Görüntülü olgu örnekleri — Case images

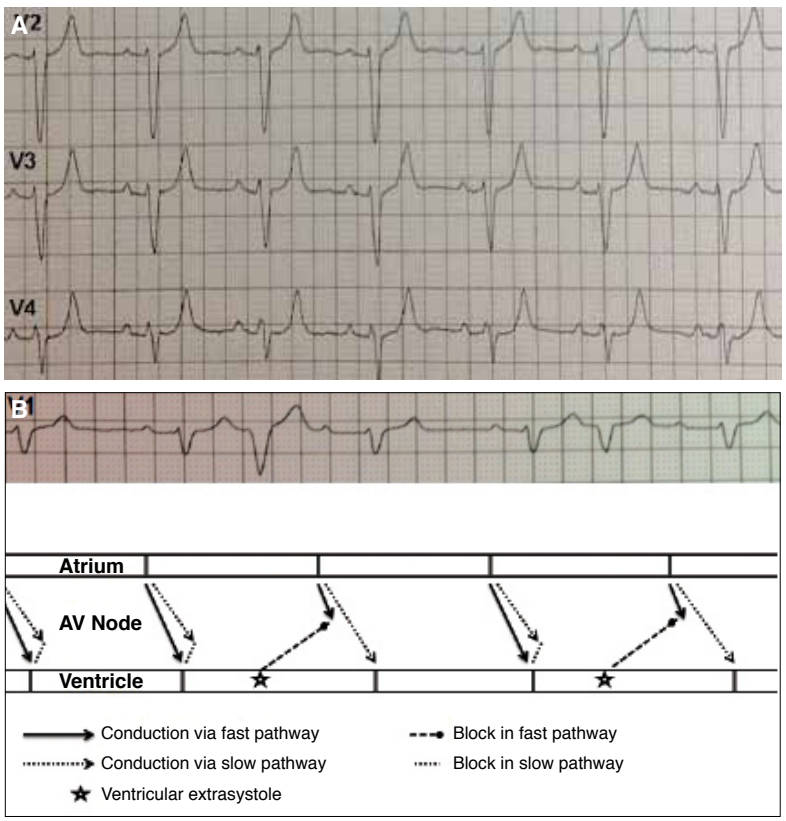
PR interval prolongation induced by ventricular extrasystole: an interesting electrocardiogram

Ventriküler erken vurunun sebep olduğu PR aralığında uzama: İlginç elektrokardiyogram

Arzu Kalaycı
Taylan Akgun
Can Yucel Karabay
Cevat Kırma

Department of Cardiology, Kartal Kosuyolu Yuksek Ihtisas Training and Research Hospital, Istanbul

A 43-year-old man admitted to our clinic with palpitation. He had no chronic disease and was not using any medication. His electrocardiography (ECG) was unremarkable (Figure A), and he had normal transthoracic echocardiographic findings. PR interval prolongation after ventricular extrasystole (VES) was shown in 24-hour ambulatory rhythm ECG monitoring (basal PR duration: 0.19 s vs. post VES PR duration: 0.36 s) (Figure B). This situation may be related to three conditions. First, the presence of dual atrioventricular (AV) node physiology may have caused this condition. Normal atrial impulse is conducted to the ventricle through the fast pathway of the AV node in this physiology. However, in the presence of VES, the AV node is blocked retrogradely, and the incoming atrial impulse is conducted through the slow pathway, which has a shortened refractory period, hence causing prolongation of the PR interval. This physiology is compatible with AH jump and dual AV node (Figure, Schematic diagram). Second, retrograde conduction generally does not occur after VES, and the forthcoming sinus impulse is conducted with



Figures– (A) Electrocardiography is unremarkable. **(B)** The schematic diagram of dual AV node physiology showing the blockage of the fast pathway after the VES and conduction of impulse through the slow pathway, causing prolongation of the PR interval.

normal PR interval. However, concealed retrograde conduction of VES through the AV node may occasionally ensue. This may cause partial refractoriness of the AV node and prolongation of the PR interval of the forthcoming sinus impulse after the VES. Third, since an alternating pattern of cycle length changes in PR intervals is obvious in this case, it may be caused by baroreceptor-mediated phasic changes in vagal tone. Although the electrophysiological study was not performed to explain the exact cause, we share the probable causes of this interesting ECG with our colleagues.