Electrocardiographic artifact during exercise

Elektrokardiyografide egzersizle ilişkili artefakt

Farid Aliyev
Cengizhan Türkoğlu
Cengiz Çeliker

Department of Cardiology, Cardiology Institute, İstanbul University, İstanbul

A 38-year-old female patient presented to our hospital for evaluation of atypical chest pain. The electrocardiogram showed short PR interval and presence of a delta wave. Diagnosis of Wolff-Parkinson-White syndrome was established based on her electrocardiogram, with a possible left free-wall accessory pathway (AP). No further evaluation was considered. The patient was referred to our institution one month later for preoperative assessment before noncardiac surgery. We observed intermittent preexcitation on 24-hour Holter monitoring and exercise stress testing was scheduled to evaluate AP conduction. Exercise was prematurely aborted by the technician because of the presence of supraventricular tachycardia at an extremely high rate (Figure). We observed that this reported tachycardia represented an artifact, but it was interesting that the patient complained of palpitation during that stage and insisted on invasive electrophysiologic evaluation. During this "tachycardia", the actual heart rate was 150 beats/min and blood pressure was 160/80 mmHg. Electrophysiologic study revealed the presence of a left anterolateral AP, with both anterograde and retrograde conduction. Anterograde and retrograde effective refractory periods of the AP were 350 msec and 330 msec, respectively, and Wenckebach point was 290 msec, without any inducible tachycardia. Successful ablation of the AP was performed, after discussing with the patient the risks associated with the procedure.

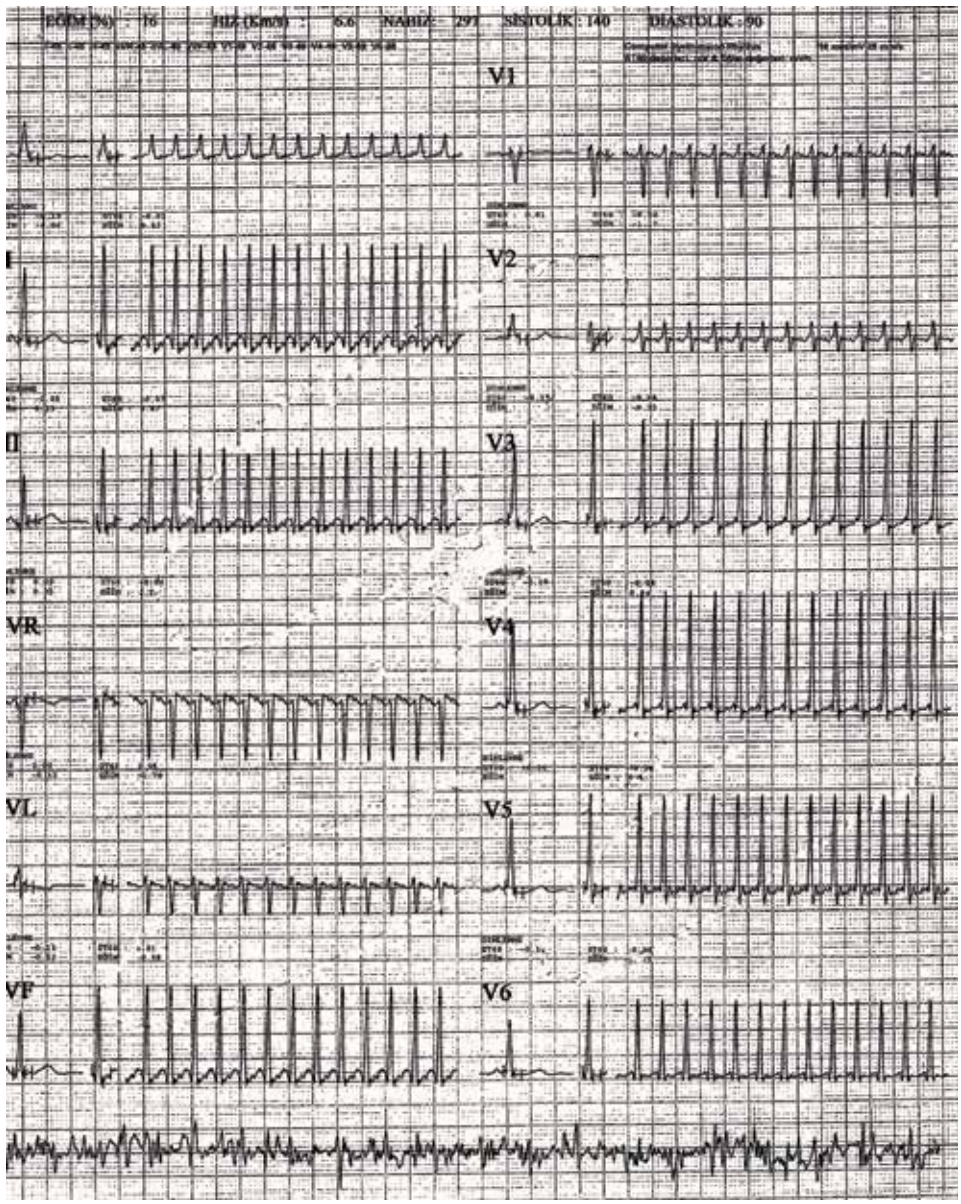

Figure. The electrocardiogram obtained during the fourth stage of exercise. Tachycardia has a rate of 297 beats per minute. However, bottom tracing shows presence of an artifact and heart rate of approximately 150 beats per minute.