



Challenges in Clinical Electrocardiography: Artifact or not?

Klinik Elektrokardiyografide Zorluklar: Artefakt mı Değil mi?

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Dear Editor,

A 53-year-old man was admitted to our hospital because of chest pain and palpitation. The patient's clinical history was unremarkable such as hypertension, diabetes mellitus or drug use. Physical examination was normal. Biochemical variables were within normal limits. Also, thyroid function tests and electrolytes were normal. Transthoracic echocardiography, Holter rhythm monitoring and electrophysiologic study revealed normal findings. Because of positive exercise test we performed coronary angiography which revealed normal coronary arteries. Surface electrocardiography (ECG) taken on admission is shown in Figure 1 (also see all leads and arrows in V5).

Questions

What is the most likely explanation for slurred QRS complexes and what rhythm abnormalities would you consider in the differential diagnosis?

Comment

Differential diagnosis comprises preexcitation, pseudodelta wave, blocked atrial premature beats and artifact. Electrocardiographic artifacts are typically unintentional and are not associated with hemodynamic findings⁽¹⁾. They may cause unnecessary diagnosis and treatment⁽¹⁾. They are usually caused by poor surface electrode contact or patient movement. In our case, the top tracing shows a burst of apparent wide complex tachycardia seen in leads I, II, aVr and aVL but not in lead III. Because of this, the most likely diagnoses is artifact. Thought it was the left arm but subsequently seen in aVL but not in lead II, so artifact may be variable depending on specific body movements. The bottom strip shows a constant sinus rhythm with erratic P wave activity, however the ventricular rate is constant. Note that some of the putative P waves fall very close to one another which would be unphysiological since the atrium needs a refractory period. Also note the erratic rhythm in lead II below.

Take home messages: Electrocardiographic artifacts may cause unnecessary diagnosis and treatment.

Key Words: Electrocardiography; artifact; preexcitation; pseudodelta wave; blocked atrial premature beats

Anahtar Kelimeler: Elektrokardiyografi; artefakt; preeksitasyon; psödodelta dalgası; bloklu atriyal erken atımlar

CONFLICT of INTEREST

The authors reported no conflict of interest related to this article.

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Figure 1. Surface electrocardiography on admission

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