. ECG- and echocardiography-guided evaluation of different AV and interventricular (VV) intervals led to the shortest QRS of 115 ms with RV-only pacing and an AV delay of 130 ms (*Panel C(d)*), resulting in fusion of intrinsic AV conduction with RV pacing and an optimal transmitral inflow profile. At follow-up, the patient reported reduced exertional dyspnoea, improved exercise capacity, and transthoracic echocardiography showed a decrease in LV end-systolic volume from 142 to 122 mL.




Active managing of CRT patients is crucial since automated optimization algorithms may be insufficient. Careful AVI programming in patients with RBBB can provide more effective resynchronization than biventricular pacing.

The full-length version of this report can be viewed at: https://www.escardio.org/Education/E-Learning/Clinical-cases/Electrophysiology.