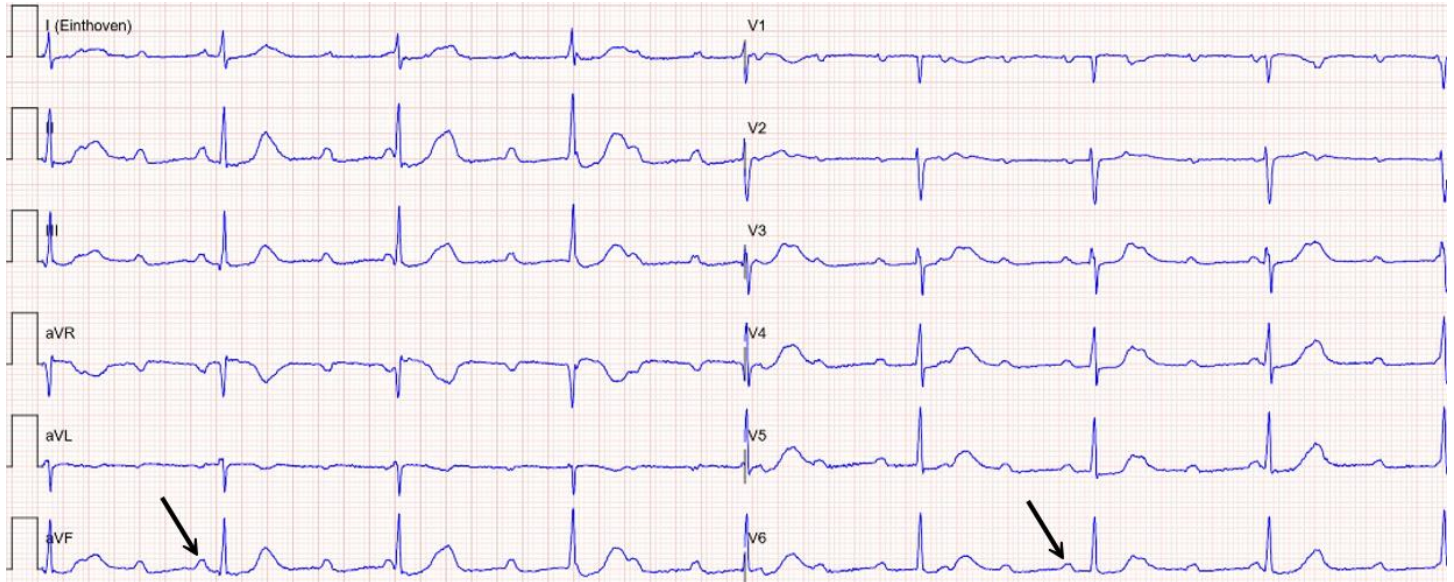


Did This P Wave Conduct? | Discussion

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Figure 1



No, those P waves did NOT conduct. This is indeed AV dissociation due to a 3rd degree AV block. In any AV dissociation, whether caused by a 3rd degree AV block or not, the ratio of the atrial rate to the ventricular rate will occasionally result in a “normal” PR interval. Now I want you to make a poster of this next statement and nail it on your wall:

“A ‘normal’ PR interval means *ABSOLUTELY NOTHING* during AV dissociation unless it causes an interruption in the ventricular rhythm. And that disruption will always be a QRS complex that appears *EARLY*.”

As you can see, there is no interruption of the ventricular (in this case, junctional) rhythm following the occurrences of the normal PR intervals. Of course, there is a 3rd degree AV block present – but there doesn’t have to be a block! A simple AV dissociation with no AV block can do the same thing.

Look at this strip:

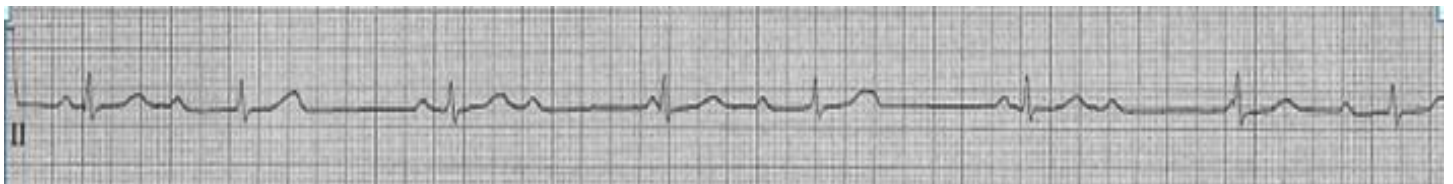


Figure 2 AV dissociation without AV block

With every capture beat (atrial impulse that crossed through the AV node and captured the ventricles), there is an interruption of the regular ventricular rhythm (also junctional in this case). The R-R interval is shorter than the others; this occurs three times on this rhythm strip. If you will note – each conducted P wave is followed by a *prolonged* PR interval. Not

one capture beat has a “normal” PR interval. There are, however, three P waves followed by “normal” PR intervals – but none of those P waves conducted. The R waves that follow them occurred exactly when one would expect an escape beat.

Capture Beats and Wide Complex Tachycardias – A Digression

There are numerous examples on the internet of *wide complex tachycardias* in which a normal P-QRS-T complex appears at an R-R interval that is visibly *longer* than the R-R interval of the wide complex tachycardia and they are labelled “capture beats.” That is WRONG! The author obviously has no idea what a capture beat is or what it implies. Many ventricular tachycardias (VT) are *paroxysmal*. They start and stop, start and stop. Unless the normal beats appear at an R-R interval that is *shorter* than the R-R interval of the VT (i.e., at a shorter “cycle length”), those are NOT capture beats – the VT has simply *stopped*, allowing a P wave to conduct to the ventricles. Dysrhythmias *other than VT* can do the same thing!

If you see a normal QRS that appears to *end* a run of ventricular tachycardia, be very careful before calling it a capture beat. One of the defining characteristics of a capture beat is that it appears *early* without terminating the VT – but it does disrupt the regularity of the tachycardia for at least one beat! A capture beat proves two things:

1. The His-Purkinje system and myocardium are capable of conducting at a rate that is *faster* than the prevailing VT rate *without any aberrancy*!
2. There is *no fixed bundle branch block*.

OK... getting back to our ECG...

The P waves that actually conduct to the ventricles during AV dissociation are NOT obligated to have “normal” PR intervals and “normal” PR intervals do NOT imply conduction when AV dissociation is present – *unless the QRS interrupts the ventricular rhythm*.

Here it is – one more time:

“A ‘normal’ PR interval means ABSOLUTELY NOTHING during AV dissociation unless it causes an interruption in the ventricular rhythm. And that disruption will always be a QRS complex that appears EARLY.”