

CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Electrocardiogram Quiz – Case 15

A 74-year-old man with a history consistent with arterial hypertension and dyslipidemia under treatment was admitted to our hospital for exertional dyspnea and palpitations of a few days' duration. The patient had undergone coronary angiography a few months before, due to similar symptomatology, which revealed normal coronary arteries. At the emergency department he was hemodynamically stable, with oxygen saturation 96% and normal body temperature. The patient's baseline 12-lead surface ECG is depicted in figure 1.

However, during hospitalization, he developed the rhythm depicted in figure 2.

Questions

- What is your diagnosis of the rhythm depicted in figure 2?
- What further investigations and treatment would you suggest?

Comment

Sustained ventricular arrhythmias are an important cause of morbidity and the most common cause of sudden cardiac death. The term "ventricular arrhythmias" incorporates a wide spectrum of abnormal cardiac rhythms, from single premature ventricular

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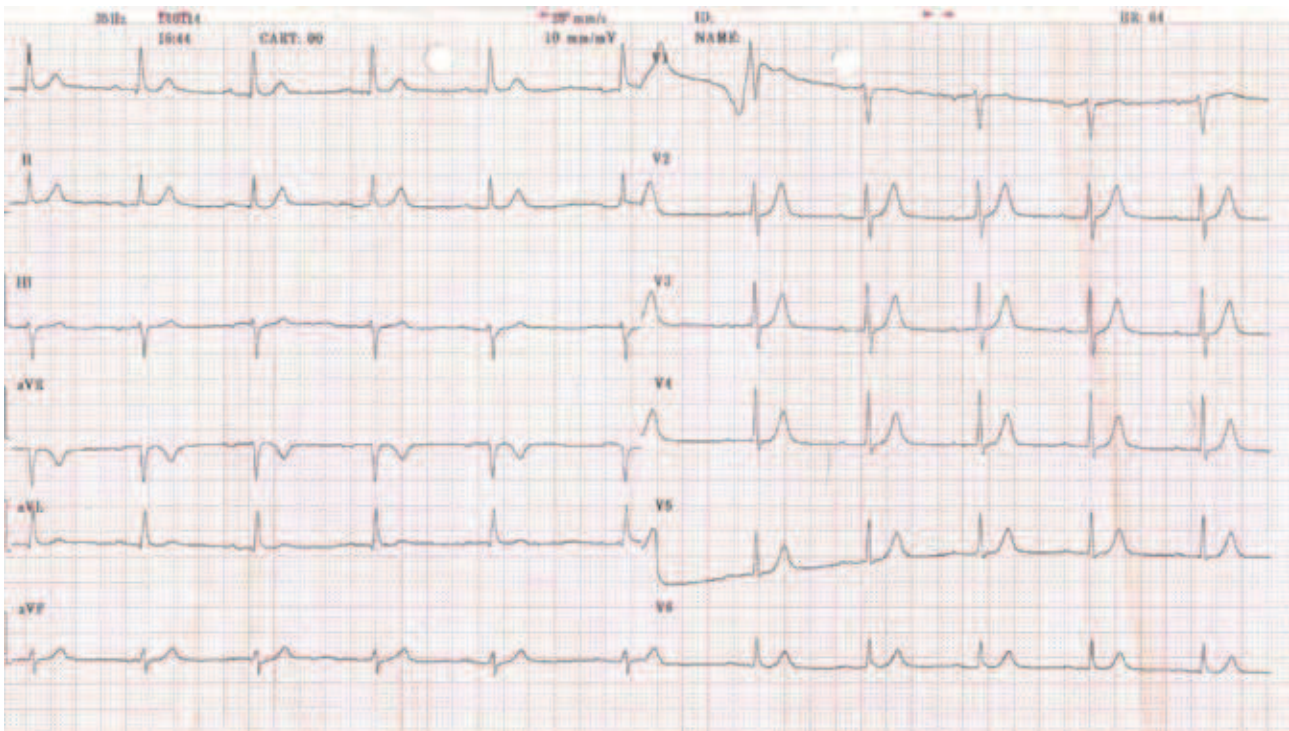


Figure 1

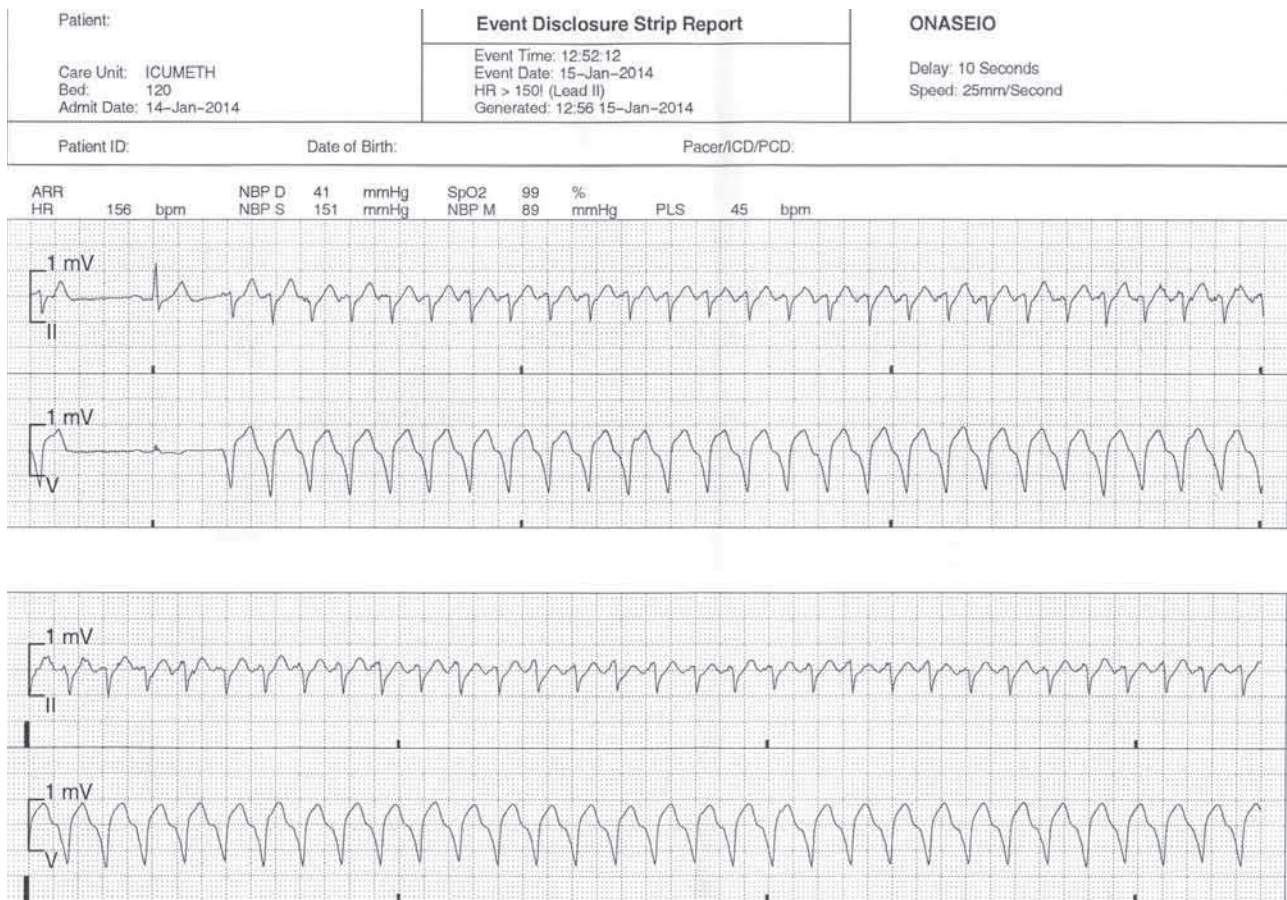


Figure 2

complexes to sustained monomorphic ventricular tachycardia (VT), polymorphic VT, and ventricular fibrillation. These arrhythmias predominantly occur in patients with structural heart disease, such as ischemic and dilated cardiomyopathies. However, benign forms of VT can also occur among individuals without evidence of cardiac disease. Evaluation of the underlying disease substrate is important, as the etiology not only provides clues to the mechanism of the arrhythmia, but also determines the patient's prognosis and the appropriate therapy, which differ between the various forms of ventricular arrhythmia.

The presentation of a patient with a wide-complex tachycardia (QRS complex >120 ms) is a common diagnostic dilemma in clinical practice. Several arrhythmias can present as wide-complex tachycardia, including VT, supraventricular tachycardia (SVT) with aberrancy or bundle branch block (BBB), and SVT with antegrade conduction over an accessory pathway (preexcited tachycardia). The 12-lead ECG is the most reliable means of differentiating VT from SVT. Electrocardiographic findings that suggest VT include: Atrioventricular dissociation, fusion or capture beats, QRS width (LBBB >160 ms, RBBB >140 ms), northwest axis, concordance, LBBB

morphology with right axis deviation, and absence of RS complexes in precordial leads. A number of algorithms have been proposed for diagnostic purposes; the most widely used and cited being the algorithm proposed by Brugada et al. Although ECG criteria are predominantly used for diagnosing VT, for cases in which doubt exists about the type of arrhythmia, an electrophysiological study (EPS) may provide the diagnosis.

Our patient underwent an uneventful EPS which revealed an accessory pathway that was ablated, and thus, setting the diagnosis of SVT with antegrade conduction.

References

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Diagnosis: Supraventricular tachycardia with antegrade conduction over an accessory pathway (preexcited tachycardia).