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Successful detection of supraventricular tachycardia following ST elevation due to vasospastic angina using an insertable cardiac monitor in a patient with recurrent syncope: a case report

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ESC curriculum 5.2 Transient loss of consciousness • 5.1 Palpitations • 5.2 Transient loss of consciousness • 5.1 Palpitations

Case description

A 58-year-old woman had multiple episodes of syncope after chest pain and palpitations. She underwent a comprehensive diagnostic workup, including computed tomography (brain, thoracoabdominal, and coronary), echocardiography, and Holter monitoring. Unfortunately, none of these tests provided a definitive diagnosis. Based on the patient's preference, an implantable cardiac monitor (ICM) (Confirm RX; Abbott, Minneapolis, MN, USA) was implanted. Two months after ICM implantation, she experienced another episode of syncope following chest symptoms. In a subcutaneous electrogram (SECG) of the ICM, ST elevation was observed followed by regular tachycardia with a wide QRS complex. This pattern then transitioned to regular tachycardia with a narrow QRS complex (*Figure 1A*). The transition from a wide to narrow QRS was not accompanied by a considerable change in cycle length, suggesting that the presence of a coronary spasm or the Ashman phenomenon led to aberrant conduction. These findings from the SECG suggest a connection between vasospastic angina (VSA) and supraventricular tachycardia. Acetylcholine testing resulted in a diagnosis of VSA (*Figure 1B* and Supplementary material). She started taking benidipine. No palpitations were found during the following month, but in accordance with the patient's request, we performed an electrophysiological study (EPS), and atrioventricular re-entrant tachycardia (AVRT) using a left lateral wall accessory pathway (AP) was induced (*Figure 1C*). Antegrade conduction of the AP was not observed even after adenosine triphosphate administration. In contrast, during the AVRT in the EPS, no ST elevation or decrease in blood pressure was observed. Immediately after starting ablation, the retrograde conduction of the AP disappeared (*Figure 1D*). She remained free of syncope episodes, and no arrhythmia or ST elevation was recorded on the ICM during a 1-year follow-up.

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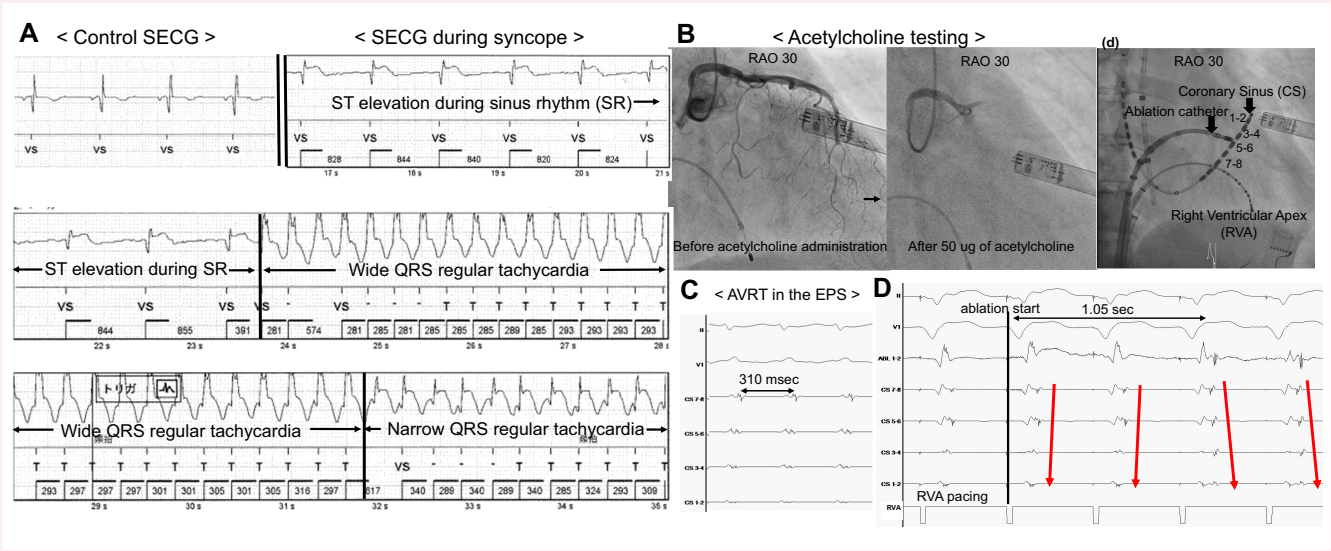

Figure 1 (*A*) Comparison of a subcutaneous electrogram between the normal state and syncope. (*B*) Acetylcholine testing. Our protocol: administer (1) 25 μg of acetylcholine, followed by (2) 50 μg, and (3) 100 μg if no spasm occurs. In this particular case, a spasm occurred after Step (2). (*C*) Atrioventricular re-entrant tachycardia induced in the electrophysiological study. (*D*) Accessory pathway ablation.

Syncope happened when VSA and its following AVRT were both observed. We report this case to emphasize the important role of an ICM in diagnosing VSA and AVRT.

Supplementary material

Supplementary material is available at *European Heart Journal – Case Reports* online.

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Data availability

Data sharing is not applicable to this report because no datasets were generated or analysed for this case.