Narrow-Complex Ventricular Tachycardia: How to diagnose?
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Introduction
Ventricular Tachycardia (VT) is classically characterized by a fast heart rate with wide QRS complex duration (QRSd) more than 140 ms. In some cases of VT, the QRSd is relatively narrow (120-140 ms), and often misinterpreted.1,2

Case
A 46-year-old male with no prior history presented to the ED with palpitations since 2 days ago. BP 82/61, HR 150 bpm, RR 16/min, with normal PE. ECG showed tachycardia at the rate of 152 bpm which was regular with relatively narrow complexes (QRSd 118 ms), LAD and several dissociated P waves in Lead II rhythm strip. He was given 6 mg, 12 mg and 12 mg doses of adenosine intravenously and later I.V amiodarone 150 mg/10 minutes, without any success. The laboratory examination showed increased Troponin I (0.233 ng/mL) and mild hypokalemia (3.27 mEq/L). The patient was admitted to Intensive Care with continuous I.V Amiodarone. Corangiography showed normal coronaries. Tachycardia persist for another day with stable hemodynamic. Electrical cardioversion was performed twice, with 100 joule and 150 joule synchronized, but also unsuccessful. On the third day 1 mg/kg lidocaine I.V was given by bolus and maintenance. HR was converted to sinus 12 hours later. A transthoracic echocardiogram demonstrated a normal LVEF 55% and no significant valvular abnormalities.

Discussion
The Brugada Criteria are commonly used to determine whether a wide complex tachycardia is from VT or SVT with aberrancy.3 Criteria include in this case are RS interval > 100 ms (figure 1), the presence of AV dissociation (figure 2) and RBBB morphology criteria (figure 3) showed the diagnosis leads to VT.

In this case the patient ECG didn’t show typical form of VT because it has relatively narrow complex QRS. The presence of AV dissociation and RBBB morphology with qR are suggested to VT. These findings concludes this rhythm can be a VT, most likely originating near or from -HisPurkinje system, resulting in a narrow QRS complex.

Conclusion
The diagnosis of narrow-complexes VT is difficult due to the relatively narrow complexes. Evidence of AV dissociation is one useful characteristic to diagnosis these kind of tachyarrhythmia.

Keyword : Ventricular Tachycardia (VT), Narrow-Complex Ventricular Tachycardia

References