ECG Reading Pearls: Unusual Aspects of Bundle Branch Block (BBB)

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Objectives:

• Assess the ventricular conduction system
• Appreciate the ECG manifestation of bundle branch and fascicular blocks
• Describe the etiologies of IV conduction disorders
• Appreciate rate related (tachycardia-dependent and bradycardia-dependent) IV blocks
What’s In A Lead ‘V1’ Rhythm Strip?

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Why ‘V1’? 

- Easy to distinguish RBBB from LBBB 
- Easy to distinguish BBB from Ventricular ectopy 
- P waves are easily recognized

**RBBB vs. LV ectopy**

1. rSR'  
2. Rabbit ears  
3. Where’s the notch?  
4. qR  

**LBBB vs. RV ectopy**

1. fat R  
2. Notch or slur  

≥0.06 sec
"Our Pre-School Career Aptitude Tests indicate little Frank will make a very fine cardiologist".
A-fib (~130 bpm) and RBBB

NSR (90bpm) 3rd degree AVB; J-escape rhythm (50 bpm) with LBBB

Probable A-fib (RVR; 120 bpm).... Trying to look like A-flutter (Atrial-flitter)
Sinus rhythm (75 bpm); RV PVC; ectopic atrial tachycardia (115 bpm)

Sinus rhythm; 2\textsuperscript{nd} degree AV Block (Mobitz type II); RBBB

Sinus rhythm; PAC’s with RBBB aberrancy, incomplete pause
Sinus rhythm; 13-beat LV V-tachycardia (onset with fusion beat)

Sinus rhythm with 2:1 and 3:2 2nd degree AV Block (type I), RBBB

NSR (65 bpm); demand V–pacer (72 bpm); incomplete AV dissoc. (usurpation)
NSR with RBBB; accelerated ventricular rhythm with incomplete AV dissociation (usurpation)

1:1 Atrial Flutter (with RBBB) slowing to 2:1 and 3:2 conduction; RBBB is rate related
Sinus rhythm (100 bpm); 3rd degree AVB; J–escape rhythm with RBBB

Atrial fib (RVR); intermittent LBBB aberrancy
Supraventricular tachycardia (200 bpm) with RBBB
NSR; 4 PAC’s (nonconducted, and with and w/o RBBB aberrancy)

NSR (85 bpm); 3rd degree AV Block, J-escape rhythm (45 bpm)

Sinus bradycardia (55 bpm); incomplete AV dissoc with 2 sinus captures (*); accelerated junctional rhythm (65 bpm)
Sinus brady (50 bpm); 2\textsuperscript{nd} degree AVB (type I); rate related LBBB; nonconducted PAC

Wide QRS tachycardia (150 bpm); probable V–tachy

Wide QRS tachycardia (250 bpm); definitely V–tachy
3:2 Left Bundle Branch Block; is this LBBB Wenckebach?

Sinus rhythm, incomplete LBBB; 3 PAC’s; Onset of AVNRT

Multifocal atrial rhythm / tachycardia with nonconducted PAC’s
Atrial flutter with 3:2 and 2:1 AV block; and a 4 beat run of VT

Sinus tachycardia; frequent PAC’s in a pattern of bigeminy

AV pacemaker; ugly PVC’s (R-on-T) and Torsades-des-pointes
NSR (90 bpm); 2\textsuperscript{nd} degree AVB (type II) with RBBB

NSR (100 bpm); 2\textsuperscript{nd} degree AVB (type II) with LBBB

NSR (90 bpm); 2\textsuperscript{nd} degree AVB (type I) with Junctional escapes
Atrial fib with RVR (220 bpm)

SVT @ 170 bpm (probable AVNRT)

Probable A-fib (with IVCD); non-functioning AV pacer
Guess what?

NSR; nonconducted PAC (long pause); onset PSVT

Marked sinus brady (40 bpm); 2nd degree SA block (sick sinus syndrome)
NSR (80 bpm); 3rd degree AVB; J-rhythm with RBBB (45 bpm) (ST↑:? ASMI)

A-fib (100 bpm); ? incomplete LBBB

Ectopic atrial tachycardia (200 bpm); 2:1 AV block
Sinus rhythm; PAC’s in pattern of bigeminy with LBBB aberrancy

NSR (50 bpm); V–pacemaker (72 bpm); incomplete AV dissoc. (usurpation)