

## Wolff–Parkinson–White syndrome unmasked by atrial pacing in a patient with cardiac sarcoidosis

Francisca Caetano<sup>1\*</sup>, Sérgio Barra<sup>1</sup>, and Diogo Cavaco<sup>2</sup>

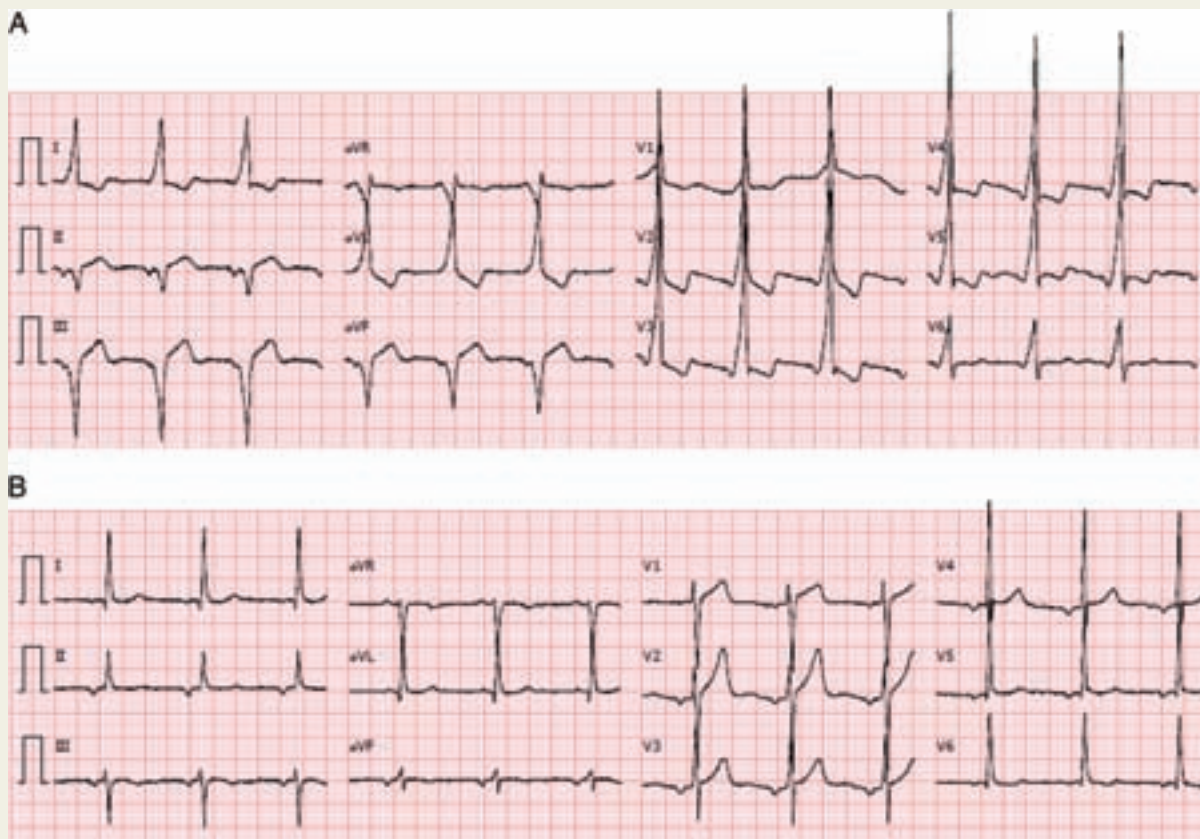
<sup>1</sup>Department of Cardiology, Centro Hospitalar e Universitário de Coimbra, 3030-775 Coimbra, Portugal; and <sup>2</sup>Department of Cardiology, Centro Hospitalar Lisboa Ocidental - Hospital Santa Cruz, Lisboa

\* Corresponding author. Tel: +351 239 800 100; fax: +351 239 814 779. E-mail address: franciscacaetano@sapo.pt

Male patient, 55 years old, diagnosed with cardiac sarcoidosis, underwent pacemaker implantation for sick sinus syndrome. After implantation, electrocardiogram showed atrial pacing, short PR interval, and slurred upstroke of the spontaneous QRS complex. During pacemaker follow-up, several episodes of sustained tachyarrhythmia were documented. Electrophysiological study was performed disclosing an overt left postero-septal accessory pathway and successful ablation was performed.

### Case report

A 55-year old male patient diagnosed with pulmonary and ocular sarcoidosis at the age of 50 and chronically treated with corticosteroids was evaluated for the first time at the Cardiology Department 5 years following initial diagnosis for symptomatic sinus bradycardia (complaints of dyspnoea NYHA II/IV, dizziness, and pre-syncope). Ancillary tests, namely cardiac magnetic resonance, confirmed cardiac involvement. Baseline electrocardiogram revealed sinus bradycardia (heart rate 47/min) and left ventricle hypertrophy with strain; exercise stress test showed chronotropic incompetence (maximum heart rate 120/min). Due to sick sinus syndrome, a dual-chamber pacemaker was implanted, with the atrial lead placed at a low right atrium position, closer to the septum and the tricuspid annulus. Following implantation, the electrocardiogram (Figure 1A) revealed atrial pacing (spike followed by an inverted P wave in inferior leads), short PR interval, and slurred upstroke of the spontaneous QRS, indicating ventricular pre-excitation. There was marked clinical improvement after pacemaker implantation, with no further episodes of dizziness or pre-syncope. At subsequent pacemaker follow-up visits, frequent episodes of asymptomatic sustained tachyarrhythmia (cycle length of 290 ms) were documented. Considering the potentially high risk of sustained ventricular



**Figure 1** (A) Atrial pacing, short PR interval, slurred upstroke of spontaneous QRS (ventricular pre-excitation) (B) ECG after successful ablation.

arrhythmias and sudden death in a context of cardiac sarcoidosis, the patient was referred to electrophysiological study. Ventricular arrhythmias were not inducible; however, a short HV interval was documented, associated with an overt left postero-septal accessory pathway (refractory period of 550 ms), which was successfully ablated (Figure 1B).

Cardiac sarcoidosis is a rare and potentially fatal condition frequently associated with severe conduction disturbances and ventricular arrhythmias;<sup>1</sup> supraventricular arrhythmias are less often reported and association with Wolff–Parkinson–White is rare. Pre-excitation had never been recorded in our patient, yet the close proximity of the atrial lead to the accessory pathway and the increased atrial rate by pacing unmasked an otherwise concealed accessory pathway. Although augmented pre-excitation during atrial pacing is well established as a possible phenomenon, especially in right-sided accessory pathways, its occurrence reinforces the rarity of our patient's dual condition.

**Conflict of interest:** none declared.

## Reference

1. Doughan AR, Williams BR. Cardiac sarcoidosis. *Heart* 2006;**92**:282–8.

60

65

70

75

80

85

90

95

100

105

110