Sir,

Concealed conduction commonly occurs when an interpolated premature ventricular impulse enters the His Purkinje system and atrioventricular (AV) node retrogradely but does not reach the atrium. As a consequence, the ensuing sinus impulse either does not conduct to the ventricle or conducts with a prolonged PR interval due to the increased AV nodal refractoriness. This effect of the extra-systole on AV conduction of the next sinus impulse should not be misdiagnosed as an AV block.[5] We report the case of a 20-year-old gentleman who was referred for palpitations at rest. We advised him a 24h Holter monitoring for further workup. Some Holter strips are shown in Figure 1.

The top strip reveals interpolated ventricular extra-systoles in bigeminal rhythm with prolonged PR interval in sinus beats that follow the premature complexes. The same phenomenon occurs in the middle strip, but here sinus beats that closely follow the premature ones undergo a progressive PR interval prolongation ending in the block of a sinus impulse (the third sinus P wave).

The bottom strip of Figure 1 again reveals interpolated ventricular ectopics (PVCs) occurring in bigeminal rhythm; due to the effect of retrograde concealed penetration of the PVC into the AV junction, the ensuing sinus impulses are alternatively conducted and blocked. The concept of concealed conduction was introduced by Langendorf.[2] The term was applied whenever penetration of an impulse into a defined cardiac structure was not immediately evident at the surface electrocardiogram, but could only be recognized by its after effects on formation or conduction of the ensuing impulse. The definition of concealed conduction has been irrevocably altered by the availability of intracardiac recordings,[3] that may, at times, directly demonstrate the conduction of an impulse into a defined cardiac structure, despite this not being evident at the surface ECG. Although the AV node is the site most commonly associated with concealed conduction, this phenomenon can occur in any section of the heart.[1]

Concealed conduction often occurs when a PVC enters the His Purkinje system and the AV node retrogradely but does not reach the atrium. As a consequence, the next sinus impulse either does not conduct to the ventricle or conducts with PR interval prolongation.[1] The present case demonstrates how interpolated PVCs can have totally different effects on AV nodal conduction of the ensuing sinus impulse as a result of different patterns of concealed retrograde conduction. These patients should not be misdiagnosed as having advanced AV block.[4,5]

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References
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Molecular RhD typing can be done using the method of Bennett (mixture of AAGCAAAGCA and TGGT). The RhD alloimmunization could warrant exchange transfusion to prevent severe hyperbilirubinemia in newborns. The incidence can be reduced by use of prophylactic anti-D antenatally.

References

Figure 1: RHD genotyping of amniocytes and Rh prophylaxis. A 2=Sibling - RhD Positive, Lane 3=Mother - RhD Negative, Lane 4=Father - RhD Negative, Lane 5=Sibling - RhD Negative, Lane 6=Father - RhD Positive, Lane 7=Sibling - RhD Negative, Lane 8=Father - RhD Positive, Lane 9=Mother - RhD Negative.