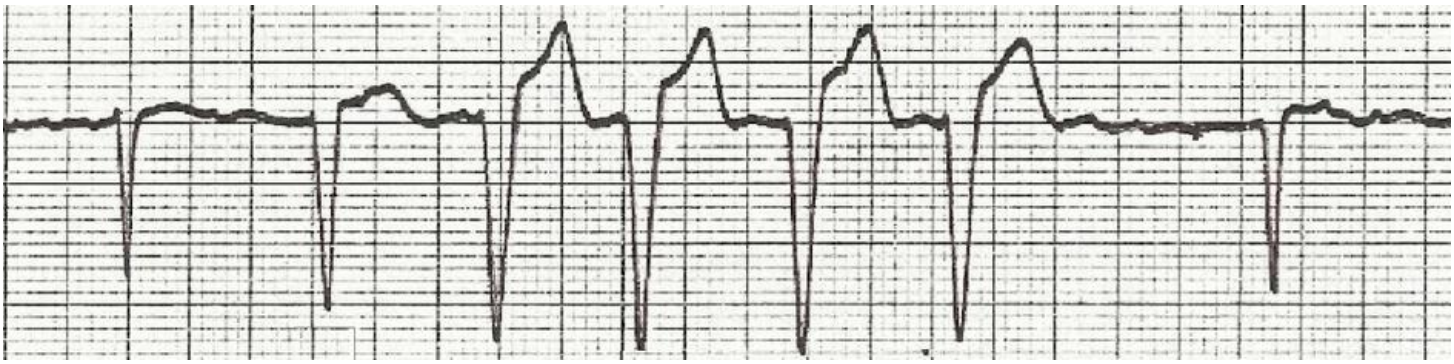
A Conundrum: For Intermediate to Advanced Electrocardiographers

Jerry W. Jones, MD FACEP FAAEM



This is a **Mobitz I block**.

Don't try looking for increasing PR intervals and a non-conducted P wave. *There aren't any*.

Don't try to laddergram increasing SA – atrial intervals and a P wave that fails to appear. *There aren't any*.

Don't try to laddergram increasing H' - R intervals and a QRS complex that fails to manifest. *There aren't any*.

So, where is this Mobitz I block? The Mobitz I block is in the *Left Bundle Branch*. I never said it was a Mobitz I AV block!

The QRS complex gets wider and wider until it reaches its maximum width. Then it remains at that width for four beats until a pause occurs. Then the QRS complex returns to its normal amplitude.

There are several things to note here…

1. **The four wide QS complexes (3 – 6) are the same width. What does that indicate?**

   Usually, a Mobitz I block progresses until conduction fails and a pause occurs, allowing the conducting system to recover from increased refractoriness.

   In this case, we can't be sure that's what happened. As you see, the baseline rhythm is *atrial fibrillation* and pauses can occur spontaneously. *Any* pause – whether as part of the end of a Mobitz I (or "Wenckebach") sequence, or whether spontaneous, due to atrial fibrillation – will allow for the recovery of the conducting system.

2. There are four equally wide QRS complexes. Did the complete LBBB occur with the first, second, third or fourth wide QRS?

As soon as you discover which one – please let me know, because I am not sure which QRS represents the final, complete LBBB! Do NOT assume it was the first wide QRS just because it appears to follow logically the sequence of increasing width (we'll talk about depth in a moment).

If the depolarization of the septum from right-to-left is faster than the depolarization impulse travelling down the left bundle branch by 40 – 60 msec, the QRS will appear on the ECG as a "complete" LBBB – *even though no block has occurred*. In other words, the progressive delay in conduction through the left bundle branch could have continued until the last wide QRS. And even THEN, it may not have actually been a "complete" LBBB because we can't be sure what caused the pause!

The importance of a block lies NOT in the ***degree*** of block represented, but rather in the ***location*** of the block. All blocks occurring below the AV node are dangerous and ***this one is no exception***. The chances of a sudden complete AV block with asystole is greatly increased. ***Never underestimate the gravity of a Mobitz I block below the AV node*.** Even a *first degree AV block* below the bifurcation of the His bundle has very sinister implications!