

Left Bundle Branch Block

Definition:

Conduction abnormality of the left ventricle, causing wide QRS complexes and ST changes mimicking STEMI.

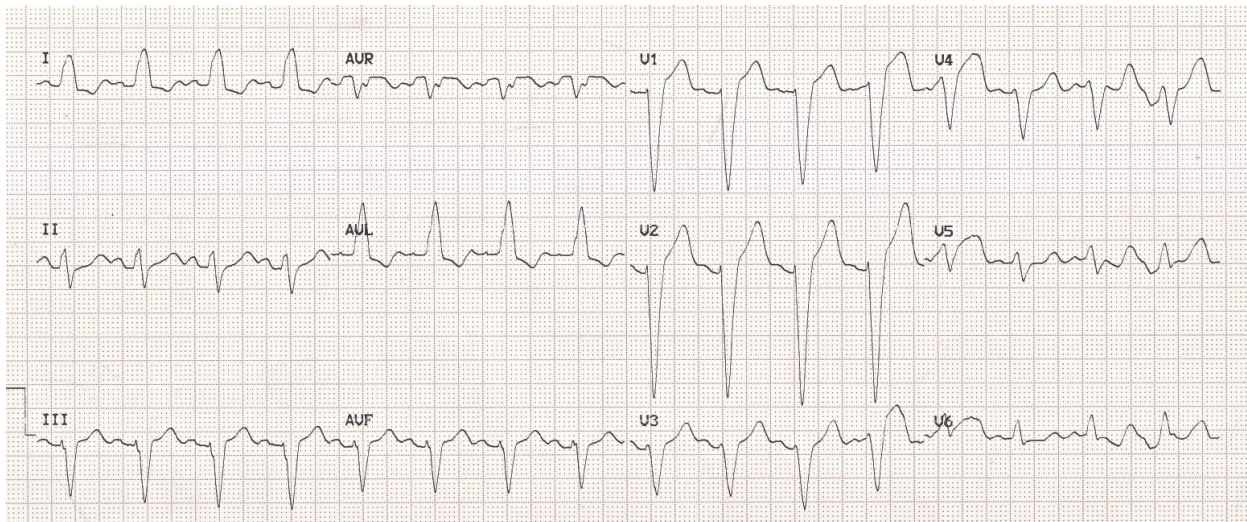
History/Physical Exam:

History of CAD, hypertension, previous MI.

Key 12-Lead Features:

- QRS > 120ms
- Prominent S (V1-3) / prominent R (V5/6, I/aVL)
- ST Elevation common in V1-4
- See [Sgarbossa Criteria](#) for Diagnosing MI in the presence of LBBB

12 Lead Sample



References

1. Da Costa D, et al. Bradycardias and atrioventricular conduction block. 2002. [\[Link\]](#)

Benign Early Repolarization

Definition:

Benign ECG pattern mimicking STEMI.

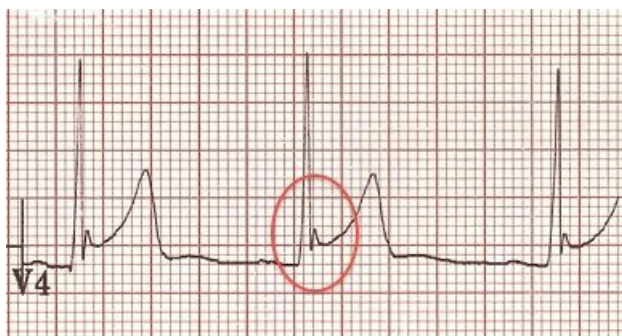
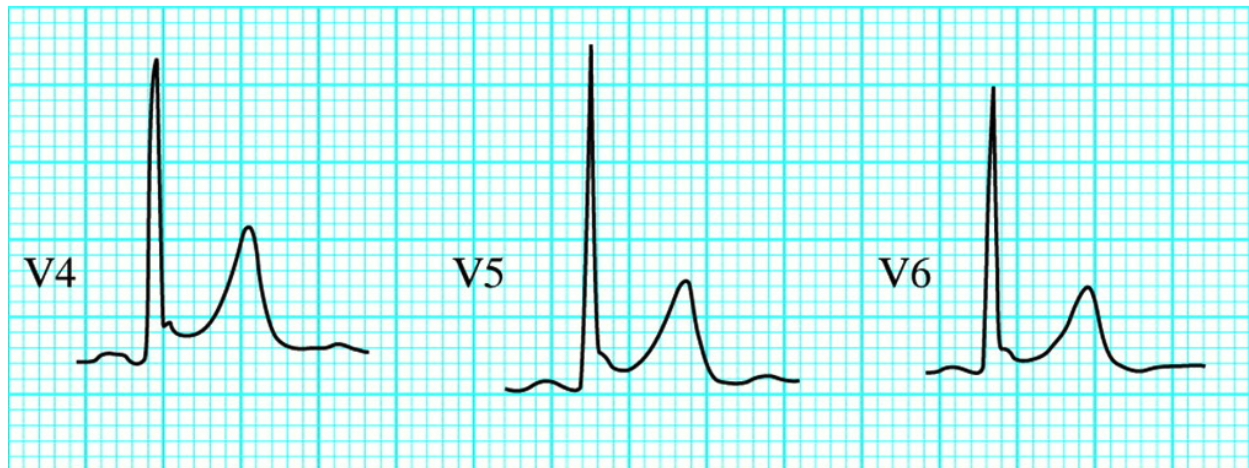
History/Physical Exam:

Often young healthy males. May be found with concurrent chest pain. Common < 50 y/o, rare > 70 y/o.

Key 12-Lead Features:

- Widespread concave ST elevation with J point elevation
- May have 'fish-hooked' Osborne wave
- No reciprocal ST depression to suggest STEMI (except in aVR)
- ST changes are relatively stable over time (no progression on serial ECG tracings)

12 Leads Samples



References

1. Edhouse J, et al. ABC of clinical electrocardiography: Acute myocardial infarction-Part II. 2002. [\[Link\]](#)
2. Haïssaguerre M, et al. Sudden cardiac arrest associated with early repolarization. 2008. [\[Link\]](#)

Pericarditis

Definition

Inflammation of the pericardium.

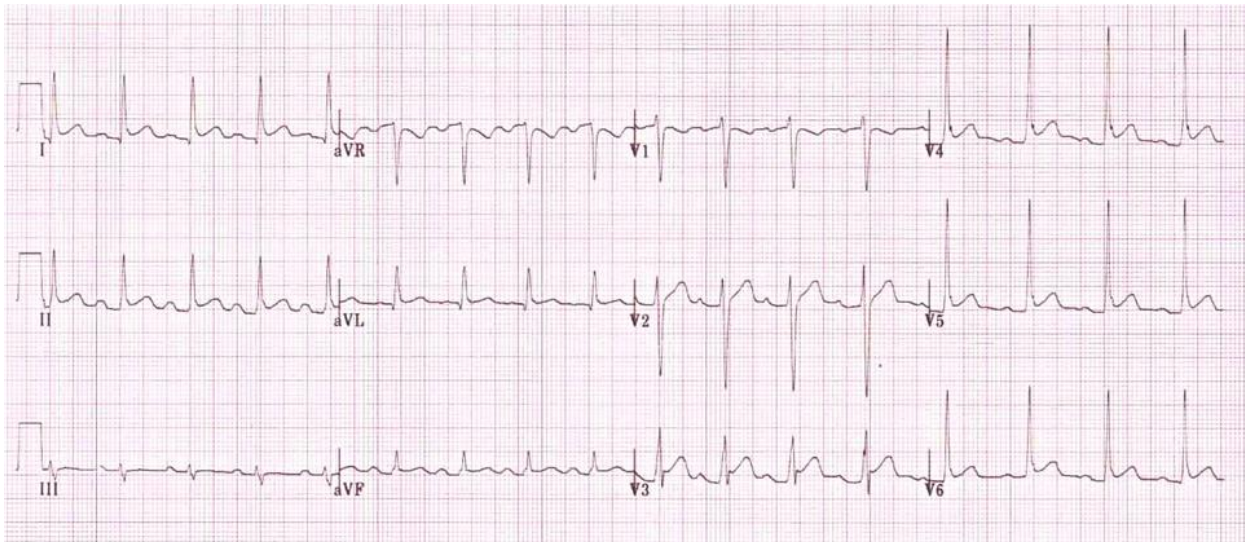
History/Physical Exam

- Recent MI or CABG surgery, recent infection, recent chest trauma, chronic immune suppression, HIV. Sharp, pleuritic sub-sternal pain worsening when supine.
- May have a pleural friction rub. May demonstrate Beck's triad - hypotension, muffled heart sounds, and JVD.

Key 12-Lead Features

- Widespread concave ST elevation and PR depression
- Reciprocal ST depression and PR elevation in lead aVR
- Measure baseline via TP Segment
- Sinus tachycardia is also common in acute pericarditis due to pain and/or pericardial effusion

Sample 12 Lead



References

1. Kinyasheva, N. Acute Pericarditis Within The Differential Diagnosis Of Chest Pain. 2017. [\[Link\]](#)

Left Ventricular Hypertrophy

Definition

Enlargement of the Left Ventricle of the heart, causing ECG changes that may mimic STEMI but which are generally benign.

History/Physical Exam

History may include hypertension, aortic stenosis, hypertrophic cardiomyopathy.

Key 12-Lead Features

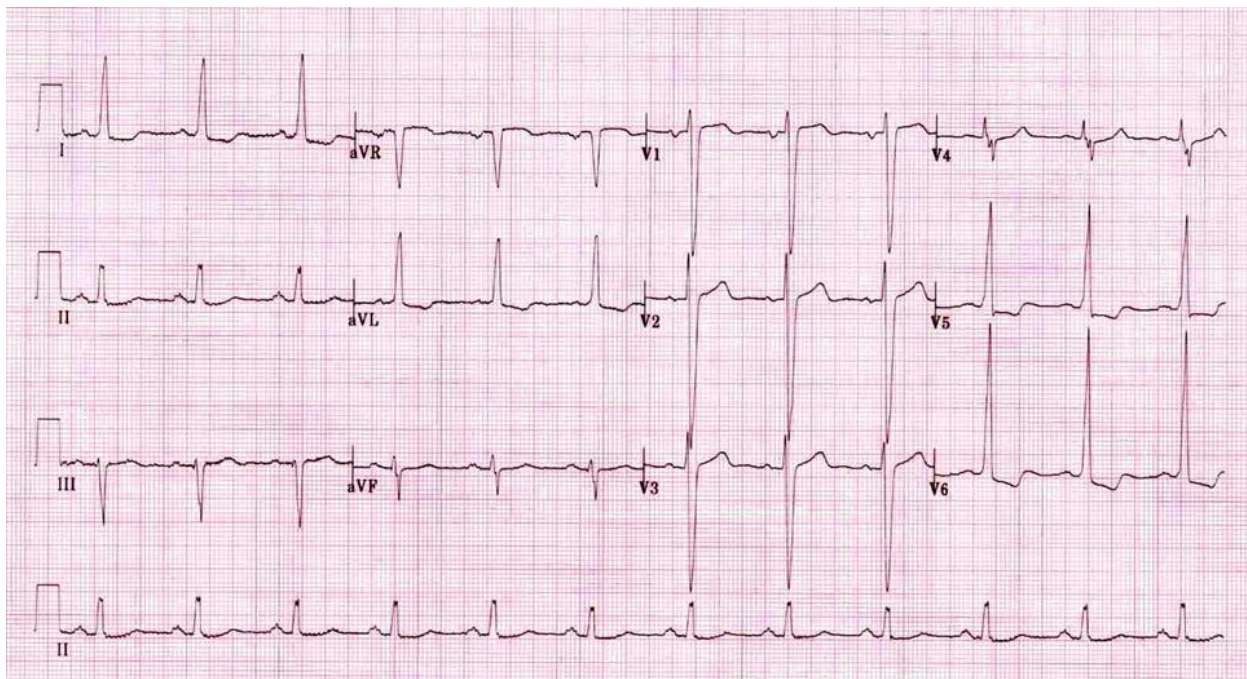
Presence of LVH

- $S(V1 \text{ or } V2) + R(V5 \text{ or } V6) > 35\text{mm}$

Strain Pattern

- ST Elevation V1-4
- ST Depression / Inverted T waves V5 and V6
- Generally proceeds from most elevated V1/2 to most depressed V6
- Consider utilizing LP15 measurements to help identify

12 Lead ECG Sample



[Further Reading](#)

Reference

1. Ogah OS, et al. Electrocardiographic left ventricular hypertrophy with strain pattern: Prevalence, mechanisms and prognostic implications. 2008. [[Link](#)]

